UNIVERSITY OF SOUTHAMPTON

FACULTY OF HEALTH SCIENCES

EXPLORING PERIOPERATIVE NURSING PRACTICE

by

Jon Robert McGarry RN DipHE BSc (Hons)

Thesis for the degree of Doctor of Clinical Practice

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ABSTRACT

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This qualitative study sought to examine perioperative nursing from the perspective of its practitioners. It was undertaken in two operating theatre sites within NHS Trusts in England. The study used the ethnographic approaches of non-participant observation and semi-structured interviews, with ten observation sessions totalling 85 hours undertaken and eight interviews conducted.

Thematic data analysis was undertaken supported by the NVivo qualitative data analysis software program. Two main themes emerged as being core components of perioperative nursing work. The first, 'Managing Momentum', related to the work that the nurses undertook to ensure that the operating lists went smoothly and progressed throughout the day. The second, 'Accounting for Safety', focussed on the need to ensure that patients were kept safe from harm at all points of their perioperative journey. Three different perioperative nursing roles were identified (anaesthetic, scrub and recovery nurses) and these different types of perioperative nurse undertook managing momentum and accounting for safety work, but each enacted them differently. There was tension between the two components of the work that these nurses had to resolve.

The study concludes that perioperative nursing is not a homogenous entity. Nonetheless, perioperative nursing centres on balancing momentum and risk. This insight provides a new understanding of this 'hidden' or backstage type of nursing practice. This work will inform perioperative nurses' understandings of their work, and can also feed into formal definitions of perioperative nursing, recruitment and professional development.

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DECLARATION OF AUTHORSHIP

I, Jon Robert McGarry, declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

Exploring perioperative practice.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before

Signed: Jon R McGarry

Date: 29th October 2015 (thesis amendments incorporated)

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Definitions and Abbreviations

AFC- Agenda For Change

AHP- Allied Health Professional

BP- Blood Pressure

CAQDAS- Computer Assisted Qualitative Data Analysis Software

CCG's- Clinical Commissioning Groups

DClinP- Doctorate in Clinical Practice

DOH- Department of Health

GP- General Practitioner

MM- Modern Matron

NHS- National Health Service

NIC- Nurse in Charge

NMC- Nursing and Midwifery Council

NPSA- National Patient Safety Agency

ODP- Operating Department Practitioner

TSSU- Theatre Sterile Services Unit

WHO- World Health Organisation

Chapter 1: Introduction

1.1 Introduction

The purpose of this chapter is to introduce the main topics that will be explored in this thesis, the role and work of perioperative nurses. Perioperative nurses execute different functions in their care of the patient at various stages of the perioperative journey and yet all contribute collectively to the successful conduct of one of the key healthcare interventions provided by the NHS.

1.2 Defining nursing

The definition of 'nursing' has long been debated and many theorists have attempted to summarise what it constitutes (Nightingale, 1860; Henderson, 1966). The precursor to the current professional regulatory body for nursing and midwifery in the United Kingdom (UK) maintained that a definition of nursing would be over-restrictive (United Kingdom Central Council for Nursing, Midwifery and Health Visiting, 1999), a view maintained by its successor organisation, the Nursing and Midwifery Council (NMC). In 2003 the Royal College of Nursing (RCN) released a document that defined nursing as:

> 'The use of clinical judgment in the provision of care to enable people to improve, maintain, or recover health, to cope with health problems, and to achieve the best possible quality of life, whatever their disease or disability, until death.' (RCN, 2003; pg 3)

Another definition was provided by the International Council of Nurses (ICN) in 2010:

> 'Nursing encompasses autonomous and collaborative care of individuals of all ages, families, groups and communities, sick or well and in all settings. Nursing includes the promotion of health, prevention of illness, and the care of ill, disabled and dying people.

> Advocacy, promotion of a safe environment, research, participation in shaping health policy and in patient and health systems management, and education are also key nursing roles.' (ICN, 2010)

The ICN definition is clearly much broader in scope, encompassing activities that go beyond the care of patients in a physical sense, reaching instead into areas that are arguably not often associated with nursing such as research and policy formation. There is a degree of overlap in terms of the word 'care' but much wider separation on other ideas.

In order for a person to practice as a Registered Nurse (RN) in the UK, they must be registered with the NMC, having completed a period of University and practice-based training leading to the award of either a diploma or degree leading to NMC registration. Upon qualifying, RN's have a huge and diverse range of career options and can be found throughout the NHS and private healthcare sector. Many specialise in certain areas such as emergency nursing, cancer nursing, perioperative nursing and management positions. Within a specialism the RN will often undertake further specific training relevant to their current role.

Nursing can, therefore, be seen as a profession that has a wide-ranging scope of practice underpinned by a basic qualification, admission to a professional body and adherence to a code of ethics, (Abbott, 1988). Taking the RCN definition and relating it to a specialist field such as perioperative nursing does not effectively reveal the nature of what nursing in this area constitutes. This thesis seeks to explore this in more depth. For the purposes of this research the term 'nurse' will be understood to mean a person who has completed the necessary training to register with the NMC.

1.3 What is perioperative nursing?

'Operating theatre' (or even just the generic word 'theatre') is a term that can refer to the physical room in which surgery takes place; used as a collective

noun for a group of such rooms or refer to the whole area of a hospital dedicated to the provision of surgery. Surgery is a very complex event for both patients and the healthcare professionals who perform it. Some 40,000 nurses are employed across the UK to assist with over 10 million surgical procedures a year across a wide variety of specialities in England alone (NHS Information Centre, 2013). Nurses assist surgeons performing surgery and the anaesthetist while the patient is anaesthetised. Others work in the post-anaesthetic area, ensuring that patients are sufficiently recovered, alert, comfortable and safe to return to the ward. These three types of perioperative nurse are delineated as scrub, anaesthetic and recovery nurses respectively.

Perioperative nursing can be defined as the nursing activities, role and relationships peculiar to the operating theatre, in both its physical and metaphorical contexts. This is suggested in the following quote from Shields and Watson (2007):

> 'A perioperative nurse assumes responsibility for patients once they enter the theatre suite, check the right person is having the right procedure; ensure potential hazards are documented; ensure the site is prepared and, most importantly, discuss the operation with the patient and family to ascertain any anxiety about the surgery. Perioperative nurses liaise with anaesthetists, and prepare for positioning on the table, placement of machines, trolleys and tables to maximise comfort for the patient and ease of access for the surgeon and anaesthetist. Liaison with recovery staff begins when the patient enters the suite; they support the family and advise them of progress of the operation. In recovery, the perioperative nurse makes sure that patients are breathing effectively, is conscious, warm, pain free and with an intact wound before discharging them to the ward.' (Shields and Watson, 2007 pg 71)

Perioperative nurses undergo three years of nurse training and then specialise in theatre nursing afterwards. Some come straight to theatres after qualification and others like myself after having worked in a different area. Their training will typically include local competency achievement that is allied with a University course for academic credit. A number may have undertaken specific courses run by a local University.

Perioperative nurses have a wide variety of skills and work with many different people in the surgical team and on the wards to make sure the patient is safe and that their surgical journey goes as smoothly as possible. This research project seeks to explore what perioperative nurses think about their job and observe them while they work. A clearer understanding and description of perioperative nursing will help move us towards a new conceptualisation of this type of nursing that will inform future development needs and strategy by better understanding what the contribution of perioperative nursing is. Tanner and Timmons, 2000) show that operating departments are an area where nurses, doctors and other members of the theatre team work together in ways that are different to those in other areas of the hospital. However, there is a paucity of nursing-specific research in this area (Mitchell and Flin, 2008; Mitchell at el, 2011). The public has very little access to the theatre area and indeed many other health professionals often have little idea of what occurs behind the doors of the theatre.

1.4 The perioperative workforce

Within the theatres are a wide variety of staff. Many of the non-medical staff are based permanently within the theatre complex, while the medical practitioners are often found to be in other places such as clinics or wards within the hospital.

Non-medical staff include the nurses as outlined in Section 1.3 and other health professionals. Most numerous of these are the Operating Department

Practitioners (ODPs). These Allied Health Professionals (AHPs) are described by the NHS Careers website in the following way:

> "ODPs provide high standards of patient care and skilled support, alongside medical and nursing colleagues during peri-operative care. The ODPs role involves the application of theory to practice in a variety of clinical settings. They need a broad knowledge and skills base, including management and communication skills, and will be involved with the assessment, delivery and evaluation of peri-operative care." (NHS Careers, 2015)

It is interesting to compare this description with that of Shields and Watson (2007) in section 1.3 of this chapter. This definition stresses the assessment, delivery and evaluation of care. These activities have traditionally been employed in nursing as part of what is recognisable as the Nursing Process (developed by Orlando in 1958). It consists of assessment, planning, implementation and evaluation and it is interesting to note that none of the nursing definitions relate much to these ideas. This may be because nurse training has frequently embedded these ideas in care delivery to a point where they may be understood as a fundamental given of the profession. Historically, ODPs evolved from orderlies and theatre attendants in the 1950s to achieving full professional and legal recognition as a new AHP in 2004. Their training moved from an NVQ level qualification to a two year-long Diploma in Operating Theatre Practice run by Universities. Their training has now progressed to a three year degree programme in line with the other health professions and will shortly make it a graduate entry profession. This development freed ODPs from their previous subservience to nurses (based upon their non-registered status) and allowed them to begin developing careers and leadership potential independent of nurses (Reid and Catchpole, 2011). Currently they perform roles that are identical to those of nurses but there has been tension between the two groups in the past (Timmons and Tanner, 2004). However, these tensions are less common now due to ODPs and nurses having the same job opportunities and career prospects (Reid and

Catchpole, 2011). It is worthy of note that many theatre departments are now headed by ODPs, often titled Principal ODP.

Other staff include Healthcare Assistants (HCAs) who are non-registered personnel who help with various tasks such as collecting and moving equipment, re-assuring patients in the anaesthetic room and cleaning the various theatres between cases. Nurses and ODPs will typically direct the activities of these colleagues.

Most theatres employ a number of porters who assist with collecting patients, pushing trolleys and dealing with the disposal of clinical waste. They tend to work more with nurses based in Recovery as they will push the bed while the nurse escorts the patient to and from the ward.

There are also visiting staff such as radiographers who will use the x-ray equipment and occasionally doctors from other specialities such as gastroenterology will visit the theatre.

1.5 The researchers personal context and motivation

Having spent over thirteen years in perioperative practice I have increasingly come to appreciate that theatre nursing is very complex. Despite being an experienced Accident and Emergency nurse when I began working in theatres, I swiftly realised that this area was unique in the way that I interacted with doctors and other staff, the range of different roles and the nature of how the patient 'drops in and out' of active participation. Over time my interest in these perioperative nursing roles, combined with further study, led me to consider that this uniqueness represented fertile ground for my research. I was particularly keen to understand the work and role of perioperative nurses. On commencing the literature search I was surprised that there exists so little primary research from the perspective of perioperative nurses themselves. Now, in my role as a senior nurse, I find a better understanding of perioperative nursing is of particular importance as we face increasing workloads and rising expectations about how we perform it. I perceive a difficulty articulating precisely what such nursing is (in common with much of nursing generally) and sense that this may make perioperative nurses less able

to participate in decisions about their work and workforce configuration, or in setting the future agenda.

The location of theatre nursing as a 'behind closed doors' activity means that it is especially poorly understood by both other nursing colleagues and the wider public. I believe that professionally, a more informed understanding of perioperative nursing that de-mystifies the work and the role may help to recognise perioperative nurses as skilled practitioners and increase the influence of the perioperative nursing voice.

1.6 Practitioners in the perioperative environment

According to the NHS Careers website, there are certain characteristics that can be assigned to each type of nurse in the theatre team. These are presented in Table 1:

	Key characteristics
Anaesthetic phase	Assist the patient prior to surgery and provide holistic care Need to communicate and work effectively within a team Use many clinical skills such as the preparation of a wide range of specialist equipment and drugs. This includes anaesthetic machines, intravenous equipment and devices to safely secure the patients airway during anaesthesia Act as an assistant to the anaesthetist.
Surgical phase	Theatre nurses will participate, as part of the operating team, in a number of roles including the 'scrubbed' role, application of aseptic technique (work carried out under sterile conditions), wound management and infection control. During this phase theatre nurses will: • wear a sterile gown, mask and gloves, and prepare all the necessary instruments and equipment for the procedure. This may involve complex machinery including microscopes, lasers and endoscopes

	Key characteristics
	• work alongside the surgeon, providing instruments, needles, swabs and other materials as required, and be able to anticipate their requirements • have a role in the promotion of health and safety and be responsible for ensuring that surgical instruments, equipment and swabs are all accounted for throughout the surgical procedure • sometimes undertake the 'circulating practitioner' role, using communication and management skills, preparing the environment and equipment needed for the particular operating theatre list, assisting the scrub nurse and acting as the link between the surgical team and other parts of the theatre and hospital.
Recovery phase	During this phase, theatre nurses will: • receive, assess and deliver care on the patient's arrival into the post anaesthetic care unit • monitor the patient's health and support them, providing appropriate care and treatment until the patient has recovered from the effects of the anaesthesia and/or surgery and is stable • assess the patient in order to ensure they can be discharged back to a surgical ward area • evaluate the care given during the perioperative phases (anaesthetics, surgery, recovery).
Other roles and opportunities	In addition to the work done during these phases, theatre nurses may be involved in: • liaising with wards where patients are awaiting their operation/procedure • inputting information about each surgical procedure/operation on to a computer system • taking phone messages • completing paperwork • ordering supplies of equipment • liaising with the hospital's Sterile Services Department to ensure that equipment has been returned once re-sterilised and re-packaged.

	Key characteristics
Skills	As well as the general skills needed for nursing, theatre nurses require: • the competence to work in a highly technical area • an ability to pay great attention to detail and to concentrate for lengthy periods of time • the ability to work effectively within a multidisciplinary team • very good interpersonal skills • physically able to adapt to the environment including the potential to stand for long periods as well as react in an emergency within a confined area.

Table 1 Theatre roles and characteristics as defined by the NHS Careers website (2013)

Table 1 summarises how the NHS as an organisation sees perioperative nursing. The use of these descriptions for recruitment literature is significant because it articulates what perioperative nurses can expect to do within their working day and the skills associated with their work. Certain words such as 'team', 'equipment' and 'communicate' stand out, as features of practice that I recognise and understand. While this is the 'official' description of what perioperative nurses do, I do not know whether other nurses in the theatre agree or recognise themselves in this taxonomy. Of especial interest to me is the phrase under the skills category "As well as *general nursing* skills..." (added emphasis), since this implies that there are additional skills that perioperative nurses require over and above those of 'general' nurses. My research aimed to uncover what this specialist perioperative work entails and also to understand these nurses' own views of this unique area of practice.

1.7 Nurses and ODPs- refining the project

Having noted some of the overlapping roles and similarities of nurses and ODPs it is now necessary to explore the decision making behind my choice to focus solely on nurses for this thesis. There were three reasons for this described below but it is worth pointing out I see ODPs as professional equals. There is some tension over professional boundaries noted in the literature (Timmons and Tanner, 2004) and I did not want to be drawn into a study of segmentation and professional relations, rather I wanted to focus on understanding the work of the nurse in theatres.

The first reason was that ODPs are a relatively new profession having achieved formal recognition and entry to professionally registered status in 2004. The title ODP is unique to the UK and is known as a 'surgical technician' in the US and as 'anaesthesia technicians' elsewhere in the world. I was unable to locate any information about the practical and legal status of ODPs in Europe. I wanted to understand the more established profession of nursing but to focus on the perioperative role.

Secondly, there was little research about ODPs in their own right, mirroring that of perioperative nurses. While this is a compelling reason to conduct research about them it makes it a daunting task for the novice researcher. My initial literature searches found little material outside of journals such as *Journal of Operating Department Practitioners* which is currently on its third volume in August 2015. Given that the research was commenced in 2007 this scarcity made it very difficult for me to see how I might include ODPs in my study.

Finally, the professional element of the DClinP programme was such that I felt it was important to explore my own profession of nursing before tackling a new area. I felt that my background and training gave me insights which would be useful for the research but was aware that I would inevitably see practice from a nursing perspective. I felt that it was overambitious to have

included ODPs in a project being undertaken by an inexperienced doctoral researcher and after discussing with my supervisory team we agreed that my focus should be on perioperative nurses.

Having considered these reasons it was nevertheless my hope that by studying perioperative nurses themselves, my findings would also be relevant and appropriate to ODPs. The research implications of this choice and its overall effect on the study are more fully elaborated on in Chapter 7.

1.8 Research question, aims and objectives

The aim of the project was to observe perioperative practice and explore how nurses understand perioperative nursing. The research question flows from my previously stated motivation to better understand this type of nursing in which I have been engaged for most of my career. My question is therefore:

What is the role of the nurse in the perioperative environment?

In order to answer this question I pursued the following objectives:

- directly observe perioperative practice to provide a detailed description of perioperative nursing.
- explore how perioperative nurses perceive their role by conducting semi-structured interviews.
- reflect on my own practice to see what new insights can be gained

Having set the scene in terms of my own personal motivation for this project and the context in which it takes place, it is now necessary to turn to the existing research. An examination of what the current literature reveals about

perioperative nursing and what it is will further shape the direction of the research. The following chapter presents the literature review undertaken.

Chapter 2: Literature review

2.1 Introduction

Literature reviews serve to enable researchers and practitioners to examine their field of interest. Parahoo (1997) states that it highlights the knowledge in a given area, shows where the gaps in knowledge are located and also justifies why a researcher may undertake a further study. There are large numbers of review methods and accompanying rationales used for such purposes as answering evidence based practice questions to policy formation. The skills required to locate such evidence from the available literature are complex as are the associated terminologies (Grant and Booth, 2009). What I required was a method that would enable an overview of available research and identification of gaps in that evidence base amenable to further study: two features of a scoping review (Arksey and O'Malley, 2005). Arksey and O'Malley (2005) developed a six-stage process that enables such a review to take place:

1. Identifying the research question
2. Identifying relevant studies
3. Study selection
4. Charting the data
5. Collating, summarising and reporting results
6. Consultation (optional)

The key advantages of this approach, according to the authors', is that it provides a relatively rapid ability to illustrate the current field of research, identify gaps in the literature and to present these in an accessible format. A potential disadvantage is that the quality of the research is not directly assessed, leading to the possibility of a large amount of poor quality research

being potentially included. They caution that such a review is not easy but requires a degree of skill to avoid the risk of a poor quality review.

Applying the first five of the stages described above (the sixth was omitted as it was beyond the scope of my research project to undertake consultations on the findings) led to a literature search that incorporated the term 'perioperative nursing' across a range of databases. It was necessary to modify my approach to the first stage in that my research question was not fully developed, and so it was anticipated that deductive themes would emerge that would enable a better focus for additional searches.

2.2 Search strategy

The initial literature review began with a search across a number of electronic databases using the OVID platform in early 2008. The British Nursing Index (BNI), Cumulative Indices for Nursing and Allied Health Literature (CINAHL®), and MEDLINE® databases were searched simultaneously. The term 'perioperative nursing' was combined with all related subsets and the articles were limited to full text, for the years 1997-2007. This was done to enable relevant and up-to-date articles to be located that it was hoped would reflect current thinking in this area of practice and this literature informed the question development, design and was incorporated into the upgrade thesis. Added to this was the term 'operating theatre/room' and all related subsets in recognition of differing nomenclature, particularly in non-UK settings. A further search of the ISI Web of Knowledge database using the same criteria as the OVID search was conducted. The terms 'perioperative care' and 'nursing' (with all related subsets) were combined with the Boolean AND operator resulting in 1,123 hits. The term 'operating room nursing' and all related subsets was also searched in recognition of differing nomenclature, particularly in non-UK settings, yielding 191 hits.

The following inclusion criteria were applied to sift the literature:

- Perioperative nursing or practice focus
- Original research articles
- Systematic reviews
- Articles seeking the specific views of perioperative nurses related to issues of their practice
- Articles considering the nature of the perioperative role/environment or relationships

The following exclusion criteria were applied:

- Patient-specific factors such as co-morbidity and positioning
- Perioperative care for specific conditions
- Non English Language articles
- Articles tangentially related to perioperative nursing such as pre-assessment for theatre, fasting etc.

Other literature (3 articles) was obtained by secondary reference searching and expanding the search for particular authors' work. As I became more familiar with the literature it was possible to select or discard articles for inclusion on

what Arksey and O'Malley (2005) identify as a 'post hoc' basis. A final selection of articles was made on the basis of their relevance to perioperative nursing practice using the criteria above.

After analysis and discussion with supervisors, 41 articles were selected for review and are presented chronologically in Appendix A.

2.3 Commentary on the literature: emerging themes

The papers reviewed represent different national perspectives and a range of research influences and methodological approaches. This is noticeable in the geographical breakdown of the papers with the majority of articles originating from the Scandinavian countries with the UK representing about a third of the available literature. Reasons for this are difficult to elaborate upon with certainty but appear to reflect differing research priorities in each country. The different journals in which this literature appears may also contribute to this diversity. Within the UK there are two journals dedicated to perioperative practice with one (The Journal of Perioperative Practice) being multidisciplinary. The second, the Journal of Operating Department Practitioners, was launched in October 2013. This may represent ODPs 'coming of age' as a profession given their comparatively recent entrance to the other Allied Health Professions. Many of the articles are by a number of the same authors; this suggests that perioperative practice may be the preserve of a few highly specialised researchers with specific interests in this field, at least in the European area.

2.3.1 Defining perioperative practice

The definition of perioperative practice is patchy at best (McGarvey et al 2000; 2004; Mitchell and Flin 2008; Mitchell et al, 2011) and the literature reviewed suggested that theatre nursing practice lacks a theoretical basis. Leinonen and Leino-Kilpi (1999) strengthened the perception of perioperative nursing as a role that lacks definition, highlighting that research into the role is itself of mixed quality with much of the literature dedicated to the post-operative phase. They also noted that when research into theatre practice was conducted, it often concentrated on areas of practice in an unequal manner. McGarvey et al (2000) suggested that a lack of definition and consequent understanding are actually stressors for nurses and I will return to this discussion presently. Before exploring this point, the next sections describe a

number of phenomena that were discussed in the literature that related to the nurses experiences of themselves and their motivations.

2.3.2 Care

Rudolffsson et al (2007, pg 909) argued that internal to the individual nurse working in theatre was the implicit and shared notion of 'care as vow'. This is manifested as a 'solemn promise...not to abandon the patient', they maintain that the vow makes present and visible the notion of care within the theatre area arising from the unique vulnerability of the patient during surgery. The nurse is required and indeed expected (implicitly by both parties) to be with the patient throughout the procedure. This gives rise to the notion of nursing care being valued within theatre because it is continuous. Patients perceived their care as being made to feel 'special' and 'safe' with the nurse perceiving care as a type of continuity (Lindwall et al, 2003). Interestingly, Fox (1997) cites the work of Laufman (1990) who explained the necessity of sterility as a crucial part of a 'covenant' between the staff and patient. Keeping the area clean/sterile can be seen as part of this activity of making the patient safe.

Lindwall and von Post (2009) looked at the 'perioperative dialogue' as both a means and potential model for what perioperative nursing should be. They identified that there was mutuality to the nurse/patient relationship, with the patient needing dignity and the nurses' professional knowledge in order to feel cared for. Between them, each party was able to develop a relationship in which needs could be met. The nurse needed the patient's story in order to plan their care and this helped establish the caring relationship.

Lea and Watson (1999) examined the perception of caring and related it to the clinical area. They discovered significant differences in the technical and professional perception of care related to medical and surgical nursing, namely that surgical nurses equated care with more technical activities. This observation revealed two major themes relating to care perception, described as psychosocial and professional-technical. The psychosocial aspect related to

'giving of oneself' and mirrors internal values of the vocational aspect of nursing, as well as to ethical and moral aspects of practice.

Torjuul et al (2007) discussed a number of ideas related to the ethical dimensions constituting care in the theatre. They argued that theatre nurses ethical reasoning was informed by their moral perception, with the resulting responsibility and identity leading to a centralised ideal of compassion and commitment. However, the pressures of living up to this ideal in a particular way for a particular patient, as opposed to a more generic knowledge of suffering, was stressful and required personal strength. Contrastingly, such pressures can also be a source of knowledge. Von Post and Eriksson (1999) identified that nurses in perioperative settings (and indeed all settings) are frequently aware of suffering on both a physical and ontological level and act to relieve this suffering. This can be a satisfying but the ethical and moral dimensions of care are not without their hindrances. Killen (2002) noted that when nurses in the theatre setting identified and attempted to address moral issues in their practice, they were sometimes prevented from doing so by the system within which they work. The constraints were varied and came from systems of work (such as pressure to keep lists moving smoothly) and a lack of education regarding ethical decision-making, despite the theatres being an area in which such decisions are not uncommon.

Mackintosh (2007) examined factors that motivated theatre nurses to work in this area and discovered that theatres represent an area where it is possible to 'make people better'. This ability was highly valued by the nurses questioned who also expressed a reluctance to move to an area of nursing practice where chronic illnesses prevailed. Allied to the ability to make rapid improvements to a patient's condition, was the fast pace and rapid turnover of the theatre.

2.3.3 Role of the nurses in the care setting

The role of the perioperative nurse includes specific and often specialist activities linked to the operative environment. The different decision-making techniques of nurses in a variety of settings were examined by Lauri and Salentera (1998) who identified that in critical care particularly, nurses need to make decisions quickly based upon knowledge and experience. The technical aspects of caring were shown to be related to task provision, a feature of surgical and theatre practice that are recognisably central to 'care of the patient'. Clark-Burg (2008) described an undergraduate nursing program that incorporated an eight-week Perioperative Nursing Care module that was designed to give students the confidence to enter the theatre with a sound basic knowledge. Much of this, not unsurprisingly, was based around technical skills but was shown to increase the confidence of students and in some cases help them realise that such a career would be for them. However, not all of the work is technical. Mitchell and Flin (2008) and Mitchell et al (2011) discovered that scrub nurses particularly developed skills relating to situational awareness and other 'non-technical' skills that were essential to their role. Echoing Meretoja et al (2004), anticipating the surgeon requires the use of skills that must be developed, with stress-management, communication and teamwork being central to the role of experienced scrub nurses.

Bjorn and Lindberg-Bostrom (2008) examined what theatre nurses perceived their role to be. They identified that perioperative nurses have 3 core understandings of their role. Again, not all of these aspects involved technical skills. Anticipating the needs of the surgeon, having equipment ready and utilising time efficiently were described as achieving 'control of the situation' (a finding discussed by Mertoja et al, 2004). Secondly, 'good teamwork' was understood as being attentive to the wider spoken and unspoken needs of the people in theatre. Caring was related to this aspect as it was in this domain of understanding that their relationship with the patient was begun and maintained. Finally, they saw 'professional development' as acquiring skills and knowledge, although this was not related to the traditional methods of such development such as formal education. Rather, it was seen as a 'learning

by doing' approach that recognised the need to blend traditional nursing skills with increased and changing technological advances.

Schrieber and MacDonald (2010) explored the role of the nurse anaesthetist, which in the UK exists as 'physicians assistants in anaesthesia' or 'advanced anaesthesia practitioners'. This role has only recently begun to develop and while the article was written from an American/Canadian perspective, offers insights that are relevant to this study. Central to their argument is that while outwardly a 'physician' role, practitioners assert it remains 'nursing' by means of what is described as 'keeping vigil over the patient'. This vigil consists of four components:

> Engaging with the patient: building an intimate and trusting atmosphere and defending them from the 'hostile' theatre environment, 'Keeping in touch' with them, that is providing physical reassurance and 'engaging spiritually', recognising and treating the patient as a spiritual being.

> Finessing the human-technology interface: the technical aspects of the role involving machines, drugs and monitoring the patient's vital signs. They understood this as 'doing for the patient what the patient could not do for themselves', echoing both Henderson's (1966) definition of nursing as well as Bjorn and Lindberg Bostrom's (2008) understanding of being in situational control as a part of the perioperative nursing role. This was situational control and was also noted by Meretoja et al, (2004).

> Massaging the message: deploying sophisticated communication skills to establish team working, managing disagreements and communication that was apparently addressed to one person but was in reality meant for another individual (discussed by Hindmarsh and et al, 2002).

Foregrounding nursing: the foundation of the previous three categories, this refers to the inherent and strong belief that the nurse anaesthetist is and remains, a nurse. This was done to differentiate themselves from physicians and yet remain true to their training and identity as nurses.

Timmons and Tanner (2005) explained the work of the nurse from the perspective of 'emotional labour' and this contains some similar elements to Schrieber and MacDonald's vigil idea. They suggested that the role of the theatre nurse has moved away from being the doctor's handmaiden to one of being a hostess- a person who makes everything flow smoothly, as at a large social gathering. Concurrent with this move was the necessity to learn the individual surgeon's preferences and foibles in order to prevent him becoming upset or angry, quite literally 'keeping them happy'. In articles that discuss hierarchical power and relationships, the handmaiden role is recognised (McGarvey et al, 2004; Higgins and MacIntosh, 2010). This also relates to situational control (Mertoja et al, 2004; Bjorn and Lindberg Bostrom, 2008). Nurses needing to do this as well as maintain a convivial atmosphere in the theatre have to perform emotional labour to do so, complying with what is expected of them. The emotional labour here may well also be linked to the idea of competence discussed previously. The ability to exercise the knowledge and skills and their perceived possession (or not) by an individual, requires a great deal of effort on the part of the nurse.

Tanner and Timmons (2000) looked at how the environment of theatre was related to the hostess role utilising Erving Goffman's theories of 'backstage' behaviour and how these can manifest in relationships between surgeons and nurses. Goffman's work was highly appropriate to the design of the theatres since he suggests ideas about how the environment and the people within it interact. By designating the theatre as a 'backstage' area he posits the idea that the performers behave differently towards each other than if they were in the more visible area of a ward. Goffman (1959) noted that people in such

areas were often more relaxed when backstage and that the normal rules of frontstage behaviour were suspended. Timmons and Tanner (2004), largely concurred with Goffman's analysis, but argued that issues of power and hierarchy still existed. These, they argue, represent fundamental phenomena that must be taken into account. Riley and Manias (2005) extend this debate by examining the nature of the theatrical performance, again referring to Goffman's dramaturgy. They suggest that nurses must 'learn the lines and the script' by anticipating surgeon's preferences (sometimes with literal scripts in the form of heavily annotated surgeons preferences located in files) and that the 'drama' associated with a theatrical performance is also enacted in the operating theatre, with the surgeon as the star performer. They argue for nurses that 'the show must go on' with an equal determination to the use of that phrase in the theatrical world. This entails carrying on regardless of displays of superiority from surgeons, utilising silence as a way of expressing control or defensiveness and coping with changes from front and backstage behaviour. Finally, they argue that the way these factors interrelate form a social world in which a competent perioperative nursing must be able to distinguish roles and their presentation.

Roles in theatre are sometimes disputed between professional groups. Timmons and Tanner (2004) discovered that theatre nurses use a variety of techniques (use of space, 'atrocity stories' and lack of professional recognition) to preserve their uniqueness. Fearing the encroachment of ODPs into their area, this heralds the theme of power and its use in the theatre, a recurrent theme that will examined presently.

Goodwin et al (2005) maintained that roles are delineated and are not easily 'stepped out of'. When such a step is necessary it is often done so by needing to convince a more powerful professional to act upon a nursing concern. Citing the example a of a recovery nurse being concerned about possible post-operative haemorrhage, the nurse must engage a medical professional to initiate action. When nurses themselves appear to step out of a perceived nursing role (such as the nurse anaesthetists researched by Schreiber and

MacDonald, 2010) they utilise certain strategies to retain their nursing identity, suggesting that this is a treasured part of their professional self-concept. Against these two views of nursing as very bounded roles, Gillespie and Pearson (2013), maintain that the actual difference between the two professions may not be that great, although nurses rated themselves more highly in the demonstration of empathy. This might be indicative of their training emphasising 'care' as discussed earlier in section 2.3.2.

2.3.4 Power

The possession of power and its exercise formed another theme from the literature. Power was explored by Yamaguchi (2004). In Italy surgeons were reported to hold a complete monopoly over power and authority (Yamaguchi 2004). This led to a great deal of resentment from the nurses but interestingly they still believed passionately in nursing as a profession. Again, the relationship between the two was strongly gendered in nature. Drawing parallels between the nursing/medical relationship with priests and nuns in the Catholic Church, women in the church are frequently seen as subordinate to an exclusively male hierarchy. Italian theatre nurses felt conflicted between surgeons demanding they adopt subservient roles and a professional culture that was both newly emergent and required critical thought and autonomy.

McGarvey et al's (2004) article explored how the context of the theatre as a practice environment enabled the use (and abuse) of power by both nurses and surgeons. Nurses themselves used negative reinforcement to cajole others, with senior sisters behaving critically in regard to errors or perceived lack of competence towards junior nurses. Some medical staff were rude and belittling to nurses, a manifestation of the medical dominance in theatre practice. The nurses themselves did not have a concrete understanding of their role and this led to tensions about what they were there for and the aims their care tried to achieve. All of this fed into the stress of the role as experienced by nurses, who were often conflicted about trying to care for the patient and perform their role.

Higgins and MacIntosh (2010) examined the effects of the abusive behaviours committed by surgeons. Overt aggression manifested as swearing at, belittling and on occasion even kicking or pushing nurses was reported. These behaviours were catalysed by the fact that the theatre is a closeted and secluded area. There was a perception of powerlessness reported by nurses who felt that surgeons viewed them as legitimate targets to vent their frustrations upon, regardless of whether or not the nurse was responsible for or able to influence these. Again, the dominance of the medical hierarchy was explored as being a mechanism by which it was seen as almost permissible for the enactment of these abuses.

Perioperative nurses are not without power though. Riley and Manias' (2002) Foucauldian analysis made a potent observation of how the whiteboard in theatre functions as a panopticon (following Jeremy Bentham's famous principle of an 'invisible omniscience') enabling one nurse to monitor and control all of the activities throughout the department. The notion of the swab and instrument count serving as a disciplinary technique (McGarvey et al, 2004; Richardson-Tench, 2008) as well as a safety feature was advanced, with nursing procedures being used to coerce desired behaviours from doctors (Riley and Manias, 2002). Although doctors have much power, nurses too have a great deal of power but this is predominantly exercised over their colleagues and is of limited use in directing surgeons.

The use of time as a means of enacting power was noted by Riley and Manias (2006). They argue that surgeons and nurses experience and utilise temporal factors differently. Surgeons see the schedule and progress of the list as theirs to amend at will, while nurses see this as a task to be achieved. Nurses rapidly identify fast and slow surgeons and use this knowledge to make certain decisions, such as whether to scrub for a 'slow' surgeon who may render them late off duty. Nurses also use time, in conjunction with mandated activities such as the swab count, to delay surgeons and exercise a degree of control over them.

One interesting article that contradicts the narrative of the powerless nurse arose from Richardson-Tench (2008). The prestige of being able to anticipate and function competently was a source of elitism. To be the 'number one' assistant to a particular surgeon was a coveted status by scrub nurses. However, in order to do this Richardson-Tench argues that it necessitates them becoming secondary to surgeons in order to 'bask in reflected glory'. It is suggested that this is an undesirable outcome since it is the product of a medical discourse that shapes the nurse (and by extension perioperative nursing), not an autonomous and professional self-concept. Allied to professional development was the notion of competence. Gillespie and Hamlin (2009) argued that the literature suggests that competence is linked to both the specialist knowledge (Bjorn and Lindberg-Bostrom, 2008) and human factors such as teamwork (Undre et al, 2006) that perioperative nurses must master. Competence was also noted to be a key factor in Rydenfalt et al's (2012) article, which examined the difference in activity orientation and communication. Crucially they found that trust in colleagues was linked to their perceived competence, with perioperative nurses frequently seeking this from surgeons, a finding that Richardson-Tench (2008) contends is undesirable. McGarvey et al (2004) noted that withholding this competence by senior nurses and surgeons was also a manifestation of power relationships within the theatre.

Gardezi et al (2009) examined the use of communication and silence in the theatre. Noting that nurses often evade directly communication with surgeons, they observed nurses frequently having whispered conversations with one another to avoid causing upset to the surgeons or revealing their own lack of knowledge. Nurses used silence as a defensive strategy when confronted with surgeons whose behaviours were aggressive or domineering. The use of front and back stage dramaturgical devices such as whispering to colleagues also reflects the 'performance' aspect of the work being undertaken. One telling observation was the possible use of silence by surgeons as a defensive reaction to the institutional exercise of power by nurses (when conducting mandatory checks etc). Gardezi et al (2009) intriguingly posit that surgeons

may be reacting to a perceived diminution of their traditional autonomy and their increasingly understood role as a part of a team, not the star of the show (to borrow from Goffman's dramaturgy once more). Given that perioperative work is based upon the co-ordination of numerous professional groups in the theatre, how is such work achieved? It is here that the work of 'the team' as a whole emerges.

2.3.5 Team work

Teamwork was another theme that ran throughout the literature. Undre et al (2006) identified that theatre teams' prevailing perception is that they generally work well together but fail to reach agreement on the exact organisation of their work. A key finding was that nurses understood perioperative work to be the result of 'the team' as a whole, contrasted with medical professionals who viewed the result as the series of actions undertaken by a series of specialised teams. Interestingly, they found that among the multi-disciplinary team (MDT), when asked how well each group (surgeons, nurses, ODPs and anaesthetists) believed they understood the role of the other team members; surgeons consistently overestimated their own understanding of the others' role. This telling observation may be indicative of a professional dominance that is based upon a historical, gendered lack of appreciation or empathy for the roles of others.

Anaesthesia teamwork was explored by Hindmarsh and Pilnick (2002), who examined the 'cues' used by the anaesthetic team to enable them to safely put a patient to sleep. Like Tanner and Timmons (2000) they drew on Goffman's (1959) dramaturgical analyses to explore how comments made ostensibly to the patient actually served as cues to one another. This formed what Goffman would describe as a 'front-stage performance' that rapidly altered to a 'backstage' event once the patient was asleep, with talk moving to general chat that would not have occurred had the patient been awake. Language was used both to enact a front stage performance for the patient, while disguising cues that enabled team function (Hindmarsh and Pilnick, 2002). Silence and

whispered dialogue were features of communication that represented numerous facets of the nurses' role (Gardezi et al, 2009).

A key component of team function was revealed in how communications are structured in theatre. Moss et al (2002) studied nurse communications within the theatre complex itself (not just the single theatre), particularly those of the nurse in charge. They found that the theatre charge nurse must co-ordinate and communicate rapidly with many groups of people, often for only thirty to sixty seconds. Most communications (44%) were with theatre nurses and were conducted face to face. Communications with surgeons and anaesthetists amounted to 15% each. They most frequently conversed with surgeons regarding theatre scheduling, reminiscent of their hostess role discussed earlier. As discussed previously, silence and its implications on teamwork were features of the literature. It is clear that the role of the team is crucial to the function of theatres, but another feature of this area is the unique environment it presents.

2.3.6 Environment

The interaction between practice and the environment was a theme that wove throughout the literature. Fox (1997) suggests that the built environment of the theatres (clean, dirty and sterile areas) functions to establish a series of 'circuits' through which staff, equipment and the patient must move to promote sterility. This environment can be 'read' by those working within it often unconsciously. It functions as a guarantee not to make the patient worse by failing to provide asepsis and making them worse, a violation of the notion of 'care as a vow' posited earlier. Hygiene (equated with sterility and its associated actions) serves as guarantor to the surgeon that all possible has been done to provide an optimal setting for their work to be undertaken. The use of space as mentioned earlier also functions as a means of exercising power, providing care and enacting the role of the perioperative nurse.

As previously discussed, the theatre environment was characterised as being 'hostile' to patients (Schreiber and MacDonald, 2010), 'secluded' and enabling abuse (Higgins and MacIntosh, 2010), 'backstage' (Tanner and Timmons, 2000; Hindmarsh et al, 2002; Riley and Manias, 2005). Its secluded nature impacted on the nurses in both personal and professional ways. On the one hand it was a place for them to do their work of which they are proud, but on the other, it disconnects them professionally and possibly leaves them vulnerable to negative behaviours.

2.3.7 Safety and preventing errors in surgery

Almost as never before, theatre practice is being scrutinised and evaluated in safety terms. Over a number of years stories about surgical error has led to headlines and formal inquiries (Ritchie, 2000). Surgical safety has also become a worldwide phenomenon spearheaded under the aegis of the United Nations. Surgical error still garners considerable media interest and is now often a factor in the commissioning of services by bodies such as Clinical Commissioning Groups (CCG's). Theatre departments are therefore under considerable pressure to demonstrate that they are safe.

In 2012 the UK Department of Health (DOH) devised a list of events that relate to patient safety issues which it termed 'Never Events', defined as '...very serious, largely preventable patient safety incidents that should not occur if the relevant preventative measures have been put in place.' In short, 'Never Events' should never happen. It is telling that 3 of the 25 events relate directly to surgery, namely wrong site surgery, wrong implant/prosthesis and retained foreign object post-operation. To provide some context for the importance of surgical safety, as well as its media impact, Beckford (2013) reported that in the 2009-12 triennium there were 762 Never Events (322 retained items, 214 wrong site surgery, 58 wrong implants/prostheses). With over 10.5 million surgical procedures undertaken in England in 2012/13 (NHS Confederation, 2014) the reporting of such an apparently small, albeit potentially devastating, number of errors is indicative of a wider public interest.

Research has long suggested that half of surgical complications are avoidable (Gawande et al, 1992; Kable et al, 2002). With this recognition there arose a significant amount of research into the causes of error with the United Nations undertaking a worldwide initiative aimed at reducing them. This was done by its subsidiary, the World Health Organisation (WHO, 2008) that launched the global 'Safe Surgery' programme. Having undertaken a review of surgical error it compiled a checklist of actions that were designed to mitigate as many of these preventable actions and omissions. In the UK, the National Patient Safety Agency (NPSA) decided this list was to be implemented for all surgeries performed, with the list being amended to reflect specific risks for various types of operation. Launched in 2009, the checklist was to be incorporated into practice with immediate effect (NPSA, 2009). Early studies of the impact of the list reported a number of interesting features. In one study undertaken in 2010, 75% of the Trusts surveyed that the enthusiasm of the theatre nurses was a helpful factor in implementation. Better teamwork and improved start and finish times for lists were also reported (Patient Safety First, 2010). Part of the Safer Surgery campaign also suggested the use of team briefing and debriefing sessions. A recent report by the NHS England Surgical Never Events Task Force in 2014 concluded that the checklist was changing practice and making a difference but that crucially, in and of itself, was not sufficient to prevent harm. My analysis suggests that each type of perioperative nurse addresses risks specific to their area of expertise whilst undergoing surgery. Anaesthetic nurses protect the patient from the perioperative environment, scrub nurses protect the patient from surgical harm and the recovery nurses are tasked with ensuring that the patient is returned to a state safe enough for them to exit the theatre suite.

A number of the articles paid attention to what can be understood as the non-technical skills (NTS) of the role (Moss et al 2002; Meretoja et al, 2004; Riley and Manias 2006; Undre et al 2006; Mitchell and Flin 2008; Gillespie and Hamlin 2009; Mitchell et al 2011; Rutherford et al 2012; Rydenfalt et al 2012; Mitchell at al 2013). These articles identify that teamwork and safety are inextricably linked in the theatre. Some authors (Leinonen et al, 1999;

McGarvey et al, 2000; Riley and Manias, 2002; Mitchell and Flin, 2008; Gillespie and Hamlin, 2009; Lindwall and von Post, 2009 Rutherford et, 2012) undertook various literature reviews. One (Gillespie and Pierson, 2013) developed taxonomies of scrub nursing that sought to capture the important and safety-critical nature of nursing actions that were not focussed on the surgery itself. There emphasised themes such as resilience, communication, teamwork and situational awareness. It was interesting to note that nothing was noted about recovery nurses and only one paper (Rutherford et al, 2012) dedicated to anaesthetic nurses/assistants. This echoes Leinonen and Leino-Kilpi's (1999) observation about the inequality of research on specific theatre roles. Returning to the NHS definition in Table 1, these are absent from the skills listed there. This omission overlooks the wider range of skills that these nurses are 'supposed' to have described in the research literature, over and above whatever 'general' nursing skills are considered to be. The taxonomy for the scrub practitioners are reproduced below in Table 3 since they will add to later discussion.

Category	Element
Situation awareness	• Gathering information • Recognising and understanding information • Anticipating
Communication and teamwork	• Acting assertively • Exchanging information • Coordinating with others
Task management	• Planning and preparing • Providing and maintaining standards • Coping with pressure

Table 2 Non-technical skills for scrub nurses (adapted from Mitchell et al 2013)

Mitchell et al (2013) developed the categories presented in Table 3 from interviews and focus groups with scrub nurses. The themes in these interviews

were analysed and shown to be relevant to this group of nurses. What is interesting here is that this gives a very clear indication that there is a great deal more to the perioperative nursing role than successfully achieving surgery. There appears to be a large and growing body of literature recognising that scrub nursing is much more complex than is currently understood. Rutherford et al (2012) identified the lack of a similar taxonomy for anaesthesia and called for one to be developed but there was no mention of the other perioperative nursing roles. It is very interesting to note that Rutherford's collaborators in this call, Mitchell and Flin, were also responsible for the development of the scrub nursing taxonomy, suggesting that they too understand the need for further research in this area.

2.4 Discussion

From the review, it becomes evident that perioperative nursing is complex. In common with nursing as a whole, it suffers from a lack of clear definition. The few articles that discuss nurses own understandings of their role (Bjorn and Lindberg Bostrom, 2008; Schreiber and MacDonald, 2010) are helpful. They suggested that nurses in theatre do not have a clear definition of their role either and that this can hamper them in their attempt to care for their patients (McGarvey et al, 2004). There appears to be some tension between their clinical and 'hostess' role, and potentially stress resulting from the need to please the surgeon and care for the patient. However, the nurses appear to value this specialist role and also seek to retain their identity when their role is expanded. This suggests that despite the pressures and stresses of the theatre, the nursing undertaken there is highly satisfying. The idea of what perioperative care constitutes leads to an examination of what it is theatre nurses do. While often seen as a ' handmaiden' role, the role of hostess suggested by (Timmons and Tanner, 2005) demands a great deal of labour, coordinating activities, looking after guests, organising the other members of staff and doing all this under pressure but has perhaps more responsibility and satisfaction. However some of the research suggests that the handmaiden role may still be a feature of working relationships between perioperative nurses and surgeons/anaesthetists.

Ethical considerations were a source of both satisfaction and stress in this type of nursing, perhaps reflecting the highly acute dependency of the patient on the nurse (Torjuul et al, 2007). The idea that the nurse enters into a covenant with the patient and that underpinning the perioperative role is this is mutual commitment to 'remain with' the patient is also interesting. This vow relationship is dependent upon an ability and requirement to give of oneself, informed by the awareness of suffering and the desire to relieve it (Rudolfsson et al, 2007). The nature of the nurse/patient relationship can be understood from the literature as one of mutual needs that require meeting in order for both parties to reach an outcome in which care is provided and received. When it is possible to care for the patient this is frequently done by entering into a dialogue with them (Lindwall and von Post 2003, 2009).

The ways perioperative nurses enact their role were frequently dependent upon the power that the nurses either possessed or were able to acquire by virtue of seniority. Certain procedures like the swab count are capable of giving a junior nurse the ability to override the wishes of a consultant surgeon, albeit in highly circumscribed ways (Riley and Manias, 2002). Senior nurses had considerable power that was often only exercised over other nurses, in frequently negative ways. Power and its exercise was a frequent discussion in the literature, with nurses often being seen as or indeed rendered powerless by physicians (Higgins and MacIntosh, 2010; Gardezi et al, 2009).

Relationships with medical staff were often conducted within teams. There are differing degrees of understanding within the team about the nature of each other's role. Positive commonalities in the literature suggested that there exists an understanding that theatre work is a team effort, but there exists a different understanding of to what extent each group understands and appreciates the views of their colleagues (Undre et al, 2006). Nurses themselves felt that how the patient was looked after was the result of one large team effort, contrasting the medical view of simultaneous parallel teams

being responsible. It is possible that this demonstrates theatre nurses possess an understanding of their work that is at odds with other members of the team.

The recurrence of both Foucauldian power analyses and dramaturgy (predominantly that of Goffman) is interesting. There is a sense of the perioperative nursing role being that of a person playing a part in a theatrical production, learning lines, whispered cues and carrying on regardless of any disruptions in the performance. The power relationships correspond with this performance with the surgeons viewing themselves as the star performer who expects the other actors to defer to their talent. In some ways, they have the power of the prima donna and the ability to use it. The extent to which these behaviours occur within this study will therefore be of considerable interest. It is possible that people wishing to enter perioperative practice may therefore be well served by having a better understanding of these phenomena so that they can navigate them better and perhaps re-fashion the performance to their own benefit. This could relate to issues such as 'learning the lines' when dealing with difficult or demanding surgeons and situations.

The location where power and hierarchy is enacted was a feature of the literature that was woven throughout the articles. The physical environment of the theatre is a complex phenomenon where power and role can be demonstrated according to where, how and when certain individuals can be present and move. The environment may dictate certain manifestation of the role, such as the requirement to manage patient temperature (Leinonen and Leino-Kilpi, 1999; Schreiber and MacDonald, 2010).

The literature reveals a large amount of interest in the non-technical aspects of the role with emerging taxonomic structures. Having already commented that there is already one for scrub nursing, a call to develop one for anaesthetics and none for recovery nursing, there are clear indications that perioperative nursing has a component that has only recently begun to be explored. Many

of the themes in the review can be understood as relating to these non-technical aspects, such as 'coping with pressure' in the taxonomy. This could certainly linked to the 'hostess' element of the literature, in terms of keeping the list running. The papers looking at teamwork actually featured in some of the literature reviewed for the development of the taxonomy, further supporting the idea that there is more to perioperative nursing than appears on the surface. There is most definitely a sense from the review that recovery nursing has been certainly neglected and perhaps even lost from view, at least from the research perspective. This lack of visibility is doubly so when the 'hidden' nature of perioperative practice is considered.

2.4.1 Summary: gaps in the literature

As a perioperative nurse myself, there are very distinct resonances with the accounts provided by studies included in the review. Each of the themes certainly speaks to my experience and understanding of the overall nature of the work. What I found lacking in the literature was evidence of the 'voice' of the nurses themselves. Perioperative nurses were frequently studied as part of research into other phenomena. On a personal level, the narratives of power, the negative aspects of behaviour in teams and the identification of the hostess characteristics of the role were rather outdated but were still recognisably a feature of my own practice experience. On a more positive note the pride and ability that perioperative nurses have are also reflected in my experience. It is clear to me as a researcher in this area that the absence of a deeper understanding of what the nurses themselves do and understand about their work in their own right is a truly fundamental issue that requires exploration.

The literature has offered up a number of different ways of thinking about perioperative nursing work and roles. The purpose of this project is to explore more deeply what these nurses do and what they understand to be their role

from their perspective. Accordingly, the challenge for this research is to construct a method of exploring these concepts to reach a deeper understanding of the reality of perioperative nursing. This exploration and the choices that flowed from it are therefore presented in Chapter 3.

Chapter 3: Methodology and method

3.1 Introduction

This chapter explores the nature of the research project and aims to situate it in its epistemological context. In the early part of my doctoral programme I explored how research is often situated within various paradigms and how this shapes their methodology. My research is informed by my own realist paradigm or perspective and utilised the ethnographic techniques of observation and interview to explore perioperative nursing. The following material aims to guide the reader through the process of how my research design and methods were shaped by this early learning about methodology and epistemology.

3.2 Paradigms, realism and ethnography

Blaikie (1993) very clearly delineates between methodology and method, pointing out that each is often (and incorrectly) used interchangeably. He suggests that methodology is concerned with how theories and knowledge are generated and the impact of particular theoretical perspectives. Underpinning this understanding of methodology is an awareness of the unique contribution of the philosophy adopted by researchers in the pursuit of their work and how this influences the research. This chapter discusses the rationale for the selection of an ethnographic approach.

Weaver and Olsen (2006) suggest that paradigms serve a large number of functions within the scope of research; they serve as lenses, bridges and 'philosophical underpinnings' from which research flows. Silverman (1998) observes that paradigms shape our research topics and choice of methodology. Kuhn (1970) classifies research into two main paradigms,

positivism and naturalism. Positivist approaches are frequently based on a preconceived hypothesis that is subsequently proved or disproved, often by deductive reasoning. Naturalist approaches recognise human complexity and seek to understand them by use of experiential and interpretive methods. In their discussion of approaches to nursing research, King and Hegadoren (2006) maintain that nursing has always utilised other disciplines, and they cite Zeller's (1999) claim that nursing derives its research questions from practice in order to use research to influence practice. This may explain why a variety of paradigms are frequently referred to and used in nursing research. Paley et al (2007) are highly critical of the ways that various schools of philosophy are invoked to lend credence to the variety of types of knowledge that nursing claims to generate and rely on. Noting these issues I elected to explore different paradigms in order to see if there was one that had a natural 'fit' with my own view of the nature of the world. I eventually came across realism and realised that this was aligned with my own philosophy.

Realism is defined by Wainwright (1997, pg 1264) as having:

> '...an ontology which states that the structures creating the world cannot be directly observed. Its epistemology is that appearances do not necessarily reveal the mechanisms which cause these appearances, and its methodology therefore involves the construction of theories which can account for these appearances.'

Essentially, what is being said here is that there is an independent reality that exists regardless of our ability to experience it. Realism challenges us to uncover that reality as far as we are able. It asks us, rather than looking for cause and effect (as we do in experiments) to look for generative mechanisms and to see science as a process of looking for these mechanisms. A core element of realism as it relates to scientific enquiry is that being has a reality that exists beyond the mere ability of science as a constructed human ability to apprehend it. So, how does realism situate itself as a paradigm from within which to pursue research activity?

Davies (1999) suggests that realism's contribution to social science and ethnography arose from a need to pursue an integrative approach to science that enabled the production of 'law-like statements' that avoid theoretical 'flights of fancy'. Realism seems to offer the possibility of recognising the complexity of healthcare practice as a human activity, and one that is also structured and subject to change by the practitioners themselves which itself is facilitated by research. While realism provides an attractive paradigm within which to locate my research, I am mindful of Dessler's (2003, pg 22) caution against striving too hard to artificially align epistemology and ontology within a method, since to do so might miss a new direction that may discover new ways of '...thinking about the obvious.' I believe that it is necessary to acknowledge my own epistemological perspective and the underpinning philosophy of the method chosen without allowing it to smother creativity and discovery.

The research question was born of my experience as an operating theatre nurse and my desire to explore this area of practice in a meaningful way. I was interested in the everyday 'reality' of this work- as an observer and as a reflexive practitioner. I also wanted to know what nurses understood and how they experienced this area of practice. I decided that a naturalistic approach would be most able to explore the phenomenon of 'perioperative nursing' in a way that was ontologically and epistemologically coherent because I wanted to examine 'what it is' and 'how it is' manifested. From this starting point, this idea flowed into the possibility that the ethnographic techniques of observation and interview offered a viable means to address the questions posed by this research.

Vidich and Lyman (1994; pg 23) define ethnography as '...the science devoted to describing the ways of life of humankind,' Van Maanen (2011, pg 8) maintains that ethnographic fieldwork requires the researcher to have heard, seen and crucially, present what was witnessed and understood in the field. Quite simply, he says, '...ethnography is a means of representation.' The challenge of this research was therefore to develop an understanding of perioperative nursing based upon observing and talking to theatre nurses. In

line with realism I accept that there will always be an underlying reality just out of reach, but hope that by using these ethnographic methods I can understand perioperative work (in which I am also professionally engaged) in a 'fresh' way and present it to the academic community. It is also my intention to return this work to professional colleagues in perioperative practice as this is a stated aim of undertaking a professional doctorate.

3.3 Study design and conduct

The study is an examination of the roles of nurses using ethnographic methods of observation and interview to collect data within two hospital sites. Site 1 was a hospital in southern England. It served a population size of approximately 400,000 people and its main theatre suite comprised 9 theatres providing surgery across a traditional range of disciplines such as elective general surgery, orthopaedics, vascular and uro-gynaecology as well as emergency and trauma. It also provided obstetric and day case surgery facilities. The theatres employed approximately 100 staff of whom about 40 were nurses.

Site 2 was a hospital also located in Southern England, although it serviced a smaller population of approximately 230,000. As with Site 1, it provided the same range of surgical specialities across 6 main theatres and a dedicated obstetrics and gynaecology unit. It also provided day-case facilities and likewise employed approximately 40 nurses.

3.3.1 Sampling

Sampling was conducted on a purposive basis. The aim was to collect data that would capture the behaviour and experiences of different nurses in different areas and specialities thus providing a picture of the roles, work and environments in which they dwell. I aimed to observe scrub nurses, anaesthetic nurses, recovery nurses and theatre co-ordinators to reflect the

different roles undertaken in the area, based upon both my own knowledge and the literature review. It was agreed within the supervisory team and supported by the literature (Torjuul et al, 2007; Lindwall et al, 2003) that ten observation sessions and ten interviews would be both practical and provide sufficient data. This number was an approximation and I recognised the need for flexibility about the exact sample size.

The study sites were selected for three main reasons. Primarily, they were hospitals geographically and demographically similar to my own, offering almost the same services with a similar sized population. Secondly, they were within reasonable geographical reach as I cannot drive and was obliged to take public transport to each site. This practical consideration was one that is seldom acknowledged in research sampling decisions but was an important factor in the choices I made. However, wary of allowing convenience to bias my choice I deliberately sought Trusts located in different towns to my own so that I would not be familiar with the culture or practices. I was not personally known to any of the participants who agreed to take part. Finally, the inclusion of two sites offered the ability to record data from different units, allowing comparison and some degree of validity checks across the data.

Within the sites, sampling for the observation and interviews was also purposive. The amount of data collected was influenced by practicalities such as the time available, working as a lone investigator and my novice status as a researcher. Rowley (2012) suggests that sample size, particularly interviews, should be sufficient to generate interesting findings that avoids data overload, suggesting six to eight interviews each lasting an hour may generate adequate data.

A pilot study consisting of two observation and interview sessions was undertaken at my home Trust in order to examine the method and ascertain its ability to generate data. Data from this study was reported in the upgrade thesis document but was not used directly in the writing of this thesis,

although early themes and codes from this were incorporated into the data analysis of the main study.

The data collection was undertaken by doing the majority of the observation sessions prior to the interviews. One rationale for this was that conducting the observations first allowed me to 'settle' into my role as a researcher and gain in confidence as well as to become familiar with the environments and staff being observed. Conversely, I felt it also necessary to allow time for the staff in the theatre areas selected to become used to my presence. It is to their great credit that they did so. Reflecting upon my personal journey of becoming a researcher I noted in my reflective log:

'I find myself becoming more comfortable in the role of researcher and feel better able to 'stand back'. I also feel satisfied that I have concentrated more on the individual practitioners. Last week I was gaining much more of an overview of the theatre as a whole. By focusing down much more I think that the data quality will be improved and yield much more when analysed.' (Observation session 2, lines 383-388)

Another rationale for conducting the observations first was to identify potential candidates to invite for interview. Having completed several observations I was able to undertake some preliminary analysis to inform the interviews and shape my topic guide. This was discussed within the supervision team and agreed as a reasonable approach.

The interviews were undertaken after seven of the observations were completed. This timing was also partly for pragmatic reasons relating to scheduling my availability and the off-duty schedule of those kind enough to volunteer.

3.3.2 Gaining access and consent

Prior to commencing the research, I attended a meeting with the manager of each site's theatre to introduce both the project and myself as well as respond to any queries. Since my research required access to NHS resources such as

clinical areas and staff time, I provided the managers of each department with relevant information such as the likely impact of my presence and the amount of time that would be required for interviews. I assured them my presence would be discreet and that interviews would not in any way be disruptive to the running of the department. I took great care to ensure that observation and interviews were carefully negotiated with all parties to avoid any impact on the safe and efficient running of the theatres. All participants and departments were offered access to the published findings from the study in acknowledgement of their generosity in taking part.

3.3.3 Observation

Upon arrival in the theatre complex discussion with the theatre coordinator for each day was undertaken to select an area of the theatre that would be appropriate for observation. I commenced each observation session after changing into scrubs (pyjama-like cotton top and trousers worn by staff in theatre as opposed to their own clothes). In common with all staff in theatre, I wore a hat to cover my hair and surgical clogs. My jewellery was removed to comply with infection control requirements. I also wore my university ID card and a name badge with 'Clinical Observer' on it to ensure staff were aware that I was a visitor. After greeting the team in the area I typically selected a specific individual to observe voluntarily on the basis of their role and obtained their consent. Other staff in the theatre were also asked for their verbal consent as well. Patients were asked if my presence was acceptable, a point discussed and approved with the Ethics Committees in all sites. Upon receiving consent, a notice was placed on each entry door to the theatre informing all those entering that the observation was taking place.

Once observation commenced, I situated myself in a relatively unobtrusive manner and recorded notes using a pen and an A4 ring bound hard-backed notebook. This was crucial for allowing stability when writing in awkward positions or areas. Each entry was given a time/date signature entries were made as near contemporaneously to the observation as possible. When

observing a single individual it was possible sometimes to do from a seated position, although I changed my vantage point as necessary and for the recovery nurses or the nurses leaving theatre I was able to follow them on their journeys. Conversation was recorded verbatim for content, participants and where relevant, emotional inflection such as anger or laughter indicated. Other observations included environmental phenomena such as light, noise and odour. Staff movement and activities were documented also. Where necessary brief sketches of the area were made indicating the layout and position of people in the room. Throughout the observation process all staff were anonymised by the application of a code assigned to them, to ensure that should the notes be observed by outsiders, identities were concealed. On the journey home I spent time writing a reflexive diary for each day. This served to set the observation session in context for each episode. The notes were then transcribed onto a Microsoft Word document in the following two to three days. Ten observation sessions were conducted and transcribed, representing approximately 85 hours of data collection. A summary of the observations is presented overleaf in Table 4, in the order in which they were undertaken.

Nursing staff observed and site	Duration observed (h:m)	Procedures/Summary
Scrub team Site 1	9:15	3 procedures observed, 2 in gynaecology theatre and 1 breast surgery. This was my first observation for the main study. The use of the DA Vinci operating robot was very novel to me as was a '2 for 1' procedure where two different teams operated on the same patient.
Scrub team Site 1	9:45	3 emergency list procedures in the morning and observation of the emergency list coordinator in the afternoon. This session was composed of emergency cases and was therefore rather less routine than a scheduled theatre list.
Anaesthetic nurse Site 1	9:45	4 Orthopaedic procedures on an elective orthopaedic list. This session focussed on the role of the anaesthetic nurse and the work undertaken by them. It was very interesting to watch as an 'outsider' to my own role.
Anaesthetic nurse Site 1	9:45	Trauma list in the morning but no patients required surgery. 2 Trauma cases observed in the afternoon. Watching the anaesthetic nurse again began to suggest 'scripts' and patterns of work undertaken by the anaesthetic team.
Scrub team Site 1	9:0	2 major urological cases observed. The first case observed was interesting as it became apparent that the surgery was becoming more difficult, requiring a conversion from a laparoscopic to open procedure.
Recovery nurse Site 1	9:45	First time observing Recovery as a clinical area. The nurse followed was in Recovery for the morning looking after 2 patients and then recovering 3 patients in the X-ray department after sedation procedures.
Recovery nurse Site 1	7:0	I observed a Recovery nurse for the duration of her shift. She had 3 patients one of whom was a woman who had a C-section after a general anaesthetic.
Recovery nurse Site 1	8:0	This nurse spent her whole shift looking after a patient in a High Dependency state after a major surgery. This is relatively unusual for such a long period of time.

Shift Leaders Site 2	8:0	AM and PM shift leaders observed. These two nurses were very busy and almost acted as hubs for the smooth running of the whole department.
Anaesthetic nurse Site 2	6:00	This nurse was working on an elective gynae list that had 3 patients on it. The second was a frail elderly lady who underwent a large procedure.

Table 3: Summary of observation data: Total observation time of 85 hours (using an NHS nurses' contract of 37.5 hours per week, this is just over 2 working weeks of observation, with 16 surgeries observed)

3.3.4 Interviews

Eight interviews were conducted lasting an hour each on average. It was envisaged that as with the observation there would need to be some negotiation to allow people to attend an interview. I contacted nurses in person when attending the department when attending their study mornings and with the permission of the manager. I liaised with them to select a time that suited them best, this being a feature that Roberts et al (2013) suggested. I ensured that they had copies of the information leaflets well in advance. Interviews were conducted in offices within the theatre department, allowing participants to remain in the clinical area if needed. After obtaining informed consent from the participant the interview commenced. Two chairs were placed at right angles to each other to facilitate participant comfort and face-to-face discussion. At the beginning of the interview, participants were encouraged to make themselves comfortable and water was provided. After a brief preamble I began the interview proper by asking about their career to date, in order to put them at ease. The preamble was also used to ensure that the device was working correctly. I had sight of the interview guide I had developed and I took brief notes during the interview in order to return to or to request elaboration of topics and to support the transcription. Interviews were also digitally recorded with the device placed in a discrete manner that allowed good audio quality without being intrusive. Most participants were not

concerned about the recording although one respondent did make a joke about making sure the device was switched on.

The interviews began by asking the participant to describe their nursing career to date. This question was designed as a general opener that would serve as a natural platform from which to proceed to other topics of conversation. In my design of the interview schedule I was mindful that it was possible that topics of some sensitivity may arise and I was therefore careful to observe for any behaviour or indication of distress. In asking follow-up questions or further probes I tried to ensure the use of the respondent's own phrasing in order to guide the conversation. In the pilot interviews I had conducted I noted a tendency for me to re-phrase responses in my own idiom, which could serve to lead the participant in ways that were not authentic to them. Given the ease with which my own bias could affect the conversation I undertook formal qualitative interview training to address this issue. I also took care to allow pauses to extend naturally, although if the participant clearly had difficulty responding I rephrased. I made use of brief responses such as 'okay' and murmurs of agreement in order to indicate my attentiveness. I was conscious that simply staring at a person without any indication of active listening was likely to be most uncomfortable. On a number of occasions the respondent asked for my personal opinion on either their reply or the subject at hand. Initially, this was a little disconcerting for me, as I was trying to preserve the integrity of their view rather than impose my own. However, I opted to respond to their query in the open manner in which it was asked. I felt that this was a more natural way of conducting the interview that served to lessen the formality of the 'interviewer/responder' dynamic in favour of a more balanced conversation between two people with similar experiences of practice. A summary of the interviews is presented in Table 5.

	Staff Interviewed	Summary
1	Anaesthetic nurse Site 2 Female	This was an experienced anaesthetic nurse who had been working in both anaesthetics and recovery for over 15 years. She initially did Recovery but has also practiced as an anaesthetic nurse for 8 years. She currently works as a Band 5.
2	Scrub nurse Site 2 Male	This was a young man who had been qualified for less than 5 years and had worked almost exclusively in theatres as a scrub nurse for the majority his career, with one year out doing IT project work. He had recently been promoted to Band 6.
3	Recovery nurse Site 2 Male	This was also a young man who had been qualified for 5 years, having spent his career to date working in the main Recovery unit. He had recently been given a secondment as a Band 6 in the day case theatres and was one month into this when he was interviewed.
4	Anaesthetic Nurse Site 1 Male	This man came into nursing later in life as a second career having worked outside the NHS previously. He had worked exclusively in theatres since qualifying and spent his time doing both anaesthetics and the scrub role.
5	Recovery Nurse Site 1 Female	A nurse of 30 years' experience, having spent most of her career as a Recovery nurse. After a career break to have children she returned to nursing in Recovery.
6	Scrub nurse Site 1 Female	This was a sister in orthopaedics who had been a nurse for over 40 years. Her wealth of experience and anecdotes about her practice provided a perspective of how she perceived perioperative nursing has altered over time, mostly in positive ways.
7	Scrub nurse Site 2 Female	An Overseas lady, this nurse had been practicing in the UK for 12 years, predominantly in orthopaedic scrub. Having become somewhat disillusioned with her current post she was shortly leaving to pursue a private health sector job.

8	Coordinator Site 2 Male	This Overseas gentleman held the post of theatre co-ordinator. He was one of 2 nurses observed undertaking this specific role. His insights about the functioning of the department as a whole were very illuminating and confirmed much of the momentum and safety observation.

Table 4: Interview participants summary

As can be seen, there was an imbalance between the location of the interviews and observation with more of the observation occurring at Site 1 and more of the interviews at Site 2. In critical terms this meant that more of the nursing voice came from Site 2 with the observed behaviours at Site 1. The reasons for this were partly due to the constraints imposed by factors such as my full-time shift pattern and the ability to travel to and access each site. Ideally, the size of the sample and the numbers from each unit would have been larger and more equal. However the amount of observation and interviewing undertaken is sufficient for the analysis presented here and because of my insider knowledge as a practitioner I was confident that although each individual unit may have had differing cultures, what was observed and reported would have been recognisable to other perioperative nurses visiting the settings. The data are too small to allow meaningful comparisons between sites so I decided to analyse the data as a whole, focussing on the individuals as perioperative nurses rather than as employees of different organisations.

3.4 Ethical considerations

The ethical conduct of research is a fundamental obligation upon those who wish to undertake such activity. Research is not without potential risk to its participants and the researcher is obliged to acknowledge and mitigate such risks. The principles of biomedical ethics advanced by Beauchamp and Childress (2008) state that ethical practice must be beneficent, non-maleficent, respectful of autonomy and just. The ethical considerations of this study were examined and addressed via the application for ethics approval

from the University's Research Governance process, National Research Ethics Service and finally approvals from the Research and Ethics Committee of each hospital site. Since my research would require access to NHS personnel and locations, it was beholden upon me to consider various aspects of the impact of my research.

Firstly, my status as a Registered Nurse requires me to always act within the Code of Professional Conduct of the Nursing and Midwifery Council (2008). The Code states that I must be trustworthy and always act in the best interest of patients to prevent harm. Although my research was not focussed on patients specifically, there existed a possibility that I may witness or discover practice or situations that would require me to act to safeguard them. It was judged necessary to ask patients for their verbal permission for me to observe their surgery since they have a right of refusal to have people involved in their care who are not providing direct input. Patients who lacked capacity to grant such consent were therefore not observed. Another consideration was what action I would take in the event of a medical emergency. In such situations my duty was clear in that I would offer such assistance as I was competent to provide within the scope of my professional ability. My duty as a Registered Nurse was at all times considered to supersede my status as a researcher in the event of emergency or malpractice. This had implications for my participants and the anonymity that researchers are obliged to offer to participants. This was most manifest in the construction of the participant information leaflets. It was necessary to specify the degree to which anonymity would be guaranteed and situations in which I would be obliged to report abuse or unsafe practice. This openness served to provide participants with the necessary information with which to grant informed consent prior to inclusion in the project, a key feature of such consent (Lewis, 2003). The leaflets also detailed the background of the project. It was crucial at all times to emphasise the voluntary nature of participation and to ensure that no-one was at any time coerced into taking part. I was also under an obligation to ensure that those who elected not to participate understood that there would be no negative consequences attached to their decision. Throughout the data collection there was no-one who declined to participate, although one person

did seek clarification that was provided to their satisfaction and they consented to take part.

Finally, there was the duty of confidentiality owed to all of the people and institutions who kindly agreed to take part. This was reflected in both my Code of Conduct as a nurse and by the ethics approval process. Organisational anonymity was maintained by keeping confidential the names of institutions to all persons outside of the supervisory team. At no time was the name of an individual disclosed to any party.

3.5 Rigour

The issue of rigour within qualitative research is one that has received a great deal of discussion in research literature. Throughout the study design and implementation it was necessary to attend to the issue of rigour within the research. The largest potential threat to rigour within this particular project arose from my own status as a perioperative nurse, a feature that Asselin (2003) referred to as 'insider research'. Bonner and Tolhurst (2002) identify three benefits of 'insider' status: a greater understanding of the culture being studied, awareness of the flow of social interaction and finally intimacy that promotes truth-telling and judgement of what that truth is. However, linked to the data analysis, there was a risk that I might become 'blinded by the obvious' or even more significantly, miss potentially significant findings that arose from the data as a result of my nature as an insider.

In terms of the data collection within this study, it was undertaken in two theatre units that were not familiar to me. I was not personally known to any interviewees so I was hopeful that their responses reflected their true experience and belief. All of the data were shared with the supervisory team after transcription and I was required to explain my thinking at each step. This allowed the opportunity for them to challenge my assumptions and make me defend my reasoning. I also kept a reflexive diary at the end of each observation session in which I noted my thinking, contextualising my thoughts

and feelings. This allowed me reflect upon the session and also provided an audit trail for how my decisions were made. With regard to the interviews I debated with myself and the team about respondent validation. I had initially considered undertaking this by asking the respondents to 'verify' the interview transcript. This approach can be of benefit in long-term studies but it has been pointed out (Barbour, 2001) that given much health research is done on a one-off basis that respondent validation may be more trouble than it is worth. There is also the issue that respondent validation represents a new category of data that must be analysed. Within the scope of this study it was unlikely that such data would add anything new provided the interviews were sufficiently probing. A qualitative interview training day I had attended dealt with what were termed 'doorstep revelations' in which respondents frequently add statements such as "Oh before you go I've just remembered something else," or words to that effect after the interview is formally concluded. The discussion on the study day concluded that a sensible way of pre-empting this and potentially drawing more information was to ask a variant of "Is there anything else that you can think of to add?" as the final question of the interview. This question also added a natural lead in to concluding the interview as well as giving the participant time to reflect on anything else they wished to ask. In most cases there was not anything but one or two respondents did make use of the opportunity to add more to their discussion. Each of the participants was provided with an information leaflet that detailed the research. Additionally, all participants and their respective units were offered the opportunity to receive a presentation about the findings of the project once the research was completed.

3.6 Study approval

The study was submitted to the Hampshire and Isle of Wight Regional Ethics Committee on 3/3/2010 and approval for the study was granted on 23/4/2010 with the study reference number of 10/HO501/17.

3.7 Data management

My observations were all recorded as described in a ring-bound A4 hardback book. This book was kept in my personal custody while observation was under way and all participants were recorded with code signifiers attached to them, thus making identification of individuals unlikely. The book was kept in a locked drawer when not in use. The observations were transcribed onto a Microsoft Word document that was in turn kept on a password-protected computer accessible only to myself. The file was then printed onto paper in order to highlight and annotate features of initial interest. The resulting document was entered onto a secure University server and all analysis was undertaken on that server, accessed at the University or remotely from a hospital library facility via a secure VPN connection.

Interviews were recorded onto an audio recording device in MP4 format. All participants were referred to on the audio by codes in order to prevent being named. Upon returning home, files were again uploaded to a password protected computer and the original file deleted from the recording device. The audio files were sent to a secure transcription service operating under industry standard confidentiality agreements. Upon receipt of the transcript, I listened to it line by line, correcting any ambiguities or errors. This also allowed me a chance to begin reflect upon and consider the content of the interview. The corrected transcript was printed and again, highlighted and annotated prior to entry into the University server for comprehensive analysis.

At the conclusion of the study, all research material (electronically stored on a data device or hard copy where appropriate) will be stored in a secure archive at Southampton University. At the time of archiving, it will be stipulated that only I (or a member of the research governance team acting upon my instruction) may access the material for a period of ten years from the conclusion of the study. The archiving instructions will mandate that the material be destroyed after a period of ten years. This destruction will be undertaken by a member of the research governance team as part of an

ongoing system of archive management, in accordance with the University's Research Governance policy.

3.8 Summary

This chapter has examined the relationship between method and methodology and briefly reflected on the epistemological influences on my thinking as a researcher. It has outlined the methods used and how the data were collected along with consideration of the ethical matters inherent within the research project. Chapter Four explains how the data were analysed with the assistance of the NVivo qualitative data management software package.

Chapter 4: Data analysis

4.1 Introduction

This chapter discusses the analysis of the data (Lincoln and Guba, 1985). The method used to analyse the data will be outlined, including how the data was coded, and the generation of categories and themes presented in this thesis.

4.2 The analysis process

Lincoln and Guba (1985) suggest that analysis begins as soon as data collection starts while Polit and Beck (2004) maintain data collection and analysis are concurrent. I observed the nurses first and then undertook interviews. The rationale for this was to try and gain a view of their work from a purely observational perspective. This was important because I had never had the opportunity look at theatres from any perspective other than my own as a practitioner. I thus tried to allow myself to be open to 'new' concepts and ideas prior to the interviews. The observation captured behaviours and practices, albeit filtered through the lens of my own experience and perception. The interviews, while semi-structured, were based upon a combination of the pre-defined questions and topic areas and initial analysis of the observations, leading to an iterative approach to both data collection and concurrent analysis that occurred alongside the 'formal' process of analysing data.

The two data sets were integrated by a process of transcribing the observation data and then initially coding to develop themes for the interviews. This fed into my thinking about the ongoing analysis by providing areas of potential for further development within the interview process. After this I had some emergent ideas about the data that were possible to explore within the interviews. After completing both the interviews and observations each data set was coded separately, observations first then interviews. This developed themes that I then looked for occurring within both datasets that enabled me

to begin generating overarching themes. I went back and forth between both sets of data and the developing themes in order to refine my arguments. In order to manage this process the data were analysed with the assistance of Computer Aided Qualitative Data Analysis Software (CAQDAS) as will now be explained.

4.3 CAQDAS and qualitative research

Over the past 25 years, specific programmes dedicated to the management of qualitative data have been developed (such as ATLAS, NUDIST and NVivo) and it is not uncommon to see them referred to in research publications. Historically, qualitative data was often analysed (at least initially) by manually typing data and then cutting or copying sections of data into various groups according to categories and then once more into larger themes. As could perhaps be imagined this approach led to significant frustration if the papers were lost or disturbed in any way (Marshall, 2002). The arrival of CAQDAS software offered an alternative by using a process similar to the 'cut and paste' function of word processors resulting from collaboration between researchers and software developers that continues today (Fielding and Lee, 2007). A significant criticism of CAQDAS is that it runs the risk of reducing data to the outcome of automated processes rather than as something that requires human interaction (Bringer et al, 2004). QSR (2014), the software company manufacturing one of the most popular programs named NVivo, counter this criticism by stating 'It doesn't do the thinking for you; it provides a workspace and tools to enable you to easily work through your information.' It is still down to the researcher to think, deliberate, generate codes, reject and replace them with others that were more illuminating and explained the phenomenon better (Basit, 2003). Seeking to manage the expectation of what CAQDAS can do to assist a researcher, Clare (2012, pg 9) explains that it does not necessarily lead to better quality research, but does offer '...a unified workspace, capable of organising and facilitating many of the tasks associated with qualitative analysis, such as transcription and coding.' Given the large amount of data that was generated (in excess of 100,000 words), this appealed a great deal to

me as a researcher, although I discovered that similar to Basit (2003) a certain degree of time was necessary to master the functions of a given programme.

The selection of a particular CAQDAS package depends on a variety of factors. Two leading authors on the subject, Lewins and Sliver (2009) reply that there is no 'best' programme, maintaining that the researcher must select the tools within a given programme that are most likely to support the methodology, although a poor choice can result in poor results (Spencer et al, 2003). As I was dealing with a very large data set, I decided that a CAQDAS package would be appropriate to assist me in managing it. Having used NVivo 10 during the pilot phase I elected to continue its use for the main study, mindful that its main purpose was to enable me to move sections of data electronically.

4.4 Coding

The aim of this research is to generate explanations or theory that accounts for the phenomena observed (Wainwright, 1997). With this in mind, the analysis began with 'coding', a process of assigning labels to relevant parts of the data to allow comparison. Saldana (2009) states that a code is a word or phrase that sums up an evocative attribute for a piece of the data. For the purposes of this analysis codes were initially generated by annotating the transcripts and observational notes with ideas and terms which were refined and later entered into the NVivo program to enable better visualisation. Strauss and Corbin (1990) suggest two types of coding, open and axial. Open coding refers to labelling words and phrases in the text and axial coding is the arrangement of these codes with relationships between codes which assists with generating themes and from these to theory (Charmaz, 2008). Bazeley (2009) cautions against relying on themes as the sole outcome of data analysis, a trend she maintains is prevalent in qualitative research. Rather she advises, themes are '...simply labels for meta-categories...'. Advocating a process of Describe, Compare and Relate, Bazeley echoes Saldana's (2009) idea of moving along a continuum from real to abstract, code to theory.

Prior to entering the data into NVivo, the notes from the observation and the transcribed interviews were entered onto Microsoft Word documents and then printed out. The text was gone through on a line-by-line basis and a highlighter pen was used to label words or phrases of interest. These highlighted sections were then annotated with a brief comment such as 'hostess role' or 'hierarchy'. Some of the annotations came from my familiarity of the available literature presented in Chapter 2. However, some of the material was highlighted with new words that arose from my initial interpretation of the text. Words such as 'breaks', 'scheduling' and 'nursey' were examples that arose from reading certain texts. This line-by-line analysis is essential according to Glaser (1978) as it begins to allow sense making from data that is often disparate. Within the interviews particularly, where a paragraph or page discussed a common theme, I made annotations in the margins or at the foot of the page that expressed what I thought was emerging from the text. A key feature of the NVivo software is that it assembles the various pieces of data into nodes, but also links each back to its original context. This served the purpose of recording why a piece of text had caught my attention in order to single it out but also kept it grounded in its original setting. Whilst developing the initial codes I made use of the 'insert memo' function to record my thoughts about a particular piece of data. Throughout the process of coding and data analysis, I also maintained a journal within the NVivo programme to which I periodically added new insights, 'notes to self' and reflection upon the technical aspects of the NVivo program.

4.4.1 Example of initial coding in NVivo

Given the size of the data set it is not possible to present all of the coding information. Instead examples will be given to guide the reader through the process undertaken. Initially the written codes were recorded on electronic copies of the data in 'nodes' within NVivo. A 'node' is simply a place where all material I related to a given code can be stored, much like an envelope or file could be used to manage paper extracts. Each of the nodes was given a brief text descriptor. The example below comes from the 'parent' node that I

labelled “Time”. The excerpt overleaf is from sections of the interviews that I coded to this node and illustrates the nature of the data that were placed within it. On the left is the interview script, on the right are my associated codes and memos:

Source material **Parent Node: Time**	Associated codes and memos Child node: Scheduling Memo: There seems to be a great deal of time spent in organising and promoting the order of the list. This most likely has links with equipment and possibly hierarchy as the surgeon can perhaps dictate this. Lack of equipment is definitely a factor that impacts on this.
Interview 2 Reference 1 *Have we sent for a patient, have we seen the surgeon, have we seen the anaesthetist. And then you get, like, everyone takes a deep breath and goes (calming sigh) and we're done. We've sent for the patient, we've had the team brief, we've all seen each other's faces, and we're all happy, we've got everything we need, we've got our patients, en route, and then, and then the mood, like, suddenly, everyone's a bit less stressed, and then the rest of the day, usually, usually is actually relatively fun.*	Keeping list moving Different staff required Sense of relief- stress List management Team brief Equipment, patient movement Emotion: stress
Interview 2 Reference 14 *It can happen. I was like, I really should be scrubbed for that one, now what am I going to do? So I thought a plan in my head but that involved pulling people from other theatres, so then I had to run that past the co-ordinator first and also speak to the people that it involved pulling as well. So first I spoke to people see if they'd be happy with the plan and they said, that's cool with me. And then I said, right, so then I went and got the co-*	Planning Staff allocation Checking people

ordinator to say, is that a good plan? And he said, well, yes, fine, whatever. So that's almost like getting someone to okay the decision because it doesn't just involve my team.	Team planning Hierarchy
Whereas main theatres, you know, you've got the longer operations. People take longer to wake up, so generally they're with you a bit longer, but here we have to sort of bear in mind that you do need to keep the flow going, otherwise it will back up. But obviously not the extent that it interferes with patient care. *Reference 2 - 0.68% Coverage* *I think for the most part the operations tend to be smaller anyway, so they are easier to deal with in recovery. Generally speaking they need less pain relief. At the end of the day, sometimes you do have to hold onto patients, and that might have a sort of detrimental effect on the flow of theatres, but you then have to look at roping in other people from elsewhere.* *Reference 3 - 0.69% Coverage* *At the end of the day, yes it might cause a problem with the flow of theatres, and it might cause issues further down the line, but your main priority is patient safety. There is no sort of leeway. If you sent a patient back to the ward and they sort of suddenly collapse, or you've neglected to do something because you've been pushed for time, there's no real excuse for it.*	Memo: 10.6.14 1207 Look to see if the scheduling leads to actions like sending and see how this works in Recovery too. Why do Recovery have copies of all the lists up? Work backlog Stops admission to Recovery? Day case v main theatre workload Patient flow through the theatres Additional resources required to deal with delays Delays Primacy of safety even when busy Safety is paramount Safety v time consequences

Table 5: Interview coding excerpt for the node 'Time'

After this initial coding all of the material in the 'time' node was examined to look for recurring patterns within the data. This led to the development of subcategories called 'child nodes' (a form of subcategory) labelled 'out of

hours, 'scheduling' and 'waiting', containing all of the data originally assigned to 'time'. Scheduling appeared to be the largest of these and some of these next levels of coding are provided in the table overleaf:

Source material **Parent node: Time** **Child node: Scheduling**	
1410- CN21 goes to the reception desk and receives an overview from the receptionist detailing the progress of each theatre's lists. There is a discussion about a case on the emergency list that might overrun past the allocated time. He asks if the staff can stay late and a nurse replies 'It depends, I don't mind, but I don't wanna be here til 9.'	Handover This would usually be done by CN20 Scheduling Negotiation
1412- CN21 establishes the likely finish time of each theatre.	Planning- anticipating
1417- An ODP asks CN21 '(name) did you find CN20? They need someone for the bum washout (on the emergency list)' CN21 smiles and the ODP goes into the office behind the reception desk to get CN20, despite him being in the middle of an appraisal. CN20 emerges and goes to the emergency theatre.	Redeploying resources-staff Time not always protected even for appraisal
1425- A nurse from a theatre approaches CN21 and asks that as her list is finishing can she send two of her staff to the library to do some study. He agrees asking that before they leave they check with him.	Staff training, ?staff development and wellbeing Staff safety
1430- CN21 and I are discussing the allocation of radiographers to the lists for next week. He explains 'The lists are booked by a non-clinical person so we need to check.'	Planning ahead External factors

	Checking
1440- CN21 now phones the x-ray department to book 2 radiographers for a large orthopaedic list next Tuesday. While doing this he adds 'On Thursday again, I've got (urology surgeon). Any chance of an early start there please?' He is now juggling lists, moving cases to avoid clashes in the need for radiographers. He is successful and very adroit at doing this and achieves the cover he needs.	Scheduling Anticipating Negotiating

Table 6: Observation coding excerpt for the node 'Time'

This excerpt from the data charts some of the activities of CN 21, a coordinating nurse. This 30 minute segment of time shows him undertaking a number of activities pertaining to the use of his time and the work he does planning and scheduling for the next week's list. These began to coalesce under the node of 'scheduling' and ultimately fed into the theme of managing momentum which became a core interpretation of the data.

Overleaf is a screenshot from NVivo that lists the node structure, contents from the data coded to each and finally on the right hand side can be seen the 'coding stripes'. These indicate the other nodes the same material was also coded to, in a sense providing the 'DNA' of the coding.

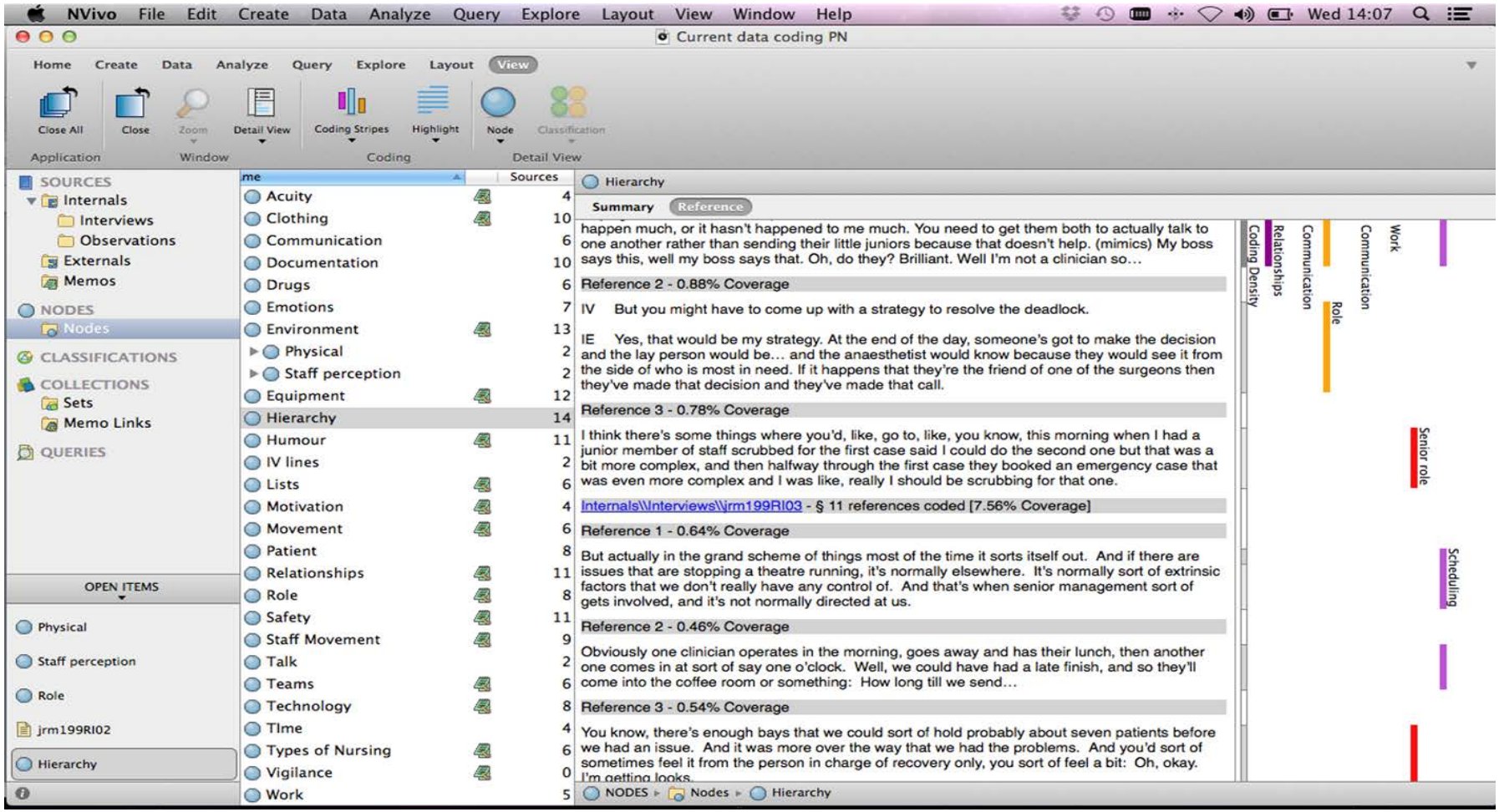

Figure 1: NVivo screen shot

In Figure 1, the material coded to 'hierarchy' is linked to other nodes such as 'senior role' and 'scheduling'. As this coding and analysis process continued, new codes were added and nodes were created or modified in the light of new insights. The nodes were clustered together to form themes taking care to reread the data alongside this activity to ensure that this process reflected the dataset as a whole. I continued to use Bazeley's (2009) describe, compare, relate method to explore relationships and theoretical explanations and this allowed the identification of early themes.

4.4.2 Reflexivity and bias during the coding process

Reflexively, I was very aware of the potential for bias in my analysis. Since I am a member of the population I am studying I had to be vigilant against imposing my own views on the data. This was undertaken by 'dwelling' in the data, a process which Finlay (2012, pg 186) describes as '...examining them and then progressively deepening understandings as meanings come to light.' At the point of coding and analysis I focussed on the words as they were written, or in the case of interviews, said by the respondent. My notes often evoked the sense of 'being there' that I had felt when undertaking the collection process. This felt, in a very naturalistic manner, to be a true reflection of the behaviour and practice observed. Bias was also guarded against by explanation and discussion within the supervisory relationship, where I was required to explain and defend my interpretations and conclusions. This helped develop my confidence that I could both code the data appropriately and more importantly, develop transferable insights from it that would address my research aims and objectives.

During the pilot I had practiced developing a coding scheme that included 16 high level codes such as 'clothing', 'environment' and 'role' using data from the first four observation sessions and two interview transcripts. I incorporated the learning from this analysis into my examination of the whole data sets. One important caveat that I consciously bore in mind was that while

I was using my early coding scheme, this did not preclude the creation of more nodes. Reflecting upon this in my journal I noted:

> "Additionally, I'm very aware that since combining the 2 nodal systems I've created some new top level nodes ('Types of nursing' being a crucial one), as well as a large number of 'child' nodes. I don't think that is necessarily a bad thing but I do need to be careful to avoid simply coding to nodes at the expense of missing potentially new ones." Journal entry 12.6.14

Whilst analysing the data I was also constantly asking myself "How does this coded material relate to my question and research objectives?" This was further tested by explaining my interpretations to my supervisors.

4.5 The development of themes

As the process of analysis continued I identified key themes that were beginning to emerge. Going through the material coded to 'time', I realised that much of it focussed on the use of time to co-ordinate the activities of the theatre and staff, something I reflected upon in the following excerpt from my journal:

> 1800 I'm wondering about whether 'managing' may be a second order code or perhaps a theme in itself. It seems to imply the nurses are required to 'get on with it', 'get stuff done' regardless of what is happening, maybe as part of the hostess role. This must be done either regardless of what is occurring or as the result of preparation (maybe scheduling?) to either keep on track or prevent/mitigate a problem. This could link with lists etc and very much with equipment.

This memo notes the genesis of my realisation that 'time' was also related to equipment and lists. These had been coded to other nodes and I saw that they could be understood as parts of a wider theme. By comparing sections of data

and codes across the whole data set, I also identified that the three distinct nursing types (anaesthetic, scrub and recovery) managed time in different ways. By comparing the different nursing activities I saw patterns of time, movement, equipment and environmental factors that while unique to each, was dedicated towards 'keeping things moving'. By contrasting the three different nursing roles, I also began to see that there was a difference in the work undertaken by those in the theatre itself (anaesthetic and scrub nurses) and the Recovery nurses, who were at the end of the patient's perioperative journey. I began to relate these ideas into a theme that I initially called 'keeping things moving'. This was subsequently developed further as the theme 'momentum'. What became clear in these analyses was that the nursing activities related to time allied to different roles since different staff undertook each activity differently.

As I continued the analysis I was able to develop models within the NVivo software to aid the development of the analysis. The following is an example of one of the diagrams produced for the key node entitled 'role':

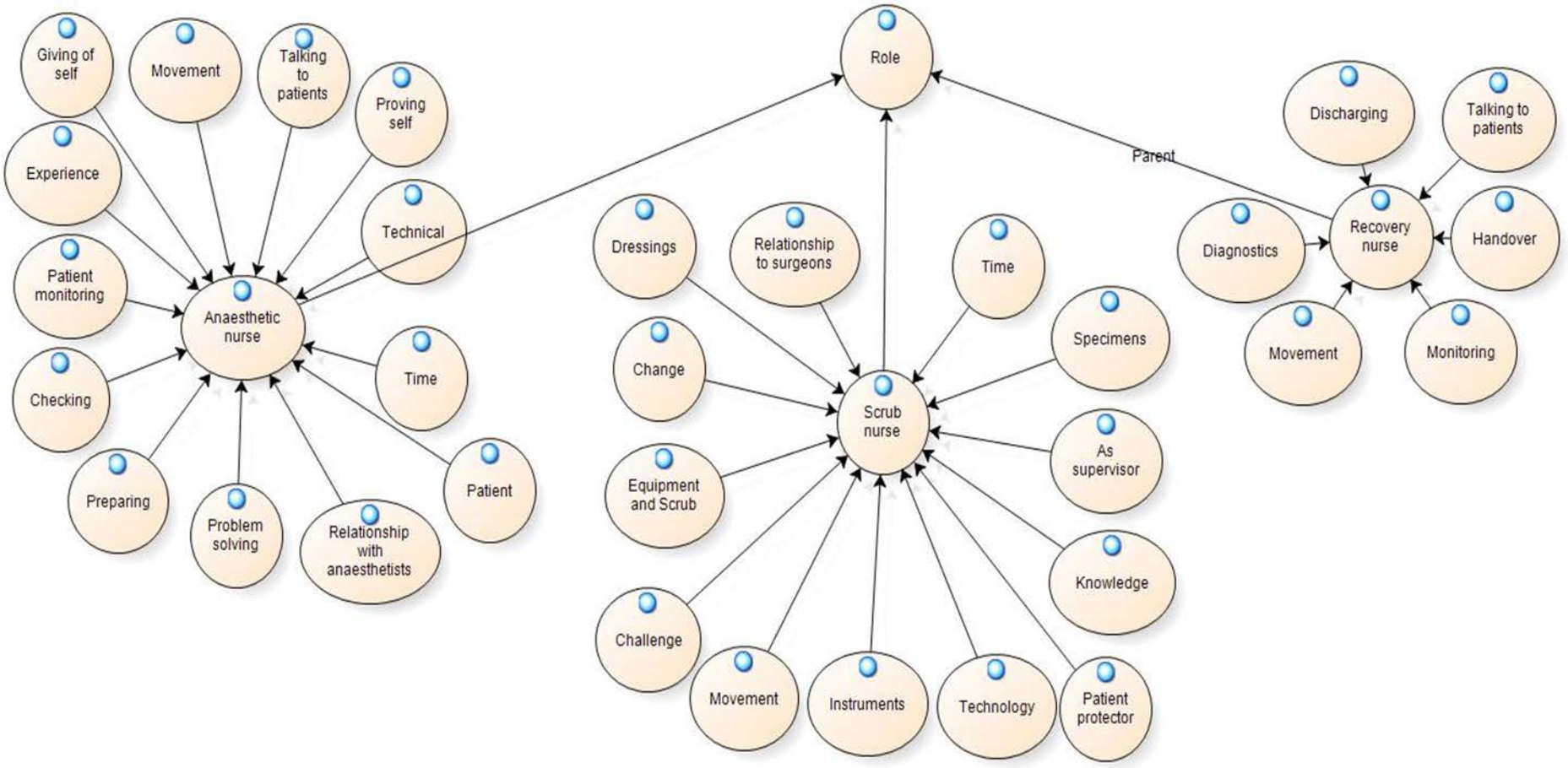

Figure 2: Nodes coded to ‘role’

This model shows how the secondary codes fed into the higher codes and linked to the overarching code of 'role', with the code 'time' being common to anaesthetic and scrub nurses but not recovery nurses. However, this did not mean that time was irrelevant to the latter group. As I continued analysing the data, I came to realise that what I had coded as time for the first two groups could be grouped into a theme of 'keeping things moving' that incorporated the recovery nurses work around discharging patients. This time related work was *uniquely experienced* by recovery nurses. Examining this theme led me to see that the keeping things moving activity was continuous, and that much of the work done by nurses was direct to managing threats to momentum. Further analysis distinguished the separate sub-code of 'senior staff' to the role node as they too undertook significant planning work in relation to future activity within the theatres.

As the analysis continued, another feature from the data particularly from the interviews was that of 'safety'. Re-examination of the observation data showed that this was indeed an important aspect of the nurses' work. A similar process of grouping and comparing codes was followed for this emerging theme. It became apparent looking at the observations that large numbers of checks were undertaken 'to prevent harm'. One prime example of this was the World Health Organisation Surgical Safety Checklist (WHOSSC). A great deal of effort went into this activity even when it led to delays in continuing the surgery. Again this safety aspect was common to all the nurses but enacted in different ways, suggesting that safety was a universal constant in the nurses' work and understanding of practice. However, as with the earlier theme of momentum, comparison showed that the three different nursing groups undertook it differently.

4.6 Momentum and safety as predominant themes

From the analysis of the data it became apparent that I was beginning to identify a number of strands in the data. While the movement of equipment was crucial so too was the need to ensure that the equipment was correctly checked prior to its use. The staff needed to work very hard to ensure that all

was ready at the start of the day and yet react to unforeseen circumstances. Patients and colleagues could present situations needing rapid action and alterations to plans. The concurrent analysis of the data suggested to me that there were numerous interactions occurring with the nurses, their role, the environment and what they needed to do to ensure that all their work was structured in such a way as to enable all of it to be achieved. This became the focus of my analysis and these ideas converged into two overarching types of behaviour or practice, one of 'keeping things moving' and 'keeping things safe'. I began to see that the nurses had differing ways of achieving these goals that were simultaneously ubiquitous and yet role-specific, as will be discussed presently. As the analysis continued I refined the descriptions of these into the two main themes for the thesis of 'managing momentum and 'accounting for safety'.

4.7 Summary

This chapter has provided an overview of the analysis. The process has been illustrated and the coding including the use of a CAQDAS program has been described. Some key examples of the analysis have been provided to demonstrate how the codes arose and were refined and finally yielded higher level themes. Two core themes were identified as a focus for the thesis, these being 'managing momentum' and 'accounting for safety'. These are used in the chapters that follow to develop an argument to answer the research question "What is perioperative nursing?" The next chapter presents the first of these themes, examining how and why the nurses must maintain the momentum of their perioperative work.

Chapter 5: Managing momentum

5.1 Introduction

This study has sought to examine perioperative nursing from the perspectives of its practitioners, a group who are frequently under-researched in their own right when examining the work of the Operating Theatre. This chapter describes the first of two main themes that arose from the data analysis.

The chapter begins by exploring the concept of “managing momentum” and explains how this activity was manifested throughout the data collection and analysis processes. It concerns the work of perioperative nurses directed to keeping the list (or department) moving. The different perioperative nursing roles will be explored within this theme, since different types of nurses experienced the pressure to “manage momentum” in different ways.

5.2 Managing momentum

Momentum describes, “The quantity of motion of a moving body, measured as a product of its mass and velocity,” as well as “The impetus and driving force gained by the development of a process or course of events,” (OED, 2014). The latter of these two definitions captures a fundamental part of the work of perioperative nurses, which they articulate as the need to ‘keep things moving’.

Throughout the data collection process it was apparent that ‘time’, its use, waste and allocation, was an almost constant factor in the work undertaken by perioperative nurses. The emergence of the core theme of “managing momentum” arose from initial processes of coding and re-coding the data. The way in which the different types of nurses managed time was important as

it led to the development of the theme of managing momentum. Data were coded to the node that was initially called ‘scheduling’ which was a subset of the node entitled ‘time’. As I went through the observation and interviews I began to note instances where phenomena such as 'sending for a patient' (sending a member of theatre staff, usually the HCA, to collect a patient from the ward and escort them to theatre), ensuring staff/equipment availability and preventing delays were either being discussed or enacted in practice. Where delays occurred, cancellation of operations sometimes occurred and more often staff dissatisfaction was voiced. When the list ran well and on time this produced positive talk and smooth 'processing' of cases. This struck me as interesting because although there is a large and historical body of research on theatre utilisation (O’Donnell, 1976; Cole and Hislop, 1998; Faiz et al, 2008) and process analyses, what I was seeing was the practical and emotional work required by the nurses to manage schedules. This also resonated with my literature review. Interestingly, Killen (2002) identified that work such as keeping lists moving smoothly represented moral challenges to perioperative nurses that they must work to overcome and was a source of satisfaction when accomplished well.

Timing and momentum were evident in the data throughout the working day (which in theatres was usually 0800h-1800h). Different nurses undertook a variety of actions that were all role-specific yet contributed to managing momentum. At the beginning of the day this was primarily manifested as a series of checking activities as each of the perioperative nurses completed tasks that enabled the first patient to be sent for, ensuring a state of readiness for their arrival. A failure to undertake these activities could have led to a delay in starting the list and the nurses were acutely aware of the volume of work to be undertaken. For example, in Observation session 7 there were 36 elective procedures scheduled for the day and the nurses made it clear that getting started on time was crucial to the smooth flow of the day’s work. To illustrate this I will now show what activities each type of nurse undertakes and the means by which they contribute to managing momentum. This will be presented by following the patient’s journey and encounters with the nurses, as this narrative helps to structure the findings from the research for later discussion.

5.2.1 The Anaesthetic Nurse

The anaesthetic nurse arrives in the department before the patient. One of the ways that they manage momentum is by checking various aspects of this environment. My observations included the following:

From the time of their arrival in the department the anaesthetic nurses observed all made their way to theatre having checked which theatre they were allocated to by looking on the large whiteboard in the corridor. They each had two anaesthetic machines to check and other emergency items such as drugs and airway management equipment that required checking as well. The checks involved ensuring that the devices used to insert breathing tubes had a functional LED light to enable the anaesthetist to see inside the patient’s throat. The anaesthetic machine needed checking to ensure that backup oxygen was available in the event of a mains oxygen supply failure. The monitor displaying the concentration of anaesthetic agents the patient was receiving required calibration, in order to prevent the patient being aware during surgery. There was also suction equipment that was checked in case the patient vomited or had large amounts of secretions in their airway that required removal. In essence these checks were made to anticipate equipment failure or patient specific emergencies that are recognised in anaesthesia practice. These checks also served to maintain safety, which was a recurring theme that arose from the data and will be explored in the next chapter.

The anaesthetic nurses also used this ‘checking’ time in order to anticipate the requirements of different anaesthetists they would be working with:

> “...you come in, in the morning. You would go in, you would set up your anaesthetic room ready, and making sure both the anaesthetic machines are tested thoroughly, in the anaesthetic room and in the theatres as well. [...] Obviously, we have the luxury of having an anaesthetic room here, (laughs) but the downside to that is you have two machines to check (laughs), and then you would set up the emergency drugs, and depending on who you’re working with, you would look at the rota, to see anaesthetist wise, who you were working

> with, and just from that, you would have some idea as to what they would require for whichever patient you have for the day.” (Interview 1, Anaesthetic nurse, Lines 197-210)

The checks undertaken here illustrate that the nurse performs formally defined safety procedures and anticipates likely requirements that may not be obvious. The patient-specific requirements alluded to here are important, since a failure to appreciate them early on may lead to delays in sending for the patient or in obtaining necessary equipment. Hence this activity becomes linked to momentum as it is undertaken in order to reduce the potential for delay.

5.2.2 The Scrub Nurse

The scrub nurses preparation for the day consisted of ensuring that all the likely instrument trays and kit was available both for the first and subsequent cases. In some instances, a piece of kit may have been used overnight for an emergency case and it was necessary to contact the TSSU (Theatre Sterile Services Unit, the area of theatre where instruments are cleaned, sterilised by autoclave and packed) to check its availability. These nurses also undertook checks of items such as the operating table to ensure it was functioning and of other equipment such as suction machines. One scrub nurse described this period of time in the morning as a source of stress:

> “I think first thing in the morning it's...everyone’s running around going ‘waaah!’, everything, got everything, got everything, got everything. Have we sent for a patient, have we seen the surgeon, have we seen the anaesthetist? And then you get, like, everyone takes a deep breath and goes (calming sigh) and we’re done.” (Interview 2, Scrub nurse, lines 216-220)

Like the anaesthetic nurses it was clear that some of the work undertaken by the scrub nurses is practical- such as the formal checking of equipment, but some of the work involves mentally preparing for and anticipating the

requirements of the anaesthetic/surgical team. The use of humour in this quote signifies the emotional nature of the latter process and the Scrub Nurse captures the release of tension once everything is ready. This type of emotional and organising work is crucial at this stage since it serves to generate the initial momentum which is required to begin the day’s activity.

5.2.3 The Recovery Nurse

In contrast to their colleagues, recovery nurses are occupied with the later stages of the operative process. They too undertook various checks of their equipment and lists although they did not contribute to the early morning activity of the department, unless they were looking after cases admitted overnight. Unlike their anaesthetic and scrub colleagues though, recovery nurses work was dictated by the ability of their colleagues to manage momentum. If lists began late it could mean delays for them discharging patients later on in the day as this remark from one recovery nurse clearly demonstrates:

> “They're slow getting started today. You know what that means!” (Observation session 6, 0900)

For the recovery nurses then, momentum was not something over which they had direct control at the beginning of the day. In fact, these nurses were frequently affected by extrinsic factors such as the availability of beds on the wards. In one instance, a patient was discharged home directly from recovery, an event that met with considerable disapproval from the Nurse in Charge (NIC) and Modern Matron (MM):

> NIC: ‘It’s not very appropriate is it? I mean, discharging people from Recovery?’
>
> MM: ‘Well, what is the alternative? Cancel the patient? We weren’t informed about the lack of a bed until after the patient’s procedure had begun. I know it’s not ideal.’

> NIC: ‘Well, I don’t want to set a precedent. There’s a lot we need to do to discharge a patient and if we’re busy that’s very difficult.’
>
> MM: ‘I understand about not setting a precedent but this is where we are now.’ (Observation 6, 1225)

This problematical discharge was seen as a consequence of the failure to manage momentum. It arose from the failure to manage the work flow effectively before and generated further momentum work for the nurses to do (primarily documentation and liaising with the family in this instance) and could be difficult to achieve if the unit is busy. Each of the nurses in this exchange is clearly frustrated and both agree that the situation is far from ideal. The NIC does not want this exception to become a norm as it may jeopardise the unit’s ability to function- in effect this practice will interrupt momentum. The MM acknowledges this but is clear that cancelling the patient is not an option either. They are both at the mercy of a communication failure that has stopped momentum. The emotional labour perioperative nurses undertake in order to manage momentum will be discussed more fully later in this chapter.

5.2.4 Senior nurses and momentum

Senior nurses have tasks related to momentum although their objectives are the same- the smooth flow of patients through the department. In the early morning the senior staff (Band 6 and above for the purpose of this analysis) ensured that staff were available, equipment checked and the patient sent for, as explained by the scrub nurse in Section 5.2.2. Generally the senior nurse in the theatre took responsibility for ensuring that the patients on their lists were ‘kept moving’. More senior staff such as Band 7’s were required to keep an overview of the whole department; they managed momentum by frequently going round to check that all was proceeding and offering advice or assistance where required. There was one case that illustrated this interestingly because it was a discrepant one. The nurse being interviewed explained that since the

introduction of a designated Sister to her theatre, she abrogated the responsibility for momentum, despite previously having managed it herself:

> I Okay. All right. And so you said some of the sorts of people you work with, so you mentioned this a little bit earlier, when you talked about the Sister and you, who’s in charge?
>
> R Yes. So, if I get the Sister, Sister with me now [...] I've been in here that long, so they turn to me to lead, but later on there's an incident. I just clarified this again to them, with the higher that you mean that the Sister will still be in charge? Because I'm just only an STP? [...] and they said, yes. So, we still need to do it because of that title, even though you’ve been here for that long, so I'm obeying. (Interview 7, Scrub nurse, lines 555-561 NOTE: STP here refers to the nurse’s job title of Specialist Theatre Practitioner)

This respondent saw her position being undermined and so clarified that the Sister would be responsible for the momentum functions previously undertaken by the respondent. This suggested that these duties are central to the role, even when they are disputed.

However, a crucial challenge to momentum was observed in the management of emergency cases, which constituted approximately 10% of the daily workload of the theatres. Whilst some emergencies were already booked into the workflow, on a number of occasions there arose life-threatening emergencies requiring immediate action- indeed during one observation two emergency situations occurred simultaneously. This interestingly necessitated a call to the consultant surgeon on-call from the Band 6 running the emergency theatre to inform them that the department was now too busy to accommodate another emergency case that was not as acute. The on-call consultant surgeon understood that the delay in sending for his emergency case (which was eventually 2.5 hours) was unavoidable. This resulted in the successful accommodation of the emergencies and also the eventual

completion of the pending case, thus maintaining momentum. Whilst these two emergencies occurred, SN7 (the theatre co-ordinator for that day) was observed to be in constant motion between the emergencies. Her work was, in her own words, about maintaining a:

> “...high level overview about what is going on across the theatre complex.” (SN7, Observation 2, 1530)

Once the immediate crisis was past SN7 then made efforts to send for the delayed emergency case as a matter of priority, thus restoring the department’s momentum while having accommodated two unanticipated emergencies.

5.2.4.1 Sisters/Charge Nurses and advance list scheduling

One way that momentum is managed is through advanced planning. The timescale in which it is necessary to plan ahead can in some cases be as much as a week in advance. Theatre lists are scheduled by various personnel (surgeon’s secretaries and/or dedicated scheduling staff) in response to General Practitioner (GP) referrals, outpatient appointments and prioritised by reference to targets such as the 18 Week Wait and the Two Week Cancer target. Theatre lists are assembled and allocated slots of theatre time, usually on a given surgeon’s routine list. The lists are supplied to the theatre sister/charge nurse who then examines them and orders items such as implants, instruments and ensuring that these are delivered and sterilised by TSSU usually the day prior to their use. Advance work is a necessary part of these senior nurses’ work and it takes place well before the patient’s arrival. This process often does not include any medical staff after the surgeon accepts the patient. In orthopaedics and urology particularly, X-ray machines are required to facilitate the surgery. Each machine also requires a radiographer to operate it (although a small number of theatre sisters and surgeons are becoming trained to do so, reducing the reliance on other staff to maintain momentum). One of the charge nurses was observed spending a considerable amount of time liaising with the X-Ray department for lists that were booked to occur in 10 days’ time. He was required to undertake this work as he says:

> “The lists are booked by a non-clinical person so we need to check.” (Charge Nurse 21, Observation session 9, 1430)

This advanced planning is similar to the work described as the hostess role by Timmons and Tanner (2005). The nurse in charge here manages momentum by scheduling the activities and resources needed for a list to proceed smoothly.

5.2.5 Momentum and its management

The material presented shows that each of the nursing groups do work to ensure the smooth flow of the list. They do this do this by initiating actions that allow the generation of momentum at the start of the day and ensuring its maintenance throughout the shift. The recovery nurse, enabled the continued flow of patients out of the theatres. There were two interesting features that I noted from the data in relation to this feature.

Firstly, the anaesthetic and scrub nurses all appeared to simply ‘know’ what was required. They had learned the unique preferences of the medical staff they were working with and also were able to factor prior knowledge such as co-morbidity into their decision-making. This apparently effortless ability was related to training and an experiential knowledge base that was passed on to new perioperative nurses. A preference folder relating to equipment, staff groups and individual preferences for each of the relevant staff (anaesthetists and surgeons) was used to brief new perioperative nurses joining the department. However, interviewees suggested that these frequently became out of date, signifying that much of the preparatory activity must still be learned from experience. This evolution of surgical techniques was a feature of practice that the scrub nurse in particular must adapt to. There were changes in surgical kits that perioperative nurses needed to learn in order to manage this aspect of momentum.

Secondly, the pressure to prepare and to manage momentum appeared to have a strong emotional nature. As the excerpt from interview 2 (in section 5.2.2) shows, there was a sense of almost controlled chaos at the start of the day and this was characterised by the large volume of staff movement associated with the beginning of the list. Much of the work entailed multi-tasking, and for the seemingly apparent disorder there was in fact a definite to move forward. Timmons and Tanner’s (2005) identify that such work also involves emotional and practical preparatory tasks. In their earlier work they also suggest the theatre is a ‘backstage area’ where there is a great deal of work to be done before the performance begins (Tanner and Timmons, 2000). Goffman (1959) noted that people in backstage areas are often more relaxed as the front stage rules are suspended but Timmons and Tanners’ and my own work shows that the activity or the performance begins as soon as they arrive. This raises the intriguing question who is the performance for? In answer there appear to be two groups, the patient and the surgeon. Managing momentum ensures that all of the patients due to have surgery receive their operation and that the surgeon is ‘kept happy’ as befits the guest of honour. Interestingly an excerpt from interview 4 suggests that this dynamic may be changing:

> I think it's something about teamwork. I think it's becoming recognised it is more of a team rather than a main man at the top and the servants running around him. There is recognition that it's more of a team now. And it needs to be, of course, as well. That's a change for the better. I think it's taking time but it's getting there. (Interview 4, Anaesthetic nurse, Lines 163-167)

The servant analogy employed here illustrates the almost subservient nature of the nurse/surgeon relationship referred to in the literature review.

The nurses did a great deal of preparatory work in order to generate momentum for the list. One respondent arrived early for each shift in order to start preparation for the day:

> First is I tend to come in, like, half an hour early, and obviously, you know, you don’t start until eight o'clock, but I always like to be here, if

> it is possible, half past seven. Obviously it’s not paid, but, you know, at least you know it’s the kind of place, you can plan ahead, rather than I'm going in at eight o'clock, everyone is in a mess, you know, so yes, what I will do is check the skills levels. (Interview 8, coordinator, lines 233-239)

This revelation was a powerful one for me personally, because in the initial years of my career as an anaesthetic nurse I too used to come in to work thirty minutes early each day for the same purpose. To hear that other practitioners also do the same was very resonant with my practice in theatre. The chapter now turns to the environment in which nurses work because, as will be seen, this affects whether or not they are successful in managing momentum.

5.3 The environment and threats to momentum

The role of the perioperative nurse, particularly the anaesthetic and scrub nurses is to plan ahead and then physically and emotionally manage the work to be done. However, the physical space in which they do this must be considered as it presents numerous challenges.

5.3.1 Factors affecting momentum

Fox (1997) describes the movement of patients, staff and equipment as ‘circuits of hygiene’. I suggest that such movements can also be understood in terms of the concept of momentum I have presented. If either a patient, member of staff or piece of equipment is not present, then momentum is lost and delay (a break in momentum) occurs. Managing momentum is a process that requires effort (and maintenance) to keep the flow of work optimal. As I explored the presence of momentum management in the data it became apparent to me that often the nurses managed this in spite of the environment rather than because of it. The very environment of the theatres led to a build-up of entropy that must be overcome to re-initiate momentum. My data

suggest that there are three main threats to momentum within the theatre, distance, equipment and the inability to discharge patients back to the ward. The next section will explore these in more detail.

5.3.2 Distance and travel

One of the most striking things about the theatres is their large size. They are a series of rooms that radiate off a long central corridor located behind an ‘airlock’ type set of doors. They are also very much isolated from the main ward areas of the hospital. Part of the work of managing momentum thus requires patients to be sent from and returned to areas that may be considerable distance from the theatre, and this requires movement around physical spaces. This movement was seen in the data the in two main ways, with patients being physically acted upon to ensure their flow through the department, from arrival to discharge to the ward. The flow of patients through the operating departments observed was the same. The patients arrive, are escorted to the anaesthetic room, get moved into theatre, taken to recovery and then discharged back to the ward. The geography of the journey in each case requires that the patient must move through a circuit that is hundreds of metres. This requires the coordination of nursing and other staff roles such as portering. One respondent commented upon this:

> “So then, yes, so then you’ve got the porters. They’re important because without them we wouldn’t have anyone to go and get the patients. I suppose we could get them if we could be bothered using our legs and that wouldn’t do any good. Then we’d get tired quicker. So we want to stay in one place.” (Interview 2, Scrub nurse, Lines 835-839)

Collecting patients requires energy to be expended and these staff felt that they were better off remaining in theatre waiting for the patient to come to them. What is also illustrated here is the nature of the teamwork required; without porters to collect patients, the nurses would be obliged to undertake this task. This type of additional work would certainly represent a challenge to the theatres in managing momentum, as it would require a number of staff to be exiting the theatre to collect patients. This would have the effect of

depleting the remaining workforce and potentially leaving theatres understaffed to continue their work.

Of all of the staff groups observed, the Recovery nurses tended to undertake the most travel in a day. The bulk of this was returning patients to the wards. Movement within Recovery itself was reasonably limited with the majority of the equipment required already located in each individual bay which was re-stocked and tidied each morning, reducing the need for the nurse to leave the patient. One respondent (Interview 5) noted delays getting patients back to the wards were increasingly the result of extrinsic factors that threatened momentum and could not be overcome by theatre staff. The delay scenario presented in section 5.2.3 (the NIC and MM conversation about discharging a patient home from recovery) was not unusual. These types of extended delay were distressing to the nurses as they felt recovery lacked adequate facilities such as patient toilets:

> “Well we haven’t got any patient facilities in recovery; we have no bathroom for them to go to so that’s not very pleasant for the patient. They’re seeing these patients wheeled in and out with tubes and things and that’s not very pleasant, emergency situations and I know that happens on the ward but it happens more in recovery.” (Interview 5, Recovery nurse, lines 559-563.)

There is also a recognition that as a clinical area with acute patients in it, that recovery could also be a distressing place for other patients who may witness the ‘unpleasant’ sights referred to.

5.3.3 Equipment issues

Movement around the theatres was frequently associated with the need to obtain, replace or provide new items such as swabs, machines, operating tables and instrument trays. Availability, or rather the non-availability, of equipment could jeopardise momentum as it required nurses to spend time

finding out where equipment was and sometimes to leave the theatre to fetch it. This affected each of the types of perioperative nurses in different ways.

The anaesthetic nurse’s equipment was generally already available having been checked previously, although they were occasionally required to supply certain drugs to the anaesthetist. One example was in response to a patient-related event such as a drop in blood pressure or inadequate sedation. All of these ‘emergency’ drugs were ready on the basis of potential need, and the anaesthetic nurses displayed considerable knowledge about them. They often anticipated such events, for example, by preparing additional sedation having noted patient anxiety. The amount of movement for these nurses was frequently small, with the exception of obtaining refreshments for themselves and often the anaesthetist(s) too.

The scrub nurses played a similar role in managing momentum by obtaining instruments. Some surgeons had a preference for a particular brand of sutures so that in the event of a surgeon operating outside of their ‘normal’ theatre, often in emergencies, the scrub nurses would need to go to another theatre to obtain such items or else send someone to collect them. Typically, the items in question were located in a storage area outside the theatre, as the following excerpt shows:

> After doing this SN14 goes to collect a different type of retractor that CU (Consultant Urologist) has asked for. It transpires that there is already one in theatre to which CU says 'Well, make sure we've got another one as we'll need it this afternoon.' SN14 goes to the storeroom to ensure the availability. She returns a few minutes later and confirms that there is another available. (Observation session 5, 1020)

It could take up to a minute or two to obtain an item from this area, which might delay the surgery. With the tight times planned for each operation, this activity could represent a threat to momentum. Also demonstrated here is the

advanced planning necessary for the afternoon surgery, although the surgeon interestingly initiated it. This shows that planning ahead, in order to manage momentum, is a crucial task not only undertaken by nurses but also features as part of the surgeon’s consciousness.

5.4 Consequences of the failure to manage momentum

The data showed that the anaesthetic and scrub nurses were able (and indeed required) to both generate and maintain momentum in order to move the patient through the anaesthetic and surgical processes. However, I observed that the Recovery nurses were less able to generate momentum despite being tasked with facilitating the patient’s return to the ward. The Recovery nurses work consisted of monitoring the patient and returning them to a stable physiological condition similar to their state prior to surgery by monitoring level of consciousness, blood pressure, heart rate and temperature, attending to pain-relief, nausea and vomiting and other post-operative symptoms. Once each of these needs had been met they had to liaise and negotiate with busy wards, complete discharge paperwork and then arrange for the physical transport of the patient with a porter. It was observed throughout the data that managing these issues in the presence of continuous patient arrivals from theatre led to the Recovery area becoming full. If this occurred, momentum throughout the theatres was lost, with ensuing consequences that will now be examined.

Two events occurred (one at each site) that led to the failure of the department to maintain momentum. Both of these occurred as a result of an existing surgery taking longer to complete. This kind of susceptibility to intrinsic but largely unpredictable factors represents an inherent element of surgical work, which Pope (2002) describes as ‘case contingent’. Case contingency relates to the specific and frequently unknowable features about the patient, such as internal anatomy upon operation and current clinical condition. When this contingency reduces momentum this delays the list and frequently means that staff go home late. In each of the cases where momentum failed the final outcome was the cancellation of other surgeries, the most significant result of

momentum loss. In the first instance (Observation Session 5), two large urological procedures had become much more complex than anticipated. The surgeon decided to cancel the final patient on the list at 15:15h part way through the operation. Fifteen minutes later the theatre co-coordinator asked about sending for the final case after all because the case was finishing. This was an attempt to restore momentum, but one that would almost inevitably lead to an overrunning list. On this occasion the nurse co-ordinator had quiet conversations with the staff but they all declined to stay late so the call for the next patient was not made. What this illustrates is that, even though the need to manage momentum is very powerful, sustaining momentum relies on negotiation, team work and individual willingness of staff to engage in these activities.

The second occurrence of a surgery being cancelled was in Observation Session 9. This delay was caused by a variety of factors. The first patient (of two on the list) required complex surgery and an accidental injury to an internal organ was sustained. This required repair and assistance from another surgical team. This meant the case took longer than planned. The second case was also very complex and also required the assistance of another surgical consultant who was not available. There was a large team discussion about staff fatigue, the lateness of the day and the wisdom of embarking upon a difficult surgery in light of these factors. Collectively, a decision was made to cancel the operation. Cancellation of operations is an event that is scrutinised and reported at Trust Executive level, necessitating investigation and remedial action if needed. Additionally, Clinical Commissioning Groups (CCG’s) may use such data in their decision-making process about whether to award service contracts to hospitals, thus making theatre utilisation (a consequence of momentum management) a vital subject for all Trusts (Keller et al, 2014). Indeed, it is not unusual to employ external auditors to review utilisation and report to Trust boards. As a result CN20 (the coordinator) was obliged to contact the on-call executive manager to inform her of the cancellation and following this complete an on-line incident reporting form known as DATIX. This illustrates significant repercussions of the failure to manage momentum. Not only are cases cancelled and staff required to stay late, but there are also managerial implications at the highest level. Interestingly, for the nurses

themselves, there was a sense of empathy in relation to cancelation and its effects on the patient:

> R “Because if we have a, just a short delay, then, you know, it will just have a big impact on the other patients.
>
> I Right.
>
> R And the worst one affected is the last patient, and they will get cancelled. ... it’s my consideration. I always think that what if this is my, this is my relative or something?” (Interview 8, Co-ordinator, Lines 472-476)

Another respondent described cancellation in an empathic manner:

> “And you feel that patient... you feel that's your patient. The patient has probably been off [?], and then he's been starved, and then, basically, the family, all the things they know. It's not just... Yes, it's easy it's cancelled, but it's cancelled but that patient, and the surrounding, you know, prior their operation.” (Interview 7, Scrub nurse, Lines 350-353)

Delays in a system tend to propagate backwards and this was most clear in the work of the recovery nurses. If momentum is lost in the Recovery Unit, a failure to discharge back to the wards leads to all of the recovery bed spaces being filled. At this point, the NIC has to close the unit and delay the initiation of the next anaesthetic. This closure, therefore, represents a failure to manage momentum that finally breaks the flow of work. This failure cascades backwards through the entire theatre. Although in this instance, it did not lead to any patient cancellations, it is stressful to the staff and also requires a great deal of effort to generate momentum once more.

5.5 Summary

This chapter has explored the theme of momentum in the data: the need to keep patients moving throughout their perioperative journey. Perioperative nurses dedicate significant resources, temporal, physical and emotional, to the generation and maintenance of momentum. Each of the three types of perioperative nurse have different ways of working and skills that all contribute to the management of momentum. Anaesthetic and scrub nurses typically prepare and support the surgery, providing assistance and sourcing equipment. Recovery nurses contribute to momentum by arranging discharge to wards, allowing the flow of patients throughout the theatres to continue uninterrupted. Senior nurses are required to maintain a high level overview of the whole theatre area and to anticipate and manage threats to momentum. Whereas anaesthetic, scrub and recovery nurses focus on the immediate work of the surgical list, senior staff manage momentum by dealing with events that may be a week away.

The environment of the theatres is physically large, and patients need collecting and returning to areas that may be some distance from them. In addition, equipment and personnel must be moved within and around theatres. From my data it appears that recovery nurses typically undertake the largest amount of movement around the hospital, but anaesthetic and scrub nurses also have to move between different areas of the theatre complex to manage momentum.

I have also shown that when momentum is lost there are consequences that generate delays, possible cancellation of cases and staff dissatisfaction in having their shift over-run. The failure to manage momentum therefore has significant implications for both patients and staff. There are also consequences that can affect Trusts themselves. As well as managing momentum however, there is another necessary type of work that perioperative nurses undertake: the need to ensure the patient is safe. This work is continuous and relates to the themes of momentum discussed here.

This theme relating to safety will be discussed in Chapter 6: “Accounting for safety”.

Chapter 6: “Accounting for safety”

6.1 Introduction

The previous chapter described the work of perioperative nurses directed towards managing momentum. This chapter presents the second theme that emerged from the analysis that concerns the work that the nurses directed towards safety. Surgery is inherently risk-laden for both patients and staff and a central part of what perioperative nurses do is managing these risks. This chapter takes the reader through the analysis of the data about this theme to demonstrate that accounting for safety is a central component of perioperative nursing work.

As with managing momentum, accounting for safety is something common to all perioperative roles, yet is enacted differently by each. It affects individual practitioners and is also undertaken as part of the wider team role and routine. It also involves patients and is mediated by the environment in the theatre area. This chapter argues that safety plays a special and possibly unique role in the context of perioperative nursing practice.

6.2 Safety and perioperative nurses

In Chapter 4 the notion of theatre care as a ‘vow’ was examined in the literature. For perioperative nurses, the responsibility for the patient’s safety is a manifestation of this vow. It is significant that the NMC’s Code of Conduct (NMC 2008, pg 1) opens with the words “The people in your care must be able to trust you with their health and wellbeing…you must make the care of people your first concern.” In all of the interviews, the safety of the patient was the stated priority for each of the respondents as the following quotes demonstrate:

> “...ensuring that the patient is safe, and being there for the anaesthetist, and knowing all the equipment, and where I could put my hands on it quickly, and all of that side of things...” (Interview 1, Anaesthetic nurse, lines 333-335)

> Being their advocate whilst they’re in theatre. So they come in and you make sure that as much as possible their dignity is kept, that they’re kept as safe as possible. (Interview 2, Scrub nurse, lines 651-653)

> “Yeah my main priorities are my patients’ safety at all times.” (Interview 5, Recovery nurse, line 198)

These data suggest that safety is an important motivation in their work. As the data analysis progressed I discovered that each of the different types of nurses enacted safety in different ways, with anaesthetic and scrub nurses being required to constantly check and verify equipment. The recovery nurses were responsible for ensuring the patient returned to a ‘normal’ physiological state prior to discharge back to the wards. Each was ‘doing safety’ but there were important differences. The need to manage momentum discussed in the previous chapter was linked to this theme and so this chapter also explores the relationship between momentum and safety.

6.3 Momentum and safety

In the previous chapter, I explained how managing momentum was a core component of the activity undertaken by perioperative nurses. They were required to plan, manage patient flows and perform emotional work to ensure that the work of the theatres progressed smoothly. Within this chapter, I posit that this ‘momentum’ work is a parallel activity alongside managing the risk inherent in surgery. Risk management requires similar actions to those undertaken to generate momentum, and again all perioperative nurses engaged in ‘doing’ safety but enacted it in different ways. Perioperative nurses are required to ensure that momentum and safety are conducted in parallel to

achieve prompt yet safe patient outcomes. The nurses were aware of this tension and it arose in the interviews:

> I Yes, and when you were talking about safety earlier on there, have you ever had occasions where there’s been tension between safety and the list progressing?
>
> R Yes.
>
> I Okay, can you tell me about that?
>
> R Yes, I’ve certainly had people say to us... surgeons say to me, oh, that doesn’t... that’s fine, I can still use that. So I’d...
>
> I That being a piece of equipment?
>
> R Yes, that I’ve said isn’t sterile and I’ve made sure it isn’t sterile when I have that discussion. So the gloves come off and I touch it with my bare hands and I say, well, it definitely isn’t now.
>
> I Right, so you literally take your gloves off?
>
> R Oh, yes, yes. Yes. We’ve had, yes, I’ve had quite heated debates. (Interview 6, Scrub nurse lines 318-338)

In this excerpt the nurse utilised the sterility requirement to override the surgeons’ wish to simply carry on (momentum), demonstrating the importance of her responsibility for safety. A Recovery nurse in the day surgical unit commented:

> “And my main priority is just to make sure they’re safe... Obviously round in a day unit it’s faster paced, so we do have to try and look at getting patients through relatively quickly, but again still maintaining that safety margin.” (Interview 3, Recovery nurse, lines 103-105)

This quotation illustrates that momentum and safety are linked as the nurse acknowledges the necessity of momentum (which is usually higher in day case settings) but the primacy of safety. What also emerged from the analysis was

that the environment impacted upon the safety of the patient. How this did so will now be examined.

6.4 Safety and the environment

Each of the nurses recognised that the operating theatre environment was physically dangerous to the patient. In the interviews, the respondents repeatedly stated that safety was their top priority, as the quotes presented above make clear. From the interviews there was a definite sense that for these nurses, safety was at the centre of their practice. In terms of the observation, safety was subtler in its execution and manifested itself in many ways for each type of nurse.

6.4.1 Safety and the anaesthetic nurse

The anaesthetic nurse pays attention to safety, particularly through work that involves ‘checking’. Even before the time of the patient's arrival, safety checks were performed on the machines, drugs and kits that the anaesthetist may require, as illustrated in Chapter 5. The anaesthetic machines in particular were features of specific effort. Since these are what monitor the patient's vital signs and incorporate the ventilator that keeps the patient oxygenated (and therefore essentially alive) it is crucial that a large number of checks are made upon them each day. There were some 13 separate components of the machine requiring checks upon them. It is of interest that the nurses report that they all undertook these checks despite the fact that the anaesthetist as the end user is obliged to do so and retains ultimate responsibility for such checks. From my own practice, not all anaesthetists undertake these checks. Some are satisfied if their assistant has done them. These checks are primarily a safety-based intervention by which the nurse can be assured that the patient is entering a safe place with equipment that is safe to be used. From the momentum perspective, a defective machine is liable to cause a delay, since calling for assistance to resolve the problem or obtaining another machine may take some time. In the previous chapter I referred to this as an activity directed towards managing momentum; now I also put forward the idea that it is simultaneously a safety check. The two objectives of checking and managing momentum are aligned.

Once the patient arrived the first job of the anaesthetic nurse was to confirm the patient’s identity, establish that they had consented to the surgery and identify any risks that pertained to the anaesthetic sequence that they would undergo, such as pre-existing medical conditions and allergies. The following excerpt with an anaesthetic nurse (AN) illustrates this:

> The patient arrives. AN says ‘Morning! Hello my darling,’ as she takes the patient’s hand. She continues ‘Hello (name), I just need to check and make sure you are who you say you are.’ She confirms the NHS number on the patient’s wrist ID band with the theatre list and completes the ‘Sign In’ element of the WHO Surgical Safety Checklist in the patient’s notes. She asks the patient ‘What are you allergic to?’ (noting the presence of a red identity bracelet indicating an allergy to drugs). ‘Morphine, so I’m told,’ replies the patient. ‘Okay. You haven’t got any jewellery on? You’ve taken out all your piercings?’ she adds jokingly. (Observation session 10, 0930)

An exchange of this type occurred in each of the observations of anaesthetic nurses and was virtually identical in nature in both sites. Of interest here is the presence of the WHO checklist, a feature of practice that was ubiquitous throughout all of the surgical elements of the patient’s journey and noted in all of the observations. The purpose of the ‘Sign In’ element is to document salient information had been checked. By undertaking these checks the nurse was performing work directed to patient safety.

On occasion, the work of safety and the nursing role required temporary delays, especially when anxiety management was required. Anxiety management is another feature of the anaesthetic nursing role identified by Rauta et al (2012). In the observations I noted that physical contact was employed to help alleviate the patient’s anxiety, typically by holding the patient’s hand:

> SN13 squeezes the patient’s left hand while they insert the cannula. He appears to be very anxious and is breathing heavily. SN11 gives him her hand to hold, putting down the BP (blood pressure) cuff she was applying to do so. She strokes his hand gently and positions a light over the other hand to enable better visualisation of the veins. (Observation session 3, 1412)

The nurse appears to prioritise managing his anxiety over the need to apply the BP cuff but simultaneously undertaking an action that will promote the likelihood of the cannulation being successful. That both of these actions were undertaken spontaneously indicates that the nurse was used to recognising and managing such situations, both the patient’s distress and the need to insert the cannula. It was interesting to note that in doing so she opted to briefly delay applying the BP cuff, an activity that also relates to another key aspect of the anaesthetic nursing role: monitoring the patient. From a safety perspective this was important as the insertion of the cannula was necessary to administer drugs, some of which could resolve life-threatening events. Hand-holding to reduce anxiety was also observed being combined with a check on the patient’s temperature:

> “Of course the other is the... again, is the wellbeing of the patient and making sure the patient is comfortable, warm, protected, safe, do what we're doing to the right person, again.” (Interview 4, Anaesthetic nurse, lines 800-802)

> CN20 approaches a patient lying on a trolley (whose paperwork is incomplete) and takes his hand having noticed the patient is shivering. 'Are you warm enough?' he asks. The patient replies saying 'Yes I'm just nervous. I assume I'll be kept warm in theatre?' 'Yes, absolutely' he replies. [...] CN20 says ‘Its about keeping them warm and offering comfort. You saw me take that man’s hand earlier and checking he was warm. It’s like that.’ (Observation session 9, Theatre Co-ordinator, 0855 & 0945)

The notion of vulnerability was recently explored by Cousley, Martin and Hoy (2014). Their conceptual analysis of the phenomenon of vulnerability

identified that theatre patients are indeed vulnerable on physical, psychological and social levels. The physical vulnerability of the patient was assessed and managed using a variety of methods both observational and practical, with monitoring being a crucial part of the safety activity undertaken.

In the above example from observation 3, this monitoring recognises psychological cues as well as physical ones. The role of the nurse in monitoring the patient’s physiological indices commenced with the patient’s arrival in theatre. The application of BP, electro-cardiograph (ECG) and blood oxygen saturation (commonly referred to as ‘sats’) monitors was undertaken in conjunction with the HCA. Throughout the patient’s theatre stay these monitors were continuously scrutinised by the anaesthetist and provided cues for action for the anaesthetic nurse. In one such instance the patient’s blood pressure was observed to have dropped by the anaesthetist, prompting the following exchange:

> As she does this, the patient's blood pressure is seen to have dropped by RA (Registrar Anaesthetist). She asks SN9 ‘May we have some ephedrine? (a drug used to correct low BP by causing vasoconstriction)’. SN9 replies ‘Ephedrine? Sure.’ She goes into the anaesthetic room returning momentarily with a syringe that she is drawing up. ‘I've only given you 5 mls. Okay?’ (The usual amount is 10mls). CA (Consultant Anaesthetist) is happy with this and gives the drug. (Observation session 3, 0855)

Here we see an example of confirmatory communication used to initiate action as the result of the monitoring. That she only supplied half the normal dose was a result of her obtaining the drug as rapidly as possible, allowing it to be administered more promptly than if she had delayed to get another syringe. In this scenario, her judgement was correct and the situation resolved quickly. In another scenario, the anaesthetic nurse (AN) uses her knowledge to anticipate and interpret a monitoring cue:

> A warning saying ‘BP low’ begins to flash, accompanied by a beeping noise. CA (Consultant Anaesthetist) gives a dose of medication to correct this. ‘We were expecting that,’ remarks AN. ‘Yeah, that’s why I was so cautious with the propofol,’ replies CA (propofol can cause significant drops in blood pressure, particularly in the elderly upon induction of anaesthesia). (Observation session 10, 0956)

Here the monitor’s warning does not unduly alarm the nurse as she had anticipated that the low BP was likely.

6.4.2 The scrub nurse

As stated in section 6.3 the scrub nurse is responsible for preventing surgical harm. There are major hazards associated with surgery such as retained swabs and missing needles that can affect the patient. Much of the work undertaken by the scrub nurse thus centred around these aspects of safety. One scrub nurse also elaborated on this recognition of danger by explaining:

> Being their advocate whilst they’re in theatre. So they come in and you make sure that as much as possible their dignity is kept, that they’re kept as safe as possible. You know, they’re put in all sorts of funny positions and it’s not always possible that they’re not going to get, you know, their legs are up, their arms are in funny positions, as much as possible you try and get pads here and pads there, make sure there’s no metal in contact for when the diathermy might cause some sort of burns and, you know, make sure they haven’t got a diathermy pad on over metalwork. (Interview 2, Scrub nurse, Lines 651-658)

In this excerpt the scrub nurse is demonstrating a wider awareness of risk, as the application of the pad is usually the responsibility of the anaesthetic nurse. Interestingly, the positioning of the patient is usually an activity undertaken by the surgeon and other nurses, as the scrub nurse is sterile and unable to touch the patient. In some cases, they may supervise the positioning as illustrated here. I believe that this illustrates that while one type of nurse is ‘usually’

responsible for a given activity, the awareness of safety is shared by all perioperative nurses.

Another task often initiated by the scrub nurse was the ‘Time Out’ element of the WHO checklist. This is the final confirmation of the patient’s identity and surgery to be undertaken and also functions as a wider team brief. Issues such as blood loss, antibiotic prophylaxis, deep vein thrombosis prevention and specific patient concerns are supposed to be discussed. All of these checks are required prior to the patient’s skin being incised. In one instance, despite the supposedly mandatory nature of this check, the scrub nurse (SN3) had to work hard to ensure its completion:

> SN3 calls out “Can we check the patient please guys- I’m sorry”. The surgeons are painting the patient at this point and the WHO checks have not yet been undertaken. SN3 says, “Wait, we haven’t checked the patient, sorry!” The team stops and verifies the patient’s details. (Observation session 1, 1435)

Here the scrub nurse uses safety (as represented by the WHO checklist) in order to achieve compliance from the surgeons and the wider team. As discussed by Riley and Manias (2002) nurses can and do use formal procedures to obtain desired behaviours. That the nurse says ‘sorry’ for doing so is another example of the emotional work necessary to ensure compliance with the checks. Another vignette from the circulating nurse (SN9) illustrates that the check is not always approached in a necessarily formal way:

> SN9 says out loud ‘Let’s do a WHO form properly,’ prompting RO (Orthopaedic Registrar) to quip ‘What, we haven’t been doing it properly for all this time?’ The team laughs and SN9 tells him ‘Oh hush!’ The team checks the patient’s name, ID bracelet and consent form. (Observation session 3, 1431)

In this example, the team are apparently willing to undertake the checks but do so in a light-hearted manner, but the nurse uses a joking form of conversation again indicating a form of emotional work.

One of the main duties of the scrub nurse is the creation and maintenance of the sterile field, which includes the trays of instruments and equipment that are required to undertake the surgery. The presence of outside observers can be a threat to this field, as the lack of environmental awareness may lead to inadvertent contamination, as was almost the case in one example:

> The patient is wheeled into theatre on the operating table. As this occurs the 3 medical students also enter the theatre and move through it prompting SN3 to call out “Mind my sets!” with some urgency as they are perilously close to desterilising them. SN3 shoots me a glance and rolls her eyes. (Observation session 1, 1430)

The presence of 3 medical students jeopardises the sterile field. While it is hoped that they would be aware of the principles of asepsis, they lack this environmentally contextual knowledge (as discussed by Fox, 1997), so the nurse is obliged to intervene, responding with some frustration as her eye-roll to me suggests.

The scrub nurse must also ensure the accuracy of ‘the count’, a process by which all items like swabs, suture needles and instruments are prevented from being retained inside the patient. In order to do this, all such items are physically counted into and out of the sterile field by both the scrub nurse and the circulator. The current tally of such items is written and displayed on a whiteboard by the circulating person. This is to provide a visual reference and a record of the count, in the event that the original person the count was undertaken with is not present. Here, the scrub nurse acts as a constant presence, assisted by a colleague who may change to another member of staff not initially present. The board acts as both an aide-memoir to the scrub nurse and an independent count for other members of the team in theatre. Christian et al (2006, pg 166) maintain that activities such as the count represent ‘auxiliary items’ defined as ‘...any task that is not directly patient-centred’. They also argue that auxiliary items can delay case progression. I

agree that these tasks can cost momentum in my analysis but also propose that these actions are designed to ensure safety at each stage of the journey.

Another key responsibility is the management of surgical specimens; tissue such as organs or fluid samples removed from the patient for laboratory analysis. There have been incidences where the failure to manage these items led to harm by providing either false negative or false positive results. To mitigate this the scrub nurse must relay information about the sample to the circulating practitioner, who must then take action. However this process does not always go smoothly and there are occasions when confusion can creep in. In the following excerpt from my field notes, a patient has had a breast lump excised and the nurses are cataloguing the sample. The scrub nurse is still sterile and is directing the circulating nurse to place the sample into a laboratory container for analysis:

> The circulating nurse asks, “What was the second specimen?” (only one was taken) prompting SN2 to remark, “Don’t confuse me (name)!” They both share a laugh at this. (Observation session 1, 1352)

The scrub nurse is accounting for safety/managing risk by both undertaking physical work of her own physical work and directional work because she cannot interact with any non-sterile equipment. The scrub nurse must enrol the circulating nurse almost as 'co-author' of the sterile area.

6.4.3 The recovery nurse

When the patient arrives in recovery, the immediate surgical dangers are now past. Anaesthesia is reversed and the patient’s bodily integrity is restored, with the exception of intravenous lines, urinary catheters and any drains that may have been placed. A large part of the Recovery nurse’s role is monitoring the resultant wound. Initially they share this role with the scrub nurse and anaesthetist, but then leave to commence the next operation. An excerpt from an interview with a recovery nurse illustrates this work:

> “I think from my point of view obviously the main goals are to protect the patient, to make sure that they are in a proper physical state to return to the ward. So obviously we cover the A, B, C, D, E [Airway, Breathing, Circulation, Disability and Exposure, a mnemonic used to structure patient management] approach. That’s basically what a lot of our work revolves around. So we’re looking to make sure that patients are somewhere back to how they were before the operation.” (Interview 3, Recovery nurse, lines 90-94)

The same nurse later comments:

> “So it’s making sure that when that patient goes back [to the ward] they are safe enough to be left alone for sort of periods of sort of say 15 minutes at a time without intervention. So that’s our main goal in recovery.” (Interview 3, recovery nurse, lines 99-101)

What is interesting here is the sense that the wards are 'less safe' places to be for patients in view of their post-surgical status. Oddly, Recovery seems to represents a safe haven between two opposing yet equally dangerous environments for the patient; the operating theatre and the ward. In staffing terms, the ratio of one to one nursing in Recovery enables the nurse to provide attention and care as their condition requires which may be less likely on the wards where the ratio of staff to patients will be lower. All of the nurses had experienced ward work during their training and in the interviews they contrasted the management of safety in these different settings, as I shall now discuss.

6.4.4 Perioperative nurses on the ward: a different view of work and safety

During the interviews with the nurses, what emerged as a fascinating counterpoint to their experience in theatres was their view of other areas in the

hospital, most notably the wards. Scrub nurses very seldom leave the theatre complex, anaesthetic nurses may do so on occasion. Recovery nurses are always returning and collecting patients so have more day-to-day contact with the wards. More recently qualified nurses also expressed opinions about the wards based upon their experiences as students. The following excerpts illustrate this:

> “It's just mad on the wards. There's not enough members of staff. There's not enough to, in my opinion, take the time to care for people properly. [...] But yes, I just find it manic. You wouldn't ever stop on the wards. You'd be on the go from sort of dawn to dusk, to the end of your shift. And most of the time it would be sort of doing paperwork and sort of doing bare essentials.” (Interview 3, Recovery nurse, Lines 334-6, 357-359)

> “And I don't think I was a bad nurse and I don't think if I went to the ward I'd be a bad nurse. I was... never fully got to grips with looking after 10, 12 people at once and knowing exactly what all of their needs were at once. In theatres it's a bit more you can do this one and you can do this one and I think maybe because I’m a bloke when you can do one at a time rather than having to multitask as much.” (Interview 2, scrub nurse, lines 94-101)

These excerpts suggest that perioperative nurses saw wards as difficult places to provide the type of care that as nurses, they wished to provide. These nurses all expressed a dislike what they saw as chaotic practices and this echoes political and media debates about safe staffing ratios. This ability to provide care that made a rapid difference (as discussed by Mackintosh, 2007) was also a feature of the more experienced nurses desire to work in theatre. I believe that these views suggest that ‘time to care’ is closely bound up with safety. In the theatre the nurses have ability to concentrate on one patient at a time (although the recovery nurses were occasionally required to ‘double up’ and care for two) and this time was protected from interruption by relatives and ward routines.

6.5 Summary

This chapter has explored the work of perioperative nurses from a perspective of safety. Surgical safety is highly topical in the UK at present (Ritchie, 2000; DOH, 2012; Beckford, 2013; NHS Confederation, 2014). The three types of nurses undertake different work to ensure that the patient’s risk at various stages of surgery is minimised (WHO, 2008). The theatre environment is inherently dangerous but nursing work contains mechanisms to promote safety (Gawande, 1992). Checking, counting and restoring the patient to their pre-operative condition are central features. One important finding from my analysis is the recognition that the patient journey entails transfers from one risk-area (theatre) to another risk-area (wards). The nurses use their personal experiences and knowledge of theatres and wards to inform their practice and responsibility for risk is at the centre of their care.

Having explored the concepts of momentum and safety, it is now necessary to consider how this view of perioperative nursing work relates to the initial definitions, literature and the ‘official’ understanding of perioperative nursing presented in the previous chapters. These considerations will be discussed in the next chapter.

Chapter 7: Discussion and conclusion

7.1 Introduction

In the previous two chapters the themes of momentum and safety related to perioperative nursing were developed. Managing momentum referred to the need to 'keep things moving' in terms of the operating list and the overall work of the theatre department. Responsibility for safety described the necessity of the nurses to undertake work that protected the patient from harm. Putting these two themes together provides a new conceptualisation of perioperative nursing work. Perioperative nursing has at its core constant tension between the need to manage momentum and being responsible for safety, and this has consequences for practice. This chapter aims to discuss the findings further in light of the literature that was examined and to present ideas for further research and potential practice implications.

7.2 Perioperative nursing: momentum and safety

Nursing by nature is a very difficult entity to adequately capture in a single definition, since different types and grade of practitioner undertake activities in vastly different areas. Managing momentum and ensuring safety are undoubtedly features of other types of nursing work but they are enacted in a unique way within the theatre. The NHS Careers (2013) website's theatre roles characteristics specification presented in Table 1 listed numerous features that have been described in my analysis of perioperative work. I argue that the understanding of momentum and safety can add to these by providing a conceptual framework in which perioperative nursing can be understood better. Understanding of the need to manage patient safety in anaesthesia provides a clear rationale for the checks undertaken by perioperative nurses. I have also shown that safety checks complement the need to ‘have things ready’ for the surgeon or anaesthetist and that this helps manage momentum. Perioperative nursing involves managing both momentum and safety. For

scrub nurses, preparing the kits manages momentum and their vigilance over the swab count and specimen management promote safety. Recovery nurses must monitor the patient closely, averting post-operative risks to ensure the patient's fitness to return to the ward and also keep the flow of discharges steady to prevent backlog. The nurse(s) in charge of a given area must maintain an overview of all of these activities to ensure the theatres work productively. A failure to ensure prompt and safe surgery has various risks attached to it, with cancellation of operations and patient harm being possible 'adverse' outcomes.

7.2.1 Momentum, safety and the literature

Drawing from the literature review presented in Chapter Two it is possible to relate momentum and safety in numerous different ways. The actions of the various types of nurse identified in this study can be seen to contribute towards a better definition of the role of the perioperative nurse. Given that the wider role was identified as both complex yet undefined I believe that my research may offer useful insights about perioperative nursing roles. Firstly, perioperative nursing may be better understood as consisting of three separate formal roles attached to areas of practice (Anaesthetic, Scrub and Recovery) each of which has drivers that incorporate the need to balance to momentum and safety. These practitioners do not work in wider isolation but are integrally bound as part of a wider team that must function smoothly and safely to ensure that all patients are operated on.

The practice of perioperative nursing is closely linked to the notion of 'care' described in the literature in relation to other types of nursing practice. We can return to the notion of 'care as vow' (Richardson et al, 2007) in the literature and re-examine in the light of the proposed themes of momentum and safety. My research illustrates that perioperative nurses do not just mechanistically 'do' things like swab counts and maintain sterility but they perform (or manage) safety by doing these tasks to keep the patient from harm, the underlying bedrock of the vow. The patient's safety and uniqueness are

preserved through the enacting of what appear to be superficial practices but can in fact be more deeply understood to represent the perioperative nurse's care.

The maintenance of momentum and the idea of the vow are more subtly connected. The nurses frequently made mention of the theatre list and felt a deal of responsibility to all the patients on the list, as evidenced by the comments about not completing the list making them upset as described in section 5.4. This was observed too in the discussion between the nurses in section 5.2.3 in which cancellation was not seen as an acceptable outcome for a patient. Perioperative nurses have to maintain an awareness of all of the patients on a given list, even though they exist only in an abstract manner until they arrive in the theatre. Maintaining momentum is a way to ensure that all of the patients receive the care they need and not to do this is considered a failure.

Perioperative nurses engage in efforts to ensure the workflow in the face of uncertainty in a complex environment. How does one manage momentum with inherently risk-laden and time critical work in a safe manner? I argue that perioperative nurses have become experts in this as evidenced by the strategies they have accumulated and use on a daily basis. Their skills go beyond those formally specified for example on NHS careers websites. This project has established that momentum is a feature of practice that perioperative nurses undertake. While it has not made a detailed examination of precisely what techniques and knowledge are utilised (or developed) in order to do this, I have shown that when this work does not get accomplished successfully there are failures that result in cancellations and occasionally patient harm.

7.3 Perioperative nurses and momentum: different practices

The initial literature review raised certain issues that are relevant to theatre nursing. The empirical research added to my view of this area of practice. I no longer believe that perioperative nurses are a homogenous group of practitioners who 'just do' theatre practice. At the beginning of the study, my perspective on perioperative nursing was based on experience of only anaesthetic nursing. For me, 'theatre nurse' was a simple catch all that I used to describe my work to both nursing colleagues and friends. However, as the data were analysed, it became apparent that anaesthetic and scrub nurses' priorities differed. While safety could never be compromised, the momentum aspects of the work were different for nurses in these different roles. My work suggests that there are similarities in the anaesthetic and scrub roles but that recovery nurses experience the drive to manage momentum in a different manner.

Anaesthetic and scrub nurses undertake actions that are similar when they first strive to generate momentum at the beginning of the surgical day. They prepare and check equipment, ensure the availability of surgical instruments, anticipate medical staffs' requirements (and those of individual patients) and ensure that both patient and staff are in the right place at the right time. This is before they have even interacted with a patient in most cases. Having generated this initial momentum, the challenge facing these nurses is to maintain it in the face of frequently changing demands. Whist this occurs they must focus on the patient they already have as well as plan for the next. If the list is a rapid one, this process may well be simultaneous and may also become invisible. However, they must then keep the momentum going until the list ends. Activities that were considered to maintain momentum included keeping the nursing staff refreshed with coffee and lunch breaks, supplying sutures and equipment as necessitated by the surgery and responding to alterations in the patient's physiological equipment.

In contrast, recovery nurses' work directed towards momentum is highly pressured by the mostly unspoken need to discharge patients to the wards,

thus allowing the theatres to continue to working getting their next case begun and completed. They still had to consider patient safety issues, but these were represented as the sequelae of surgery, with wounds and physiological norms being prominent issues they had to attend to. However, when momentum loss meant that the Recovery unit was full, they were then required to undertake different activities that were considered to be more ward-like such as providing food and drinks and making toileting arrangements and their role in moving patients out of the theatre area. They found this stressful and very much considered it to be inappropriate for their patients.

Returning to the literature, much of the need to maintain momentum can be linked to the notions of power discussed in Chapter Two. The theatre team works within a hierarchy that can have differing agendas, as the discussion between the Recovery nurse and Matron in Section 5.2.3 revealed. The Anaesthetic and Scrub nurses needed patients to be 'pulled through' their system and so they executed strategies such as sending for the patient at opportune times, planning lists ahead of time and so on. In contrast the Recovery nurses were needing 'push out' their patients, coming as they did at the end of the process. There was little that Recovery nurses could do to affect this throughput, except to close the unit, which in their case was the ultimate sanction they could employ.

7.4 Environmental factors affecting perioperative work

Having argued that perioperative nursing has at its centre the need to balance momentum and safety, it is now helpful to consider the unique environment in which it occurs. The early literature provided some insights into this most notably Fox (1997) and his conceptualisation of the Circuit of Hygiene. From my observations of the work of perioperative nurses I believe it is the case that the environment in which they work must be controlled and managed in order to maintain momentum on the one hand while preserving safety on the other.

The patient must be moved through a series of areas that begins on the ward. They next move to the theatre department itself, into the anaesthetic room then theatre. They are moved onto the operating table, back onto a bed, into Recovery and finally returned to the ward. At all of these stages people, equipment and communications were required to be 'in the right place at the right time'. A failure to do this meant delays occurring with an attendant loss of momentum. The physical journey of the patient may be some hundreds of metres, because the theatres tend to be located some distance from the wards where patients are admitted. Perioperative nurses must constantly strive to keep patients moving, both the ones present in theatre at any given time, but also the next patient on the list.

For each of the nurses then, the physical environment was a feature of their work. Again there were differences that reflected the unique work for each nurse. Anaesthetic nurses in particular were required to physically protect the patient from becoming cold, poor positioning, electro-cautery burns and other dangers associated with the environment. They were required to spend time undertaking these activities, which due to their safety implications was non-negotiable lest harm occur. In the interviews they explicitly recognised the inherent danger of this working environment for patients and indeed for themselves. The work of the scrub nurse was centered around protecting the body of the patient from harm once its integrity was breached by the surgery. The acts of providing and maintaining a sterile field and undertaking counts to prevent retained items were central to their activity. These directly relate to Fox's circuits in that they function to prevent harm by promoting hygiene and preventing infection whilst also preventing items being retained in the patient's body. Thus, the environment and the consequent work undertaken within it have implications for momentum and safety. Put simply, momentum requires managing while safety is a constant.

In Recovery, with safety threats being correspondingly lower, I observed a shift from a balance between momentum and safety to a more pronounced emphasis on discharging patients as rapidly (albeit safely) as possible. I saw that returning patients to the ward was actually more difficult than collecting

them in momentum terms. Since the theatre staff did the work of collecting, the theatres were in a state of readiness for the patient. However, the wards were frequently busy and it was not always possible to return patients as swiftly. Recovery nurses frequently had to negotiate returns or else compensate for the patient remaining in Recovery by arranging food and drinks for them. This indicated to me that the patient was ostensibly 'safe' from a theatre perspective but was now a momentum threat. I believe that the hazardous nature of this environment therefore produces staff that are constantly safety oriented. This is a positive feature of theatre nursing practice which is seldom appreciated.

One fascinating finding that arose from the research was the perspective the perioperative nurses had about work on the wards. Universally, the perioperative nurses saw their ability to give one to one care as a distinct advantage, seeing the wards as busy places where the care they wished to achieve could never be delivered. This appears to be because of the perioperative nursing focus on safety, which they felt was compromised by nursing practices outside of the theatres. My work adds a new dimension to the roles and characteristics specification of perioperative nursing presented in Chapter 1 by highlighting the importance and centrality of managing safety as part of perioperative nursing care.

7.5 Momentum v safety- the tension at the heart of practice?

The previous two chapters described the three types of perioperative nurses and how their respective roles were influenced by the need to manage momentum and be responsible for safety. Perioperative nurses are required to ensure that patients are anaesthetised, operated on, recovered and discharged back to the ward as swiftly as possible. I have shown that concurrent with this need for momentum, safety work must also be undertaken. Balancing

momentum and safety can be complimentary but can become also become a source of tension for the nurses involved.

Momentum and safety must be balanced to achieve prompt, safe surgery. If momentum is enhanced at the expense of safety then errors may occur due to rushing the work of ignoring the safety checks. This would affect momentum because such errors lead to delay. Alternatively, if safety becomes the sole concern, then it is likely that momentum will be lost leading to delays and the attendant consequences of longer waiting lists and public dissatisfaction. Ultimately this would have negative implications for hospital providers, contracts with and funding from CCG's as well as impacting patients.

I believe the tension between momentum and safety lies at the very of core perioperative nursing. Throughout the research the amount of time and effort that went into 'running the list' was significant. The nurses performed emotional labour to do this and were evidently striving hard to ensure a steady flow of their work. Activities such as completing the WHO safety checklist and the various checks undertaken by the anaesthetic and scrub nurses served the needs of momentum whilst simultaneously ensuring safety. This was done by using the safety check as a part of the process of the operation, the surgery could not commence until it was completed, representing a structure for the whole operation. Sometimes the demands of patient safety appeared to threaten momentum. For example, the need to undertake the WHO check meant that the nurse typically stopped proceedings (slowing momentum) until the safety issues had been addressed. Returning to the discussion of power in the theatre (Section 2.3.4) it can be seen that the nurses did use safety to wield power but that occasionally surgeons had to be forced into compliance. My analysis puts this into a context where the moral and ethical tension described by Killen (2000) can be understood as a result of the need to maintain safety while still preserving momentum. Stopping to undertake the check serves momentum by ensuring that not only is the patient safe, but allowing the team the opportunity to confer about equipment and kit. The demands of the theatre environment are that patients travel through it. Momentum is necessary here in a way that is less apparent on the wards. But this cannot be

the only concern for these nurses. The safety aspects of the patient's care are related to the literature around the idea of 'care as vow' earlier described by Rudolffsson et al (2007). This vow relates to never abandoning the patient and keeping the patient safe is also vital within theatres, since they are such inherently dangerous places. Having examined this tension in perioperative practice, it is now time to consider the implications of the research in terms of answering the research question.

7.6 What is perioperative nursing?

Perioperative nursing is not a homogenous activity undertaken by nurses with generic skills that they acquired from their initial training. I argue that it is in fact three separate roles sharing two components: the need to manage momentum and to be responsible for safety, with the extent to which they do this being different. Anaesthetic and scrub nurses have to undertake different types of work to achieve prompt, safe surgery whilst recovery nurses are more focussed on rapidly discharging patients to an environment they perceived as less safe than theatre. I believe that this understanding is the unique contribution of my research to practice knowledge. Previously, there was a lack of definition about perioperative nursing reflecting the idea that nursing generally is difficult to define, encompassing such wide spheres of knowledge and practice. My work adds a conceptual basis for understanding perioperative nursing. A deeper understanding of what this nursing entails would provide practitioners with a vocabulary to articulate what they do and what is important about these roles. Given the increasing diversification of nursing practice into highly specialised areas one could argue that 'general nursing' is perhaps a term that is increasingly less helpful. Whilst nursing holds a common philosophy, Scope of Practice, Code of Conduct and is conducted under the aegis of a professional regulator, it is perhaps time to acknowledge that every area is specialised in its own right. While I do not believe that perioperative nursing is better or more special than any other type of nursing, it appears to have some distinctive features. My analysis may offer insights that can be of use to other nursing specialities.

I argue that this relationship between momentum and safety is at the core of what perioperative nursing is. Without it, practice would devolve into a conveyor belt of technical 'fixing people activity' or would become inefficient and dangerous to patients. Perioperative nurses must balance the two and reconcile potential conflicts between them.

7.6.1 Roles in the care setting

The research identified three roles: the anaesthetic, scrub and recovery nurse. Surgery as we know it could not be conducted without each of these types of nurses even though there are increasingly practitioners, such as ODPs, who are trained in all three disciplines. Some nurses also move between these roles but must provide one or the other exclusively at any given moment. The anaesthetic and scrub nurse roles entailed a preparation period, an execution period in which they provided skilled knowledge and assistance to the medical staff and the ability to foresee and manage events that occurred 'off script' such as emergencies or changes to the workflow. Both types of nurses used detailed knowledge to prepare and anticipate the likely requirements for a given patient or current and perhaps even future operating lists. They did this to ensure momentum and safety. The recovery nurses had a different challenge in that they had to receive the patient and then maximise their condition for discharge back to the ward (or as described straight to discharge home in some cases). They were nearly always operating under constant pressure to do this, but again had to balance momentum and safety.

So, although each of the different nurses had different roles and clinical priorities, I believe that they were all performing work that was driven by a constant requirement to balance workflow and safety. It is my belief that these three roles are also mirrored in the work of ODPs. Indeed, their training is broken down specifically into these areas. From observation in the study and my professional experience I would argue that ODPs conduct the same work in the same manner. This would need to be tested in future research. It is now

necessary to consider how these findings could be relevant to other practice settings and clinical specialities.

7.7 Implications for practice

Miller (2008) states that nurses now need the skills to explore the findings from qualitative research and how this can be used to inform practice. Sandelowski and Barroso (2003) developed a typology into which qualitative research outputs could be understood, leading to a clearer idea of how they could be utilised in practice. Using this typology I would classify my research findings as a conceptual/thematic description since it has '... findings rendered in the form of one or more concepts or themes either developed in situ from the data or imported from existing theories or literature outside the study,' (Sandelowski and Barroso, pg 913). My findings mean that perioperative nursing can be better conceptualised.

One of the key learning outcomes of the DClinP (Bartlett and Verschurr, 2013, pg 53) is a "...substantive, original, theoretically informed contribution to knowledge and practice development in relation to your clinical domain." I have made the case that theatre nursing reflects the wider values expected of the profession as a whole but that this is done in a unique way. An awareness of the need for the momentum balanced with safety is a development from my research that could have implications in other practice areas. For example, areas such as the Emergency Department also experience the need to ensure that patients are admitted and discharged within the 4-hour target. They need to manage momentum against a formal target. And, there are organisational penalties for failing to manage momentum. In contrast, it can be argued that community nurses and nurses working in residential/nursing homes experience few demands related to momentum. They work to enable patients to remain in their own home or a residential setting. The experience of momentum is very different in the different settings.

When designing workflows and systems processes, a detailed understanding of how momentum can be promoted without compromising safety is central. One example of this is the increasing move away from having separate anaesthetic rooms and anaesthetising in the theatre itself, reducing patient transfers. However, the time needed for the scrub nurse to undertake their checks and preparations is often the same time that the patient is being anaesthetised. So while perhaps speeding one aspect of surgery, are we limiting the time available for another?

Another potential area for examination would be a detailed and high level analysis of the knowledge and skills that were seen in this project but were embedded within the work and attitude of the nurses. Examples of areas of consideration for such research could include how perioperative nurses make decisions about workflow, how they prioritise the various demands on them and how they balance the need for momentum with safety.

Perioperative education provision may also benefit from this research by being structured to encourage practitioners about the different components of their work. One particular aspect of this research that could be useful would be to use it in the study of clinical decision-making in high acuity areas. The conscious knowledge of the need to manage momentum and safety could be a useful factor when analysing incidents such as patient cancellation. Were there factors at play which stretched the ability to manage momentum? In such instances, are incident reports being generated that can allow analysis of these factors? Delays of any kind in the NHS are now headline news and it is common for Trusts to engage incident analysis. I personally doubt that such reviews receive information from practitioners 'on the ground' and conclusions are frequently not fed back. A wider study collating all such cancellations of surgery and the outcomes or recommendations should be put into the domain of all perioperative staff. Crucially, they must then be given the time to reflect and respond, allowing them to contribute to the recommendations. For departments such as ED planning exercises around what occurs when ambulances are queuing to admit patients may benefit from looking at how best to manage safety in such situations. Interestingly, the educational

program described by Clark-Burg (2008) did not contain such scenario-based material. Although designed for undergraduates rather than experienced nurses I am certain that an introduction to the concepts of momentum and safety would be very helpful, challenging students to examine future practice in such terms.

Perhaps one of the main contributions from my research could be the addition of the awareness of momentum versus safety into a component of a taxonomy of perioperative nursing. Those developed (predominantly the work of Mitchell et al, 2013) could map momentum to situational awareness and communication since my research suggests that these ideas are crucial in smoothly running a list and ensuring that the work is achieved in a timely and safe manner. Decision-making in the light of the awareness of the need to manage momentum would also be enhanced, since the need to keep the list running is a central feature of practice from my study.

One way of implementing these ideas in a practical way would be the development of a series of competencies based on Benner's Novice to Expert model (Benner, 1984). For each Agenda for Change (AFC) pay band there could be a number of practical and theoretical issues developed for each band. Thus a newly qualified scrub nurse would need to focus on having the correct equipment for the single operation in front of them. As they develop, they would need to anticipate all of the cases on a given theatre list and be able to ensure that all necessary instruments and kit was correct and delivered in a timely fashion. Band 6 practitioners would need to add an awareness of issues such as when to send for patients, ensure colleagues received their breaks and were able to run a busy all day list with minimal support. A Band 7 Sister/Charge Nurse would need to assume responsibility for the entire department and be able to maintain an overview of each theatre, staffing allocation, responding to emergencies and advanced list scheduling.

The themes of managing momentum and accounting for safety would also be of benefit when considering the unique brand of teamwork that occurs in the theatre. What would be the result of surgeons looking at the work of the theater from a momentum point of view? I speculate that it would be very interesting to see how they viewed momentum management and indeed to see if they also act as drivers or inhibitors in this process. What would the views of anaesthetists be in relation this topic? Again, I believe they would have numerous thoughts on the subject and could also be examined in terms of anaesthesia as a driver or inhibitor of momentum. A surgical colleague of mine once quipped that the "...purpose of anaesthesia is to delay surgery." I strongly suspect that a very intense debate could ensue if this topic were couched in such terms!

I also believe that wider dissemination of the results and the theoretical perspectives of the momentum/safety idea is crucial. Bodies such as the Association for Perioperative Practice and other specialty groups would be ideal to approach with a view to promoting dissemination and debate. Publication of my findings could represent a starting point in a wider professional arena that may incorporate my findings into the wider debate.

7.8 Reflections on the study

To say that this journey has challenged me and yet proven satisfying and enlightening in ways I had never imagined would not do it justice. Coming to terms with the vocabulary of qualitative research and its myriad methods represented the first task I undertook. Over the seven years of the DClinP programme I have been enamored with various theories (and wisely counseled to moderate this fascination) and also discovered a tendency to delve too deeply into theories that were of intellectual interest to me. In the early drafts of this thesis my enthusiasm for such debate required some judicious reigning in to prevent an imbalance between theory and the execution of the method. I believe I have finally reached a way of investigating the phenomena that is both

paradigmatically and epistemologically consistent yet also allows me retain an authentic voice in my reporting.

The process of gaining ethical clearance was especially complex, taking almost a year to complete. I now very much suggest fellow students bear this in mind in their research. For studies such as mine there is now a 'proportional ethics' clearance that is needed which I hope will reduce the burden of this process to future researchers.

Perhaps the largest single obstacle to overcome was locating and undertaking the interviews. Holding a senior full-time NHS post for the duration of the study was on occasion very limiting to me. That I am unable to drive was another factor that was rather limiting. It was only with considerable support from my supervisory team and learning to cultivate a degree of tenacity that I was able to achieve the interviews. The fact that I was also 'chasing' other staff that had differing shift patterns was also a factor that needed managing.

In the pilot study I undertook two interviews that revealed a marked tendency to commit a few 'sins' such as leading the respondent and talking too much. This was remedied by undertaking a qualitative interviewing training course that hugely improved my abilities. To this day, my maxim in interviews (mostly but not always achieved) is to never miss an opportunity to be quiet and let the respondent speak!

I also feel that the conclusions reached have been surprising in that they were in no way like anything I had expected to find. While not wishing to explicitly use this as an argument about validity I do feel that it represents the extent of my journey in this research.

What has delighted me most as the outcome of this research is hopefully a transferable finding: the ability to look at my nursing work and think 'Yes, that is a way to understand it better.' It is my hope that dissemination of my findings will bring such minor epiphanies to my fellow perioperative nurses and theatre colleagues.

7.9 Strengths and limitations of the study

This study has examined perioperative nurses from the perspective of people who are engaged with it and conducted by a researcher who is intimately familiar with it. I believe that on both of these counts the findings represent a reality that is true to and arose from the data. The tension between momentum and safety are recognisable features of practice that were distilled from the data and yet would be recognised by other practitioners in this area almost instinctively. What this study has achieved is to identify them explicitly. It is my belief that these findings would be transferable to other operating departments. The data are very dense and focus on the usual phenomena, not looking for extremes. That the study was multi-site and no participants were known to me (or me to them) suggests that my findings arose in a manner consistent with the idea that they are transferable. Simply put, I found both themes at both sites, indicating that they are indeed to be found in other theatres. The study used a systematic approach and all data was analysed and coded in a consistent manner. Again, I believe that the coding scheme I developed would be as applicable to other units as the ones I studied.

The limitations of the study largely arose from both its small scale and that a lone researcher undertook it. It utilised a small sample of participants and did not ensure an even balance between those observed and interviewed. A larger sample size and more homogenous approach to data collection in terms of interviewing the same people who were observed may have increased internal validity.

In terms of the study design, one major parameter I would have altered in retrospect was the decision to focus solely on perioperative nurses. Given that ODPs are an increasing part of the theatre workforce, my decision to exclude them did cause difficulties, not the least of which was limiting my pool of participants significantly. In mitigation for this decision, the study was designed some time ago at a point when ODPs were a brand new healthcare profession about whom little research existed. I believe that at that time adding them into my study may have been premature. It would be very interesting to see if their own professional identity influences their view of these concepts.

7.9.1 Assessment of methods and methodology

The methods selected for this research were non-participant observation and semi-structured interviews. I remain satisfied that these methods were appropriate and have yielded new material. What would have perhaps been interesting would have been to conduct a slightly more mixed-methods approach that sought not only to uncover the themes I have found but to attempt to correlate them more formally. Questions such as the extent to which safety overrides momentum or locating the point at which safety 'kicks-in' (or is subservient to momentum) would possibly be answered by such a method.

7.10 Recommendations for future research

I believe that future research arising from this thesis should focus on the wider theatre team. As yet there is little research about the views of ODPs in relation to their work and their understanding of it. A comparison between my results and the results of such a project would be most interesting.

If perioperative education were to include some of the findings from my research then evaluation of this change in training would also be a valuable contribution to our wider knowledge and that of theatre practice specifically. Scenario based training in which either momentum or safety is jeopardised would prepare staff better for situations which they will almost certainly face. This could inform future decision-making in the clinical environment.

Finally, in further development of taxonomies of perioperative practice, it may be useful to examine where my findings of managing momentum and responsibility for safety and incorporate them where they can add to richness of the model.

7.11 Conclusion

This research project has examined the work of perioperative nurses and arrived at a new conceptualisation of that work. It is undertaken by three different practitioners, all of whom experience the tension between the need to manage momentum and maintain safety. Managing momentum for the anaesthetic and scrub practitioners is mainly manifested in their need to 'keep the list moving', a series of activities that they undertake by performing actions such as preparing and planning the list. For recovery nurses, the pressure to maintain momentum is manifested by a need to discharge the patients back to the wards, preventing a backlog of patients in the theatre department. Failure to manage momentum results in both patients being cancelled (with potentially high organisational consequence) and staff dissatisfaction.

Concurrent with the need to perform prompt surgery is the need for it to be safe. Surgery is inherently dangerous and the nurses all experienced the desire to keeping the patient safe as their priority, with safety 'trumping' momentum if the situation demanded. Again, the way in which the different nurses enacted safety was role–dependent with anaesthetic and scrub nurses being pre-occupied with the various checking activities they were seen to

undertake. Safety in recovery was about making sure the patient was safe to be left on the ward, an area that while clinical was seen by all of the perioperative nurses as markedly 'less safe' than the theatre environment. However, I have argued that while mostly complimentary, this balance between momentum and safety represents a tension that is constantly at the heart of perioperative practice. Reconciling this and balancing momentum and safety is therefore one of the daily challenges that all theatre nurses face. That they continue to do so is a testament to their tenacity and skill.

Appendices

Appendix A Literature review results

Author & country of origin of article	Method	Sample	Key Findings
Fox (1997) UK	Ethnographic observational study	Not given	Physical movement of personnel and equipment through theatre contributes to sterility that in turn acts as a guarantee of hygiene (cleanliness).
Lauri et al, (1998) Finland	Cross-sectional survey	500 nurses, 483 respondents including 94 nurses from critical care units	Nurses utilise different decision-making models in different areas of practice. Interestingly, critical care nurses were the least 'rule based' and scored highly on all other scales such patient, nurse, nursing process and intuitive decision-making.
Lea et al, (1998) UK	Cross-sectional survey and multivariate analysis	3024 questionnaires sent out, 1430 replies used	Extensive statistical analysis of 'caring activities' associated with nursing. A minor but highly interesting result was the notion of care as meaning 'giving of oneself'.

Author & country of origin of article	Method	Sample	Key Findings
Lea & Watson, (1999) UK	Caring Dimensions Inventory (CDI) applied		To identify if differences in the concept of caring exist based upon the nature of nursing work carried out.
Leinonen et al, (1999) Finland	Literature review	97 articles located from three journals	Surgery broken down into pre, intra and post-operative phases and explored from the patients' perspective. The expectation of patients and how nurses met these were explored. Crucially there is little research from the intra-operative phase of the patient's journey. Practical interventions such as pain management, temperature regulation, infection control and clinical measurements of physiological indices were noted as activities related to caring.
von Post & Lindwall (1999) Sweden	Analysis of a critical incident reflection	One nurse-anaesthetist	The nurse in question is acutely aware of the patient's failing body (patient dies); she acts in a compassionate manner, holding the patient's hand and is with them as they die.

Author & country of origin of article	Method	Sample	Key Findings
McGarvey et al, (2000) UK	Literature review to define the role of the perioperative nurse	Not given	Defining perioperative nursing is historically problematic given the role's evolution throughout history. Many papers are activity oriented with little in-depth definition given to the various phases of the surgical journey such as anaesthetic, scrub and recovery nursing.
Tanner & Timmons, (2000) UK	Non-participant observation Interviews with nurses	Not given	Employing Goffman's dramaturgical analysis, the theatre was identified as a 'backstage' area in which relationships between nurses and doctors was very different to what might be expected in areas where the patient is 'present' i.e. not unconscious
Leinonen et al, (2001) Finland	Structured questionnaire	874 surgical patients	Explored patients' perceptions of undergoing surgery with the result that physical and social aspects of care of were highly rated. Patients did not always feel encouraged to ask questions or receive education about their care.

Author & country of origin of article	Method	Sample	Key Findings
Killen (2002) USA	Cross-sectional survey	Questionnaires sent to 1500 theatre nurses, 791 respondents	There is an ethical and moral dimension to theatre practice, but nurses often have to have to make ethical and moral decisions in the face of considerable personal or organisational pressure.
Moss et al, (2002) USA	Non-participant observation	7 non-consecutive days observation with 381 communication episodes coded	The type, purpose and target of the communications of the theatre Charge Nurse (the lead nurse for that day) were coded and themes identified. Most communications were face to face. The purpose was most frequently scheduling surgery, co-coordinating patient readiness and equipment issues. Nurses were the most frequent target of communication with surgeons second.

Author & country of origin of article	Method	Sample	Key Findings
Riley & Manias, (2002) Australia	Literature review	Not given	Utilising a Foucauldian perspective of theatre nurses work, the authors suggest that theatre work is discipline-based in its construction. Space and time are used to regulate the sterile field and manage activity. By creating a specialty area of knowledge and practice theatre nurses can liberate themselves from other professions.
Hindmarsh et al, (2002) UK	Ethnomethodology and conversation analysis	Not given	Conversation between the anaesthetic team acts as a collaborative effort that takes into account the wakefulness of the patient and the front and backstage activities associated with these.
Davies (2003) Sweden	Direct participant observation Interviews Focus Group	25 Doctors & 17 Nurses Unspecified number of nurses	Drs and Nurses are both engaged in gendered interactions, with masculinity and femininity applied accordingly. This appears to influence the use of space, which is not gender neutral, rather power and gender based.
Lindwall et al, (2003) Sweden	Open interviews with patients Written stories from nurses	10 patients 10 nurses	Continuity of dialogue between patient and nurse is a manifestation of caring for both parties. This continuity for nurses is way their care becomes visible and gives their work meaning.

Author & country of origin of article	Method	Sample	Key Findings
McGarvey et al, (2004) UK	Observation Interview Document analysis	358 hours 35 nurses 230 care plans	The role of the nurse in theatre is little understood (including by nurses themselves). It is situated within a practice context that is stressful and where power imbalances are marked. Negative reinforcement was displayed by both senior nurses towards juniors and by surgeons. Nurses therefore need supportive mechanisms and structures to improve care.
Meretoja et al, (2004) Finland	Questionnaire study across four different clinical areas: ward, ED, Theatre and ICU	498 self-assessment of competency forms	Theatre nurses scored most highly on the 'managing situation' competency and lowest on 'ensuring quality', features that may be related to the specific area of the theatre. With almost no relatives involved or present in care and fluctuating levels of patient participation in care, there arises a problem of defining what care in this area constitutes.

Author & country of origin of article	Method	Sample	Key Findings
Timmons & Tanner (2004) UK	Non-participant observation and interview	17 Nurses 3 Operating Department Practitioners (ODPs)	Theatre care is described as disputed boundary between nurses and ODPs. Nurses sought to establish their own professional identity as distinct from the ODPs. This was done by the use of technology, atrocity stories and doubting the status of ODPs as health professionals.
Yamaguchi (2004) Japan/Italy	Cross-sectional ethnographic study, focus groups	25 Italian theatre nurses	Italian theatre nurses have little power or autonomy and see themselves as subject to surgeons power. They resent this and see increased education and professional development as crucial to improving their work and conditions.
Riley and Manias, (2004) Australia	Retrospective dramaturgical analyses of fieldwork conducted between 2001-2003	11 Nurses 230 hours observation Photographs Field diary	Positing that the theatre 'abounds' with theatrical metaphor, the authors employ a dramaturgical approach, following the work of Goffman. Historically, the theatre (surgical) arose from the existence of public surgery displays. By examining the metaphors of the Goffman's front and backstage areas they postulate that nurses must be able to differentiate between these areas and crucially the behaviours of other actors. This understanding demonstrates the social reality of some theatre relationships.

Author & country of origin of article	Method	Sample	Key Findings
Goodwin et al, (2005) UK	Ethnographic study	Direct observation of 39 four-hour sessions with an anaesthetist	Roles in the theatre are delineated according to profession and status. Movement outside of the proscribed sphere is not common and often relies on a non-medical practitioner having to convince a medical one that a course of action is required, despite being correct in their assessment.
Timmons & Tanner (2005) UK	Non-participant observation and interview	17 Nurses 3 Operating Department Practitioners	Examining nursing activity in theatre from the perspective of emotional labour, the theme of the perioperative nurse as a 'hostess' arose. While nurses are predominantly female, mostly male ODPs do not feel they in engage in such labour suggesting a gender division in the role and work. Such labour was found to be costly in terms of frustration and stress, although also a source of pride.

Author & country of origin of article	Method	Sample	Key Findings
Riley and Manias, (2006) Australia	Ethnographic study	11 nurses and 4 groups interviews from 3 different sites 230 hours observation	Drs and nurses experience the temporal nature of theatre differently. Surgeons have great latitude in their use of time and scheduling and nurses are more constrained by trying to organise the workflow of theatre. Nurses use their knowledge of individual surgeons to control the flow of work and scheduling. They can think of surgeons as slow or fast and use this information to make decisions, such as whether to scrub or not. Nurses can and do use time to exercise power (such as delaying tactics).
Undre et al, (2006) UK	Semi-structured interviews	6 nurses, 6 surgeons, 6 anaesthetists, 6 ODPs	Nurses, unlike the other theatre groups see their work as a team effort contrasting surgeons and anaesthetists who see the work as being the product of multiple highly specialist teams. The quality and type of communication between the teams was seen as crucial.

Author & country of origin of article	Method	Sample	Key Findings
Mackintosh (2007) UK	Semi-structured interviews	16 nurses	'Making patients better' is a valued as part of the nurses role and surgical nurses preferred these activities to working with chronically ill patients.
Rudolfsson et al, (2007) Sweden	Semi-structured interviews with Grounded Theory Analysis	18 patients 20 nurses	Perioperative caring is perceived as a solemn 'vow' never to abandon the patient. For nurses the vow implies promising to let the patient 'be themselves', safeguarding their welfare, and taking responsibility for what they have promised. For patients the vow means that the nurse takes them seriously, creates a calm atmosphere and is someone the patient can 'hand over' responsibility to.
Torjuul et al, (2007) Norway	Semi-structured interviews	Ten nurses	Investigating nurses experience of ethical dilemma in theatre, the themes of moral perception, nursing responsibility and identity emerged. Proximity to patients, compassion and how this relates to nursing identity by 'examining their conscience' before leaving the patients was advanced.

Author & country of origin of article	Method	Sample	Key Findings
Bjorn and Lindberg Bostrom, (2008) Sweden	Qualitative descriptive design (interviews) based in Phenomenography.	Fifteen nurses	Utilising 'what' and 'how' questions, 3 main understandings of the theatre nurse's role emerged: Staying in control of the situation, teamwork and professional development.
Clark-Burg, (2008) Australia	Opinion piece in perioperative practice journal	N/A	A detailed description of the perioperative practice preparation scheme devised by an Australian University. Designed for undergraduates it offered a unique programme of practical and theoretical sessions designed to enable students to feel confident entering the theatres. Participants favourably received it.
Mitchell and Flin, (2008) UK	Literature review of the non-technical skills of the scrub nurse	13 papers reviewed	There is an increasing understanding that non-technical skills such as communication and situational awareness are crucial aspects of the scrub role.

Author & country of origin of article	Method	Sample	Key Findings
Richardson-Tench, (2008) Australia	Semi-structured interviews, analysed via a post-structuralist view using Foucault as a lens	18 nurses	The theatre nurse is often subject to disciplinary technologies such as observation, allocation by others and a requirement to utilise time effectively. Elitism was noted as a consequence of a desire to be able to effectively anticipate a surgeon. Differences between 'ward nursing' were elaborated with the implication that theatre represents a higher specialism. This is partially derived from the status of the surgeon and their hierarchical position. The environment of the theatre was also noted as contributing to this disconnect from the wider profession and a sense of being of more value.

Author & country of origin of article	Method	Sample	Key Findings
Gardezi et al, (2009) Canada	Retrospective critical ethnography 700 procedures observed over 2 years	116 nurses 11 surgeons 74 anaesthetists	Speech and silences are frequent in the theatre. They can manifest power (or a lack thereof), be used to coerce desired behaviours and express organisational power relations. Nurses may use silence to disapprove, delay or even to accomplish tasks. Goffman's dramaturgy was again utilised in this article.
Gillespie and Hamlin, (2009) Australia	Literature review	21 research papers	Examining the notion of competence as applied to perioperative nursing two broad themes arose. Specialist knowledge, consisting of empirical, practical and aesthetic knowledge require the nurse to exercise considerable skill as well as advocate for their patient. Human factors such as teamwork, coordination, leadership and safety. Competence in theatre is related to the ability to develop in each of these areas.

Author & country of origin of article	Method	Sample	Key Findings
Lindwall and von Post, (2009) Sweden/Finland	Literature review	8 studies	Expanding their exploration of the perioperative dialogue and its role in the continuity of care. Maintaining that continuity of care is how the perioperative nursing ethically discharges their duty, they argue for perioperative dialogue is a humanistic and caring model for perioperative nursing practice to be based upon.
Higgins and MacIntosh, (2010) Canada	Qualitative descriptive study	Interviews with 10 nurses in 9 different theatres	3 categories were identified that related to abuse. Theatre culture (including the environment and hierarchy), catalysts of abuse (nurses perceived status, seniority, situational factors) and perceived effects of abuse.

Author & country of origin of article	Method	Sample	Key Findings
Schreiber and MacDonald, (2010) Canada	Grounded theory	41 interviews with Nurse Anaesthetists 4 days of observation	Interviewing nurse-anaesthetists, an understanding of their practice emerged that was termed 'Keeping Vigil over the Patient'. Based on 4 findings of Engaging with the Patient (building trust and intimacy), Finessing the Human-Technology Interface (technical skill), Massaging the Message (communication) and Foregrounding Nursing (establishing their role as nursing as opposed to medical), their work is recognisably 'nursing' despite its unusual nature.
Mitchell et al, (2011) UK	Interview study	25 experienced scrub nurses 9 consultant surgeons	Much of the available research has not focussed on nurses. This study describes the development of a series of non-technical skills possessed by scrub nurses. These related to situational awareness, communication, teamwork, task management and managing stressful situations.

Author & country of origin of article	Method	Sample	Key Findings
Rutherford et al (2012) UK	Literature review	3 articles from an initial search result of 308	Examining non-technical skills in anaesthesia assistants (including both nurses and ODPs) the authors conclude that there needs to be a taxonomy established for this crucial role.
Rydenfalt et al, (2012) Sweden	Semi-structured qualitative interviews informed by Phenomenology.	15 participants	The difference of activity orientation between staff groups can be a source of dysfunction in theatre work. Communications are often limited by a lack of agreed and enforced norms. Trust in colleagues is based on perception of their competence.

Author & country of origin of article	Method	Sample	Key Findings
Gillespie and Pierson, (2013) Australia	Questionnaire study designed to examine the perceived perioperative self confidence in both theatre nurses and ODPs in 3 Scottish NHS hospitals	214 questionnaire responses	Nurses and ODPs were found to be similar across a range of themes tested in the questionnaire. One of the main differences between the two was that nurses rated themselves higher in the ability to be empathic, suggesting that they saw their role as less of a technical enterprise.
Mitchell at al, (2013) UK	Development of a behavioural rating system for non-technical skills of scrub nurses	4 focus groups of 16 nurses	The non-technical aspects of the scrub nurse role are increasingly being seen as crucial. This paper developed a taxonomy that was then prepared but not yet used in a 'real' theatre environment.

Appendix B Observation Participant Information Leaflet

Perioperative nurses: their work, relationships and environment

Study Number 10/H0501/17

Observation Participant Information Leaflet

I wish to invite you to take part in a research study that is part of a doctoral training programme. Before you decide whether to do so, please read the following information carefully and discuss it with friends, colleagues and any others you may wish. Please ask me if there is anything that is not clear or if you would like more information. You will have at least a week to consider your decision.

What is the purpose of this study?

I am studying how nurses in the perioperative area see themselves and their work. Much of the previous research in this area has focussed on groups such as anaesthetists and surgeons. I want to discover from nurses themselves what they see are the factors that affect their ability to care for their patients in this unique environment. This knowledge is important for our understanding of perioperative nursing and this will enable us to provide better care to the patients undergoing surgery. In order to do this I would like to observe the nurses going about their work and to interview some of them.

About the researcher

I am a Registered Nurse with a background in Emergency Department and Anaesthetic Nursing. I have over 10 years of experience in the operating theatres across a range of specialities. I am currently combining a full-time NHS post with part-time study leading to the award of a doctoral degree at Southampton University.

About the observation

For this part of the study I will come to your workplace to watch staff working. I will display posters to inform you when the observation is taking place and if I am observing an area where you work I will ask you for verbal consent before I begin observing. I will sit or stand somewhere out of the way so that I do not interfere with your work and will watch and take notes. If you have any questions or concerns before or during the observation period you can ask me– and if you want me to stop observing or move to another location you can ask me to do so at any time. If you do not want to take part in this part of the study you can tell me before or during the observation and I will not include you. I will be happy to answer any questions you have about the observation or the study - please do not hesitate to ask.

Why have I been invited to be observed?

You have been invited to take part because you work in the theatre area. I will observe a number of theatre teams over a period of about one year.

What will happen if I decide to take part?

Before any observation starts I will explain the study to you to make sure you are happy to take part. I will display posters letting people know that I am in attendance and observing your theatre. You can ask questions during the observation and I will be happy to tell you more about the study. You can decide not to take part in the observation and can tell me if you decide at any time that you do not want me to continue the observation.

Do I have to take part?

No- only if you wish to.

Participation is voluntary, you may refuse to participate or withdraw from the study at any time. You do not need to tell me why you do not want to take part. If you choose to withdraw or not to participate, your decision will in no way affect your employment or practice.

Are there any risks involved?

I do not foresee any risks to you as a result of taking part in this study. If at any time you are unhappy or have questions about any aspect of the research, you are encouraged to ask for more information. As a registered healthcare professional I have a duty to intervene if I witness or discover any practice that is negligent or compromises patient or public safety and it is important that you are aware of this.

Are there any costs involved?

No.

Confidentiality

All of the data I collect will be kept strictly confidential. My field notes and observations will all be kept securely in a locked cupboard or in my personal custody. All personal details and information that can identify individuals will be removed from the data when it is being analysed and reported. The study will be carried out in full compliance with all relevant guidance from the NHS ethics committee, NHS research governance and Data Protection legislation. The only circumstances under which confidentiality will not be guaranteed would be those where I am legally or professionally obliged to act in the interests of protecting patient and public safety, such as the disclosure of abuse or negligent practice being observed. In these circumstances I would follow the relevant procedures in place within your organisation/profession for managing such incidents.

Your rights

Your participation in this study is entirely voluntary and refusal will not affect any other aspect of your work or employment. You may, without giving reason, refuse to take part in the study, and this will not in any way affect your rights.

What are the possible benefits of taking part?

There are unlikely to be direct personal benefits to you from this study. Some people enjoy participating in this kind of research and welcome the opportunity to talk about their work. I will feed back my findings to you, and keep you regularly updated about the study and I hope that you will find this interesting.

Who is funding and organising the research?

The research is being sponsored by the School of Health Sciences at the University of Southampton. I am not employed by the Trust that you work for.

What will happen to the results of the research study?

The results of this study will be written up for a report to your unit and for publications that will be read by health professionals, professional organisations and other researchers. I will be happy to send you a free summary of the research report if you tell me you would like one.

Who has reviewed the study?

The study has been reviewed by the University, the National Research Ethics Service and your local Trust in accordance with the Research Governance framework.

My contact details:

If you have any further questions or wish to discuss any aspect of the study with me please contact me on XXXXXXXXXX during business hours, leaving a message if I am unable to respond immediately. My postal address is: C Floor, Basingstoke and North Hampshire NHS Foundation Trust, Aldermaston Road, Basingstoke, Hants, RG24 9NA. Alternatively, you can contact me via email jrm199@soton.ac.uk

Academic contact details:

If you have any other questions about the study please contact my academic supervisor, Professor Catherine Pope on 023 80 59 8293 or cjp@soton.ac.uk School of Health Sciences, University of Southampton, Highfield Campus, Southampton, SO17 1BJ.

Who can I contact if I have a concern or complaint about this study?

If you have a concern or a complaint about this study you should contact Susan Rogers, Head of Research & Enterprise Services, at the School of Health Sciences (Address: University of Southampton, Building 67, Highfield, Southampton, SO17 1BJ ; Tel: +44 (0)23 8059 7942; Email: S.J.S.Rogers@soton.ac.uk). If you remain unhappy and wish to complain formally Susan Rogers can provide you with details of the University of Southampton Complaints Procedure

Appendix C Interview information leaflet

Perioperative nurses: their work, relationships and environment

Study Number 10/H0501/17

Interview Participant Information Leaflet

I wish to invite you to take part in a research study that is part of a doctoral training programme. Before you decide whether to do so, please read the following information carefully and discuss it with friends, colleagues and any others you may wish. Please ask me if there is anything that is not clear or if you would like more information. You will be given least a week to consider your decision.

What is the purpose of this study?

I am studying how nurses in the perioperative area see themselves and their work. Much of the previous research in this area has focussed on groups such as anaesthetists and surgeons. I want to discover from nurses themselves what they see are the factors that affect their ability to care for their patients in this unique environment. This knowledge is important for our understanding of perioperative nursing and this will enable us to provide better care to the patients undergoing surgery. In order to do this I would like to observe the nurses going about their work and to interview some of them.

About the researcher

I am a Registered Nurse with a background in Emergency Department and Anaesthetic Nursing. I have over 10 years of experience in the operating theatres across a range of specialities. I am currently combining a full-time NHS post with part-time study leading to the award of a doctoral degree at Southampton University.

Why have I been invited for interview?

You have been invited to take part because you work in the theatres. I am aiming to interview about eight nurses.

What will happen if I decide to take part?

If you agree to participate I will ask you for some contact details in order to arrange to interview you at a time that is convenient during your normal working hours. The interview will take approx 40-60 minutes and will be in a private location. Before the interview starts I will explain this part of the study to you and go through a consent form with you to make sure you are happy to take part. The interview will be very informal, like a conversation, and if you take part I will ask you about your experiences of working in the theatre area. I will not be asking anything about individual patients or patient records. With your permission I will record the interview. You can ask questions during the interview and I will be happy to tell you more about the study. You can decide not to take part in the interviews and can tell me if you decide during the interview that you do not want to continue the interview. It may be necessary, so long as you agree, to contact you afterwards to clarify things you may have said to make sure that I have understood you correctly.

Do I have to take part?

No- only if you wish to.

Participation is voluntary, you may refuse to participate or withdraw from the study at any time. You do not need to tell me why you do not want to take part. If you choose to withdraw or not to participate, your decision will in no way affect your employment or practice.

Are there any risks involved?

I do not foresee any risks to you as a result of taking part in this study. If at any time you are unhappy or have questions about any aspect of the research, you are encouraged to ask for more information. As a registered healthcare professional I have a duty to intervene if I discover any practice that is negligent or compromises patient or public safety and it is important that you are aware of this.

Are there any costs involved?

No.

Confidentiality

All of the data I collect will be kept strictly confidential. Interview recordings, and typed up transcripts of the interviews and observation notes will only be accessed by myself and will be kept in password protected computer files and/or a locked cabinet. All personal details and information that can identify individuals will be removed from the data when it is being analysed and reported. The study will be carried out in full compliance with all relevant guidance from the NHS ethics committee, NHS research governance and Data Protection legislation. The only circumstances under which confidentiality will not be guaranteed would be those where I am legally or professionally obliged to act in the interests of protecting patient and public safety, such as the disclosure of abuse or negligent practice being observed. In these circumstances I would follow the relevant procedures in place within your organisation/profession for managing such incidents.

Your rights

Your participation in this study is entirely voluntary and refusal will not affect any other aspect of your work or employment. You may, without giving reason, refuse to take part in the study, and this will not in any way affect your rights.

What are the possible benefits of taking part?

There are unlikely to be direct personal benefits to you from this study. Some people enjoy participating in this kind of research and welcome the opportunity to talk about their work. I will feed back my findings to you, and keep you regularly updated about the study and I hope that you will find this interesting.

Who is funding and organising the research?

The research is being sponsored by the School of Health Sciences at the University of Southampton. I am not employed by the Trust that you work for.

What will happen to the results of the research study?

The results of this study will be written up for a report to your unit and for publications that will be read by health professionals, professional organisations and other researchers. I will be happy to send you a free summary of the research report if you tell me you would like one.

Who has reviewed the study?

The study has been reviewed by the University, the National Research Ethics Service and your local Trust in accordance with the Research Governance framework.

My contact details:

If you have any further questions or wish to discuss any aspect of the study with me please contact me on XXXXXXXXXX during business hours, leaving a message if I am unable to respond immediately. My postal address is: C Floor, Basingstoke and North Hampshire NHS Foundation Trust, Aldermaston Road, Basingstoke, Hants, RG24 9NA. Alternatively, you can contact me via email jrm199@soton.ac.uk

Academic contact details:

If you have any questions about the study please contact my academic supervisor, Professor Catherine Pope on 023 80 59 8293 or cjp@soton.ac.uk School of Health Sciences, University of Southampton, Highfield Campus, Southampton, SO17 1BJ.

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formally Susan Rogers can provide you with details of the University of Southampton Complaints Procedure.

Appendix D Observation and Interview consent forms

Study Number: 10/H0501/17

Participant Identification Number for this study:

OBSERVATION CONSENT FORM

Title of Project: Perioperative nurses: their work, relationships and environment.

Name of Researcher: Jon R McGarry

Please initial box

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

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

3. I understand that relevant sections of my period of observation and data collected during the study, may be discussed and published in various formats, including reports and academic journals. I understand that my personal details will be kept anonymous to protect my identity and give permission for these publications to occur. ☐

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

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Person taking consent	Date	Signature

When completed, 1 for participant; 1 (original) for researcher site file,

Jon McGarry Interview Consent form v1.0 April 09

Study Number: 10/HO501/17

Participant Identification Number for this study:

INTERVIEW CONSENT FORM

Title of Project: Perioperative nurses: their work, relationships and environment.

Name of Researcher: Jon R McGarry

Please initial box

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

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

3. I understand that relevant sections of my interviews and data collected during the study, may be discussed and published in various formats, including reports and academic journals. ☐

4. I understand that my personal details will be kept anonymous to protect my identity and give permission for these publications to occur. ☐

5. I agree to take part in the above study.

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Person taking consent	Date	Signature

When completed, 1 for participant; 1 (original) for researcher site file,

Glossary

Diathermy: a technique to stem bleeding blood vessels by cauterising them with an electrical current. A machine known as a diathermy machine generates this current. It requires an adhesive metal pad to be placed on the patient to complete the circuit. If the pad is placed over a metallic implant such as a hip replacement, there is a risk the implant could heat up, resulting in thermal damage to surrounding tissues. A poorly applied pad may also cause burns to the skin beneath it.

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