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UNIVERSITY OF SOUTHAMPTON

Faculty of Health Sciences

Innovation & Leadership in Health Sciences

**MIDWIVES DECISION-MAKING DURING THE SECOND-STAGE OF
LABOUR**

by

Kathryn Jane Nash RGN, RM, BSc. MSc

Thesis for the degree of Doctorate in Clinical Practice

October 2019

UNIVERSITY OF SOUTHAMPTON

ABSTRACT

Faculty of Health Sciences

Innovation & Leadership in Health Sciences

Thesis for the degree of Doctorate in Clinical Practice

MIDWIVES DECISION-MAKING DURING THE SECOND-STAGE OF LABOUR

Kathryn Jane Nash

Aim: The aim of the study was to explore midwifery practice during the second-stage of labour to understand how midwives make decisions at this time.

Background: Whilst there is much discussion within the literature about the various care issues that may present themselves as dilemmas for midwives throughout the second-stage, little information is available about how midwives make decisions during this time.

Methods: A qualitative single instrumental case study methodology has been applied to facilitate an in-depth understanding of midwives decision-making in the second- stage and the use of observation and interview to gather a rich data set to examine the case.

Key Findings: Midwives employed fast thinking using pattern-matching to make rapid decisions during the second-stage which was supported by a slower more focused assessment of cues using the principles of the Hypothetico-deductive model. Within the Alongside Midwifery Unit (AMU) midwives used observation, interpretational and interpersonal skills to assess labour and inform their decision-making. This skill-set did not appear to transfer to the Obstetric Unit (OU) where the focus of care shifted to the completion of tasks and was influenced by midwives perceptions of surveillance and the introduction of technology.

Conclusion: Decision-making during the second-stage was influenced by context and midwives used their skills to assess labour progress holistically paying attention to physiological and behavioural cues exhibited by women on the AMU.

Implications for Practice: The skill-set used by midwives on the AMU did not transfer to the OU where midwives perceived that their ability to make autonomous decisions was reduced and the focus of care shifted from being woman-centred to task-centred.

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List of Accompanying Materials

Academic Thesis: Declaration of Authorship

I, Kathryn Jane Nash

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.

.....
.....

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;

Parts of this work have been published as:

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Signed: Kate Nash

Date: 31.10.19.....

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My wonderful mum and dad.

The midwives who kindly consented to taking part in this case-study.

Dedications

This thesis is dedicated to my lovely mum who did not live to see the completion of this work and passed away in March 2019. Her bravery and courage were an inspiration to me.

Definitions and Abbreviations

AIMS Association for Improvements in the Maternity Services

ARM Association of Radical Midwives

CQC Care Quality Commission

CEFM Continuous Electronic Fetal Monitoring

CINAHL Cumulative Index to Nursing and Allied Health Literature

DH Department of Health

DOHSS Department of Health and Social Security

EMBASE The Excerpta Medica database

FIGO Safe Motherhood and Newborn Health (SMNH) Committee

HOM Head of Maternity Services

ICM International Confederation of Midwives

IRAS Integrated Research Application System

MIC Midwife in Charge

MIDIRS Midwifery Information and Resource Service

NCCWCH National Collaborating Centre for Women's and Child Health

NCT National Childbirth Trust

NCCWCH National Collaborating Centre for Women's and Children's Health

NHS National Health Service

NICE National Institute for Health and Care Excellence

NMC Nursing and Midwifery Council

R&D Research and Development Department

REC Research Ethics Committee

Definitions and Abbreviations

RCM Royal College of Midwives

RCOG Royal College of Obstetrics and Gynaecologists

UK United Kingdom

UKCC United Kingdom Central Council for Nursing Midwifery and Health Visiting

Chapter one - Introduction

1.1 Introduction to the Research Study

This thesis presents a research study undertaken to examine how midwives make decisions during the second-stage of labour. Effective decision-making is integral to safe midwifery practice and midwives are engaged in a continual process of negotiation and decision-making within the second-stage of labour. Whilst an abundance of literature exists that evaluates care practices during the second-stage, there is a significant gap in the literature around midwives decision-making and the factors that influence their decisions.

Decision-making is a complex and multi-factorial process which involves observation, information-processing, critical thinking, evaluating evidence, the application of knowledge and problem-solving skills, reflection and clinical judgement (Standing, 2005; 2010). Understanding how midwives make decisions is important as decision outcomes directly influence the safety and quality of care that women and their babies receive (FIGO Safe Motherhood and Newborn Health (SMNH) Committee, 2012), whilst leaving a lasting imprint on women's birth experiences (Anderson, 2010; Care Quality Commission, CQC, 2018). Midwives are expected to account for and justify their care provision whilst ensuring that they '*encourage and empower people to share in decisions about their treatment and care*' (Nursing Midwifery Council, NMC, 2018:7).

Women have described experiencing an altered state of consciousness during childbirth which includes intense feelings relating to altered time perceptions, and fears of dying (Olza et al, 2018). The midwives role is critical at this time and women have described coping by retreating inwardly, requiring the midwife to help them retain a sense of control whilst also wanting to feel safe enough so that they could let go and hand over control if needed (Olza et al, 2018; Anderson, 2010; Ford and Ayers, 2009; Beck, 2004; Green and Baston, 2003). The second-stage therefore presents a unique challenge for midwives as they engage with women at a critical life moment, where women may not be fully present within that moment and thus more vulnerable to decisions made during this time. This study was undertaken to contribute to existing knowledge about midwifery decision-making and specifically, fill a gap in the current evidence-base by examining midwives decision-making during the second-stage of labour.

The research question that has guided this study is:

What are the skills, knowledge, information sources and other factors that may inform and influence midwives decision-making in the second-stage of labour?

The key objectives of the study were to:

- identify the skills and knowledge used by midwives to inform their practice in the second-stage of labour
- critically analyse the factors that influence the practice and decisions that midwives make in the second-stage of labour
- critically examine how midwives have justified and accounted for the decisions that they make during the second-stage of labour.
- scrutinise the context and process of midwives decision making

A single instrumental qualitative case-study methodology has been applied within this study to facilitate an in-depth understanding of midwives practice during the second-stage of labour and the use of observation and interview to gather a rich data set to examine the case and address the research question, aim and objectives of this study. Qualitative case-study was chosen as it has a level of flexibility that is not readily offered by other qualitative approaches (Stake, 1995; Yin, 2014) and can be designed to suit the case, enabling the generation of in-depth information through the intensive probing of the case (Polit and Beck, 2017). It enabled the researcher to '*drill deep using different methods*' (Thomas, 2016: 67) and examine the case within its natural setting to gain a deeper understanding of midwives decision-making during the second-stage of labour. The case contained episodes of midwifery care undertaken by four midwives working within two Alongside Midwifery Units (AMUs) of one National Health Service (NHS) Foundation Trust.

1.2 Introduction to the Chapter

This chapter introduces the reader to the research and summarises the key areas of focus within the study which are the second-stage of labour and midwifery decision-making. An introduction to place of birth and specifically, AMUs is also provided. The impetus and rationale for this study is presented and the chapter concludes with a summary and overview of the eight chapters contained within this thesis. From this point forward the second-stage of labour will be referred to as the second-stage.

1.3 Introduction to Labour and the Second-Stage

This section briefly explains the physiology of labour and the second-stage whilst outlining the expected midwifery care required during the second-stage to provide the physiological and practice context for this study.

1.3.1 The Stages of Labour

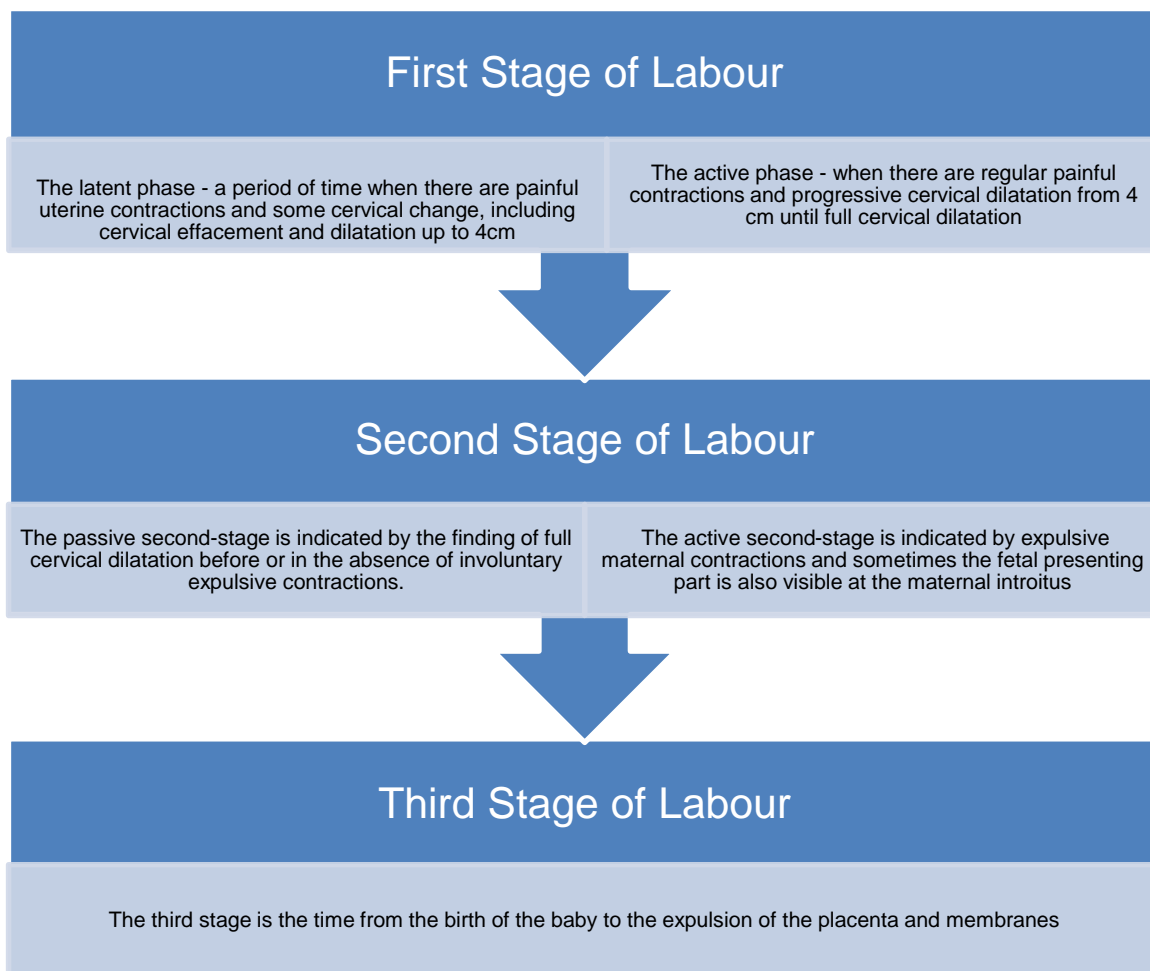
Labour is the process by which the fetus, placenta and membranes are transported through the birth canal (Stables and Rankin, 2010) that leads from the maternal uterus through the cervix and vagina. The onset and progress of labour is a complex biological process that is generally understood and described as three *stages* and several *phases* of labour (National Institute for Health and Care Excellence, NICE, 2014, updated 2017; World Health Organisation, 2018). An overview of the stages and phases of labour defined by current national guidance (NICE, 2014) is shown in figure one. The delineation of labour and birth as three stages developed during the 1800s as knowledge of anatomy increased with the inclusion of latent, passive and active phases from the 1960s (Dixon et al, 2013). These stages and phases are used within contemporary clinical practice as a means of defining care and measuring the parameters of normal progress within labour (Winter and Cameron, 2006; Royal College of Midwives, 2012a) although physiologically there is no abrupt transition between the stages (Gross et al, 2006; Coad and Dunstall, 2011) and the stages often overlap.

During the first-stage of labour uterine contractions efface and dilate (open) the maternal cervix and facilitate the descent of the fetus into the maternal pelvis (Coad and Dunstall, 2011). Cervical effacement refers to the process whereby the cervical canal softens, thins and shortens, as it becomes part of the lower uterine segment (Coad and Dunstall, 2011). Regular uterine contractions are necessary to progress labour as the upper and lower poles of the uterus work together in harmony, a term referred to as polarity (Coad and Dunstall, 2011). Relaxation of the uterus occurs between each contraction and is essential to provide oxygenated blood to the fetus and myometrium¹ via the uteroplacental and fetal-placental circulation (Steer and Flint, 1999). The unique properties of the myometrium enable it to contract and retract meaning that the myometrial fibres found

¹ uterine muscle

predominantly in the upper uterine segment do not fully relax following a contraction (Coad and Dunstall, 2011). This causes the upper uterine pole to become progressively shorter and thicker, facilitating the descent of the fetus through the birth canal. As the upper uterine segment shortens and thickens, cervical effacement and dilatation occurs and the cervix slowly merges upwards into the lower uterine segment (Wylie, 2005). The second stage of labour is diagnosed when full cervical dilatation is reached, meaning that no cervix is present to impede the descent and birth of the fetus.

Figure 1: Overview of the stages and phases of labour



(adapted from NICE, 2014, updated 2017)²

² The World Health Organisation (WHO) (2018) recommend that the latent first stage is characterized by cervical dilatation up to 5 cm for first and subsequent labours.

1.3.2 Second-Stage of Labour

It is common practice for the second-stage to be diagnosed formally with a vaginal examination however the ending of the first-stage of labour and beginning of the second-stage can be difficult to define (Walsh, 2009). Further descent of the fetal presentation occurs during the passive second-stage and the term transition refers to the distinctive physiological changes that occur at some point during the passive and active phases where women report feeling agitated, overwhelmed, panicky, fearful or drowsy (Roberts and Hanson, 2007). As the fetal head passes through the maternal pelvis the anterior aspect of the maternal pelvic floor is drawn up causing the ureter to elongate and compress and the bladder to be moved into the abdomen where it is less likely to be damaged (Lemos et al, 2017). The advancing fetus gradually stretches the maternal cervix and vagina stimulating oxytocin secretion, facilitated by neural pathways called the Ferguson reflex (Feher, 2017) which strengthens uterine contractions.

Within the active phase women typically³ experience a strong urge to bear down, or push. This combination of involuntary uterine contractions and voluntary muscles of the maternal diaphragm and abdominal wall assist the birth of the fetus (Coad and Dunstall, 2011; Downe, 2009). The pelvic floor flattens, thins out and becomes displaced as the *mechanism of birth* occurs. This refers to the series of movements that the fetus undergoes during its passage through the birth canal and are summarised in appendix A.1. Knowledge of this enables the midwife to anticipate the next stage during the birth process as the fetus moves to optimise the space available within each plane of the pelvis. Crowning occurs when the fetal head distends the maternal vulva and this is often associated with intense maternal pain due to the stretching of the perineum. Clinical decisions made at this time pertain to how best to support and facilitate maternal bearing down efforts, maternal positioning and strategies to help protect the maternal perineum and whether episiotomy, an incision of the maternal perineum, is required.

³ Descent and position of the presenting fetal part evokes the Ferguson's reflex (Lemos et al, 2017), which enhances maternal spontaneous pushing (Roberts, 2002) however this reflex may be hindered in women with epidural anaesthesia.

1.3.3 Midwifery Care during the Second-Stage

The increased pace and involuntary nature of labour physiology renders the second-stage a period of maximal stress for both the fetus and the mother (McDonnell and Chandraharan, 2015). Women have described the value of compassionate support which enables them to maintain a sense of control that is adjusted to their needs and wishes (Olza et al, 2018). Midwifery care focuses on the provision of such support and encouragement whilst continually assessing both maternal and fetal wellbeing, labour progress and descent of the fetus. Maternal factors for consideration include the frequency and effectiveness of uterine contractions, maternal vital signs (including blood pressure every 30 minutes and pulse every 15 minutes), bladder care, maternal positioning, hydration, coping strategies and pain relief, support and reassurance with pushing and assessment of the effectiveness of pushing, progress of the second stage and recognition of any delay (NICE, 2014; Downe and Marshall, 2014; NHS Trust Clinical Guideline, 2015). Fetal considerations include the assessment of fetal wellbeing, position, descent and determining the most appropriate mode of auscultating the fetal heart (NICE, 2014).

1.4 Rationale for this Study

My personal interest in the second-stage developed during my midwifery training and I felt privileged to be part of such a momentous occasion within a woman's life which culminated in the birth of a baby. I observed various care practices in different contexts during this time and witnessed how midwives could positively and negatively contribute to women's birth experiences through their interactions, decision-making and support. This was reaffirmed much later through my one-to-one consultations with women who had experienced traumatic births and whom described their experiences of both supportive and unsupportive midwifery care at this time. I understood also from personal experiences of working upon a Free-standing Midwifery Unit (FMU), Alongside Midwifery Unit (AMU) and Obstetric Unit (OU)⁴, how social expectations could influence my own practice and undertook a preliminary literature review to inform local guideline development for midwifery care in labour as well as improve my own understanding of evidence-based care during the second-stage. The findings of this preliminary review are summarised in appendix A.2.

⁴ See figure 2 for definitions, p.8

I reflected that whilst a plethora of literature existed which reviewed care practices during the second-stage, there was no explanation around *how* midwives make decisions during this time. A local audit of midwifery practice⁵ revealed that midwives had a low threshold for transferring women to obstetric care in the second-stage (NHS Trust Audit, 2012) and generally chose to refer without first re- assessing the woman or documenting that any supportive strategies had been encouraged which did not align with local guidance (NHS Trust Audit, 2012; NHS Trust Clinical Guideline, 2012). When these findings were discussed at senior clinical midwife meetings most midwives confirmed the audit findings to be consistent with their usual practice, stating that they just knew from experience when women would require obstetric assistance. I found this interesting and wondered *how* midwives knew this and what knowledge and other factors influenced their decisions at the time. This seemed particularly pertinent within the current climate of care (section 2.7) where midwives appear to be experiencing a crisis of confidence whilst struggling to juggle the multiple demands and expectations of their role.

At the outset my intention was to examine midwifery care within both an OU and AMU setting as I was keen to examine the decision-making processes of midwives in both care settings to understand the knowledge and skills that informed their care decisions as well as the factors that influenced their decisions and subsequent practice during the second-stage. Whilst there is substantial evidence to support giving birth outside of an OU for low-risk women (section 1.5), the minutiae of individual care practices and decisions made during the second-stage is often not explicated as care provision occurs behind closed doors⁶, with decisions articulated by midwives only if they are called to account in response to a poor outcome or complaint. Difficulties with recruitment⁷ meant that I was unable to recruit midwives from an OU setting and so the focus of the study was amended to reflect this as I examined how midwives within an AMU setting made decisions at this time.

⁵ Undertaken in response to increased transfer rates recorded for women in the second-stage from the AMU to the OU (National Health Service NHS Trust Clinical Dashboard, 2012).

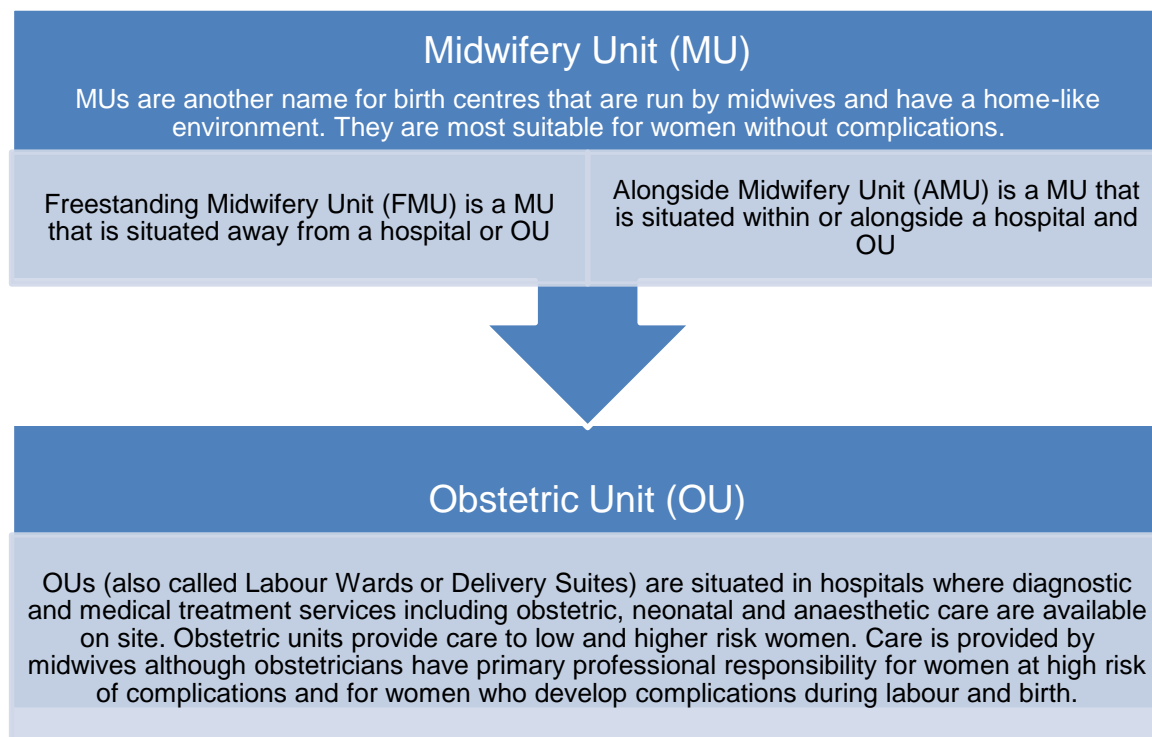
⁶ With just the lead midwife present, second midwife if requested and further clinical support called if deemed appropriate by the midwife.

⁷ These are discussed further in sections 5.2.1 and 8.4

1.5 Place of Birth

This section introduces the reader to AMUs where this case-study is situated⁸. The provision of choice around birthplace for women has been central to maternity policy for a number of years (Department of Health, DH, 1993; DH, 2004; DH, 2007; NHS England, 2016) whilst an increasing evidence-base has challenged early assumptions about the safety of hospitalisation and obstetric-led-care for women experiencing uncomplicated pregnancy and childbirth (Hundley et al, 1994; Tew, 1998; Campbell and MacFarlane 1996; Sandall et al, 2016). Current national guidance stipulates that women should be able to choose between giving birth at home, in an AMU, an FMU or an OU (NICE, 2014) however wide variation exists in the choice of birthplace available to women (Care Quality Commission, CQC, 2018; Walsh et al, 2018). Further definitions of place of birth are provided in figure 2, adapted from NICE (2014).

Figure 2: Definitions of Midwifery and Obstetric Units (adapted from NICE, 2014).



There is a robust evidence-base that demonstrates for those women experiencing uncomplicated birth and pregnancies, giving birth outside of an OU in a MU significantly

⁸ The social and political drivers that have shaped maternity care and place of birth are explored further in chapter 2.

reduces the risk of medical interventions, operative and instrumental birth whilst being comparable in safety with an OU for the neonate (Hundley et al, 1994; Walsh and Downe, 2004; Hodnett et al., 2010; Birthplace in England Collaborative Group, 2011; Alliman and Phillippi, 2016; Christensen and Overgaard, 2017; Scarf et al, 2018) and provides increased maternal and staff satisfaction (Hundley et al, 1995; Hodnett et al., 2010). The reduced risks associated with planned birth in a non-OU setting are irrespective of ethnicity, age or relative socioeconomic disadvantage when compared with women who plan birth in an OU and Trust/unit level variations in rates of interventions, transfer and maternal outcomes were not explained by differences in maternal characteristics (Holloway et al, 2017).

Despite this most births in England today occur in OUs (87 per cent in 2012) with 11 per cent in MUs and 2.4 per cent at home (National Audit Office 2013). Walsh et al (2018) undertook a further mapping of the types, numbers and utilisation of MUs in England following on from the Birthplace study (Birthplace in England Collaborative Group, 2011) and data were obtained from all 134 NHS Trusts in England. Whilst substantial improvements in the availability of MUs were evident, there was inequality in the provision of the service throughout England with women having particularly poor access to FMUs in certain population areas (Walsh et al, 2018). The majority of MUs (n=72) provided less than 20 per cent of their total Trust births (excluding home births) revealing that MUs are underutilised despite their clear benefits for women.

Midwives working on Midwifery Units (MUs) have reported experiencing an increased sense of autonomy in their work (McCourt et al, 2016; McCourt et al 2014), compared with perceptions of reduced autonomy when working within an OU setting (O' Connell and Downe, 2009; Davis and Homer, 2016). Within this case, I was keen to understand the factors that influenced midwives decision-making as well as examine the knowledge, skills and information that midwives drew upon to inform their decisions. In this way the findings from this study contribute new knowledge to the existing evidence base around midwifery practice and decision-making within the second-stage in an AMU setting. Chapter two will consider the social-political issues that have impacted upon birth and birth place in more detail.

1.6 Introduction to the Thesis

This section provides a brief overview of the path I have taken through this Thesis.

Chapter Two

Chapter two presents the historical and socio-political context that forms the backdrop for this study and demonstrates how midwives have traversed a tumultuous path to professionalism and to this day struggle to work as autonomous practitioners. The current context for midwifery care and challenges faced by midwives within clinical practice is explained.

Chapter Three

Chapter three examines the research pertaining to the decision-making of midwives during the intrapartum period. This has been achieved through a systematic examination of the published research relating to midwives' decision-making within the intrapartum period, focusing on the second-stage, in order to provide justification for this study, linking it to the ongoing debate within the literature.

Chapter Four

The theoretical perspectives and methodology guiding this study are explained within chapter four as the study is positioned within a philosophical framework. The research methods and methodology are explained and the rationale for the chosen methodology and methods provided.

Chapter Five

Chapter five outlines the research process and sets out how recruitment, data collection and analysis were undertaken. Data analysis is presented, and the measures implemented to increase the trustworthiness, credibility, transferability; confirmability and dependability of the data are explained. Details are provided of how ethical principles were applied throughout.

Chapter Six

Chapter six presents the findings from this study and offers an in-depth and credible explanation of the skills, knowledge, information sources and other factors that inform midwives decision-making within the second-stage.

Chapter Seven

The findings are contrasted with the wider literature base within this discussion chapter to further illuminate the knowledge gained from this study and considers the unique contribution to knowledge that this study provides and the wider application of the findings.

Chapter eight

This final chapter consider the strengths and limitations of the study and an examination of the challenges faced during the completion of this thesis. Final recommendations for practice, education, policy and research are made.

1.7 Chapter Summary

This introductory chapter has introduced the reader to the research study and sets out the context and focus for this study. The personal stimulus for this research is explained and a rationale for the study presented. An outline of the thesis in its entirety is given and an overview of each chapter offered. The next chapter will consider the historical and socio-political context for midwifery practice and the contemporary challenges faced by midwives working within English maternity care systems today.

Chapter 2 - The Historical, Socio-Political and Contemporary Context for the Study

2.1 Introduction to the Chapter

This chapter provides the historical and socio-political context for English midwifery practice before outlining some of the current issues faced by midwives within English maternity care systems today. Many historical descriptions of midwifery practice are available (Donnison, 1988; Leap and Hunter, 1993; Symonds and Hunt, 1996; Tew, 1998; Cody, 1999) and I acknowledge how it is impossible to fully reconstruct the past and eliminate bias, as the evidence is open to manipulation and misrepresentation (Allotey, 2011). The inclusion of this chapter was deemed necessary as it explicates the historical and cultural context for this study whilst enabling the reader to examine how my personal perspectives and understanding of these issues have informed the development of this study.

2.2 The historical juxtaposition of female midwives with medical men

References to midwives are evident throughout history and can be traced back to biblical times however their path to professional status has been extensive and troubled (Symonds and Hunt, 1996). The majority of midwives were women before the seventeenth century (Kirkham 1996) and whilst their status in society may have been limited due to their gender and limited access to education, they also enjoyed some autonomy and status as they worked within the all-female domain of reproduction and played a crucial role in the church and wider community due to their perceived authority in the management of female reproduction. At this time midwives were legally recognised as able to reveal the truth of the female body based on the fundamental assumption that knowledge of the body and birth derived from feeling, experience and gendered experience (Oakley, 1976; Cody, 1999; Allotey, 2011).

By the middle of the seventeenth century, a new way of looking at the world (rationality) began to challenge the reproductive knowledge of female midwives derived from personal and subjective experience. The move from traditional towards scientific knowledge during the eighteenth century helped undermine the innate authority previously held by midwives over reproductive matters (Allotey, 2011; Cody, 1999). As scientific interest in birth

increased, so did the role that men played within the process. Reproductive issues became subject to the rational-critical debate of the scientific revolution as the reproductive knowledge of midwives along with their epistemological and professional status was challenged.

Whilst female midwives continued to attend most births, male-midwives became prominent figures from the 1720s onwards (Donnison, 1988). By virtue of the privileges afforded their gender, male-midwives displaced traditional female midwives, acquiring greater professional authority through press adverts, public lectures and philanthropic enterprises (Allotey, 2011; Cody, 1999). Increasingly the services of male-midwives were employed by middle-class women (Donnison, 1988) as their popularity spread by word of mouth (Cody, 2005). The introduction of the use of forceps in birth by male midwives was increasingly viewed as acceptable scientific intervention in birth, despite the criticisms of traditional midwives at the time (Hobby, 1999, cited in Allotey, 2011). By the end of the 18th century the superiority of the male specialist was widely accepted, and female midwives portrayed as being inferior, dirty, stupid and irrational (Donnison, 1988; Borelli, 2013). Attempts to vilify their status may be reflective of the wider patriarchal biases in society which believed women's subjective investment in pregnancy inhibited rational thought and objectivity. Traditional midwives were thus disqualified from scientific debate and public political participation because of their gender (Cody, 1999).

Great antagonism existed between traditional female and male-midwives and a distinction drawn between the perceived 'irrational' language and logic of midwifery, based on subjective feeling and sympathy with the 'rationale' language of male-midwives who purported to offer a way to improve the safety of childbirth (Symonds and Hunt, 1996; Edwards, 2005). Whilst most published texts were written by male-midwives, treatises by female-midwives at the time responded to such criticism by accusing male-midwives of professional jealousy and causing unnecessary harm and loss of life to women and their babies (Bosanquet, 2009a; Allotey, 2011).

Such treatises also revealed in-depth theoretical knowledge comparable to today's standards (Bosanquet, 2009a; Bosanquet, 2009b; Allotey, 2011). Elizabeth Nihell criticised the male-midwife in her 'Treatise on the Art of Midwifery' as early as 1760, claiming that they used forceps unnecessarily and appealing to midwives to maintain the 'naturalness' of birth (Towler and Bramall, 1986). A large proportion of midwives at this

time were illiterate however and whilst their knowledge was based on experience, their lack of education and privilege prevented a serious challenge to the takeover of childbirth by male-midwives (Donnison, 1988). Historical accounts also reveal a wide discrepancy between midwives' practice and the quality of care provided to women which further tarnished midwives professional and social status at the time (Donnison, 1998; Leap and Hunter, 1993; Symonds and Hunt, 1996; Tew, 1998).

Midwives continued to be the main attendants at births particularly among the poorer populations of society during the eighteenth⁹ and nineteenth centuries. Some informal training of traditional midwives was also provided although the later introduction of formal midwifery training (by medical men) was not without protest from both parties as doctors feared rivalry and loss of earnings from midwives and midwives feared subordination and a loss of their autonomy by doctors (Arthure, 1969; Pollard, 2011).

2.3 Setting Midwifery within Statute

The Midwives Institute was established in 1881¹⁰ to raise the status of midwives and to petition Parliament for their recognition. A Bill was drafted in 1890 by the London Obstetrical Society and a Select Committee of the House of Commons but failed to become law due to objections over midwives being required to produce a certificate of moral character, when doctors were exempt. The Central Midwives Board was set up by the Midwives Act (1902) (Parliament, 1902) and legislation passed to improve training, regulation and control of midwifery practice. This board consisted mostly of medical men, without the requirement of a midwife member to be present although at Privy Council insistence, a woman was appointed to represent the interests of childbearing women (Donnison, 1988). As a result of the Act, all new midwives had to undergo a course of training although established midwives without training but with at least a years' experience and proof of good character were permitted to continue to practice if they registered themselves by 1910 (Reid, 2012). Rules and regulations regarding conduct,

⁹ The establishment of Lying-in hospitals provided care for poor pregnant women in major cities who, in return for food and shelter, would provide opportunities for male-midwives to increase their physiological and pathological knowledge of childbirth (Tew, 1998).

¹⁰ The Institute evolved into the Royal College of Midwives in 1941 although its Royal Charter was received in 1947 (RCM, n.d.).

equipment, hygiene and procedures for calling help in a medical emergency were also introduced. The Act was a pivotal moment in midwifery history and the development of the midwifery profession although it conversely may have also served to reflect the control of midwifery practice by medical men (Reid, 2012; Dale and Fisher, 2009). Towards the late 19th century obstetrics had established its prominence within medicine becoming the dominant profession in maternity care, (Dodwell and Newburn, 2010) although many women continued to give birth at home, attended by midwives.

The introduction of the Midwives Act in 1902 failed to reduce the high perinatal, neonatal and maternal mortality rates that persisted during the first three decades of the twentieth century (Benoit et al, 2005), although there is evidence to suggest that risk varied according to birth attendant with qualified midwives having the best outcome, then untrained midwives and lastly doctors, even when account was taken of the fact that doctors were called in cases of medical need and may have been booked where a problematic delivery was expected (Reid, 2012). The 1936 *Midwives Act* aimed to reduce high levels of maternal mortality and improve the professional status of midwives through the organisation of a national salaried community-based midwifery service, including antenatal and postnatal care, home birth and general practitioner (GP) back up under the control of the local supervising authorities (Benoit et al, 2005).

2.4 Moving Birth into Hospital

Whereas previously most births had taken place at home, from the mid-twentieth century birthplace moved from home to hospital (Office National Statistics, 2012). Influencing factors included the advent of the National Health Service in 1948 which strengthened consultant-based hospital services and publication of the Peel Report¹¹ following a review of maternity services in 1967. The report stipulated that hospital was the safest place to give birth and recommended that all births take place in hospital with medical and midwifery care provided by consultant obstetricians, GPs and midwives working as teams (Standing Maternity and Midwifery Advisory Committee, 1970). The move into hospital provided a further platform for the control of maternity care by obstetricians as the professional division of power between obstetrics and midwifery increased (McCourt,

¹¹ Chaired by consultant obstetrician John Peel.

2014). A medicalised model of birth was now the norm within England, caesarean section and intervention rates increased as birth was perceived to be full of risks that needed to be closely controlled and monitored by means of invasive techniques and technical interventions (Kirkham, 1999; Prowse & Prowse, 2008). The reduced perinatal mortality rates at the time also served to support the widely held assumption that hospital was the safest place to give birth (from 26.6 per 1,000 live and stillbirths in Great Britain in 1966 to 17.1 in 1977) (Macintyre, 1980).

The publication of the Briggs report in 1972 (Briggs, 1972) led to the recommendations for the review of the role and training of both nurses and midwives and a combined statutory structure for nurses, midwives and health visitors. These recommendations formed the basis for the Nurses, Midwives and Health Visitors Act in 1979 (Parliament, 1979) and the establishment of the regulatory body the United Kingdom Central Council for Nursing, Midwifery and Health Visiting (UKCC) and the four National Boards in 1983. This resulted in the establishment of a Statutory Midwifery Committee within the UKCC to represent midwifery matters although it remained under the control of the Council with its nursing majority.

As the medical dominance of birth continued, midwives became distant and detached from the women they cared for as their role became increasingly fragmented (Donnison, 1988). Sociological studies prior to the 1970s were placed within an obstetric context focusing on perinatal mortality and morbidity and there was a dearth of studies that considered the experiences of women in childbirth prior to 1974 (Macintyre, 1980). Consumer activism within the UK preceded academic enquiry into the medicalisation of birth and served as an impetus for feminist writers and sociologists (Oakley, 2016). The Natural Childbirth Association of Great Britain¹² was launched¹³ in 1957 to provide parents with a voice and promote natural childbirth. Kitzinger and Davis's (1975) book '*The Place of Birth*' was the product of a study group set up by the NCT to reconsider the evidence on which the policy regarding hospital birth had been based. Childbirth educator and anthropologist, Sheila Kitzinger was one of several feminist authors who influenced

¹² This later became a charitable trust and changed its name to the National Childbirth Trust (NCT).

¹³ By Prunella Briance.

thinking at this time and the findings of Cartwright's (1979) '*The Dignity of Labour?*' study commissioned by the Department of Health and Social Security (DHSS) in 1975 was unprecedented in its presentation of the experience of mothers undergoing induction of labour. The Society for the Prevention of Cruelty to Pregnant Women¹⁴, was created to campaign for better NHS care for parents and an end to the routine use of degrading measures in childbirth (AIMs, 2010; Beech, 2011). Working closely with another charity the Association of Radical Midwives (ARM) formed in 1976, its emphasised midwives as autonomous practitioners and mothers as active participants in their birth. These charities endeavoured to improve the provision of NHS maternity care and were influential in raising awareness of maternal and parental rights and shaping government policy (Oakley, 2016; Yuill, 2012; Symonds and Hunt, 1996; Macintyre, 1980).

2.5 Resistance to the Medicalisation of Birth

Increasingly public attention was drawn to the medical control of childbirth and an allegiance between healthcare users, providers and social scientists was seen in the Savage Case¹⁵ (Francombe, 1986; Savage, 1986) and the advent of evidence-based-practice. Key issues for debate at that time included the scientific validity of the rationale for the introduction of certain procedures, their iatrogenic effects, the quality of human relations in maternity care and the allocation of responsibility for deciding on the management of childbirth in general (Macintyre, 1980). British sociologist Sally Macintyre (Macintyre, 1977) introduced the notion of childbirth management whilst Oakley's seminal 'Transition to Motherhood study' (Oakley, 1974; 1975; 1976; 1977;1979; 1980) helped shine a spotlight on the social impact that medicalisation of birth had on women and babies. One of the propositions made was that there was a cumulative relationship between routine interventions in labour¹⁶ with postnatal depression and interrupted attachments between mothers and babies (Oakley, 1980). These embryonic studies formed the basis of many subsequent studies that highlighted the link between care practices and maternal and neonatal wellbeing as well as driving more general methodological developments in social science research from early qualitative

¹⁴ Renamed in 1960 to the Association for Improvements in the Maternity Services (AIMS).

¹⁵ Obstetrician Wendy Savage was suspended for practices that differed from her male colleagues in a well-publicised case, it was also revealed that her caesarean section rate was much lower than those of her male counterparts.

¹⁶ Such as amniotomy, episiotomy and epidural anaesthesia.

interviewing to an appreciation of the mixed methods approach (Oakley, 2016). Pioneering work undertaken by the European Regional Office of the World Health Organisation ¹⁷(WHO) in the late 1970s enabled international comparisons of maternity statistics, practices and procedures, highlighting the contribution of social factors and the significance of social support upon childbirth (Inch, 1987). The development of the National Perinatal Epidemiology Unit (NPEU) in the early 1980s paved the way for multi-disciplinary collaborative working and the publication of 'Effective Care in Pregnancy and Childbirth' (Chalmers et al, 1989) was revolutionary in its synthesis of available evidence to evaluate the effects of care during pregnancy¹⁸.

The establishment of evidence-based practice questioned many interventions that were routinely implemented in childbirth by obstetricians and midwives without enough evaluation. Pioneering work into perineal care by midwife Jennifer Sleep and colleagues questioned the routine use of episiotomy in practice (Sleep et al, 1984; Sleep and Grant, 1987a); impact of suture material on perineal comfort (Spencer et al, 1986; Grant et al, 1989) and the effects of pelvic floor exercises and other measures to treat perineal trauma (Sleep and Grant, 1987b; Sleep and Grant, 1988; Grant et al, 1989). Other seminal studies considered the impact of various models of care including birth in a midwife-led-unit (Hundley et al, 1994; Waldenstrom and Nilsson, 1997); caseload and team midwifery (Flint et al, 1989; Wraight et al, 1993; Rowley et al, 1995; Waldenstrom et al, 2001) and continuity-of-care and carer models throughout pregnancy and birth (Waldenstrom and Turnbull, 1998; Homer et al, 2001; Davey et al, 2013; Tracy et al, 2013; Sandall et al, 2016).

Such studies have created the opportunity to review and implement policy change and the development of the Maternity Service Liaison Committees within England in 1984 further strengthened the role of consumers in advocating for improved maternity services designed to meet the needs of the local childbearing population (DH 1993; DH 2006; DH

¹⁷ Under the direction of Marsden Wagner, a paediatrician and perinatal epidemiologist.

¹⁸ The database became a regularly updated electronic publication in 1989, developed into *Cochrane Pregnancy and Childbirth Database* in early 1993, and formed the basis of the broader *Cochrane Database of Systematic Reviews (CDSR)*, launched in 1995 (The Cochrane Collaboration, 2019).

2007). The publication of the Changing Childbirth report (DH, 1993) built on the recommendations of the Winterton Report (House of Commons Health Committee, 1992) and followed a review of maternity services by an expert maternity group chaired by Baroness Cumberlege, then Parliamentary Under-Secretary of State at the DH. It was considered '*a watershed in maternity care in England*' at the time (Henderson and Redshaw, 2017:35) as it was designed to ensure that women were able to make decisions and emphasised the implementation of the three 'C's': choice, continuity-of-care and control (McIntosh and Hunter, 2014). The report critically reassessed the roles of health professionals and used the views and experiences of women in the creation of policy recommendations, focusing on the importance of midwives in maternity care provision and wider public health issues. A more woman-centred approach was advocated which emphasised continuity-of-care whilst recognising that hospital was not always the safest place for birth. Whilst the changes were welcomed by many, they appeared to have little significant impact in practice leading Professor Mavis Kirkham of the University of Western Scotland, to comment on Changing Childbirth's twentieth anniversary that the report '*has had a profound effect on rhetoric, but not a profound effect on practice*' (RCM, 2013).

2.6 Contemporary Influences on Midwifery Practice

The publication of the National Service Framework for Children, Young People and Maternity Services (DH, 2004) and Maternity Matters (DH, 2007) over a decade later reemphasised these themes and provided indicators to achieve woman-centred care including the re-establishing of midwifery roles and skills, increasing women's access to information and to continuity-of-care. Integral to this was the concept of maternal choice and place of birth and the earlier held assumptions that hospitalisation and obstetric intervention assured safety in childbirth have continued to be challenged (Hundley et al, 1994; Campbell and MacFarlane 1996; Tew, 1998) as the evidence base has improved alongside an increasing recognition of the impact of wider social factors and relational aspects of care on health, pregnancy and childbirth (Elbourne et al, 1989; McLachlan et al, 2011; Hodnett et al, 2013; McLachlan et al, 2013; McCourt, 2014; Sandall, 2016).

Midwife-led care has evolved to mean the autonomous care by a midwife of a woman who is deemed to be at low risk of complications for pregnancy and birth (Walsh and Devane, 2012). Findings from randomised controlled studies that compare midwife-led models of care with other models of maternity care have been synthesised in systematic

reviews to demonstrate many benefits for the mother and neonate (Waldenstrom and Turnbull, 1998; Hatem et al, 2008; Sandall et al, 2016). Sandall et al (2016) undertook a Cochrane review of 15 trials (n= 17,674) that compared women who received midwife-led continuity of care with shared or medically-led care. The review supported earlier reviews and showed that midwife-led continuity-of-care was associated with significant benefits for mothers and babies with no identified adverse effects. An overview of these benefits is provided within table 1(adapted from Sandall et al, 2016). Further work has extended the knowledge base pertaining to midwifery-led continuity of care models showing significant improvements in clinical outcomes for young mothers (Dahlen, 2016), women from Black and Minority Ethnic Groups (BAME) and those living in deprived areas (Homer et al, 2017).

Table 1: Benefits of midwife-led continuity of care models

Women who had midwife-led continuity models of care were less likely to experience the following:	Women were more likely to experience the following:
<ul style="list-style-type: none"> -regional analgesia (average risk ratio (RR) 0.85, 95 per cent confidence interval (CI) 0.78 to 0.92) -Instrumental birth (average RR 0.908, 95 per cent CI 0.83 to 0.97) -to experience preterm birth (average RR 0.76, 95 per cent CI 0.64 to 0.91) -fetal loss before 24 weeks' gestation (average RR 0.84, 95 per cent CI 0.71 to 0.99), 	<ul style="list-style-type: none"> -spontaneous vaginal birth (average RR 1.05, 95 per cent CI 1.03 to 1.07)

Midwifery-led continuity of care is a multi-faceted concept and encompasses care that is both midwifery-led and provides relational continuity whereby the woman is cared for by a known midwife (or midwives) during pregnancy and birth (NCCWCH, 2014). Relational continuity can be understood as a therapeutic relationship existing between the health professional and healthcare consumer which results in accrued knowledge of the patient so that care is consistent with their needs (Perriman et al, 2018). The implementation of person-centred care is an important component of contemporary healthcare within the NHS (Chief Nursing Officers of England Northern Ireland Scotland and Wales, 2010; Health and Social Care Act, 2012). The publication of Better Births (NHS England, 2016) set out the government's vision to improve safety in maternity care through the Maternity Transformation Programme. This aims to increase women's access to personalised care, information and continuity-of- care so that, by March 2021, most women receive continuity

of the person caring for them during pregnancy, birth and the postnatal period (NHS England, 2017a; NHS England, 2019). The appointment of England's first Chief Midwife to improve care for new and expectant mothers also highlights a commitment of the government to raise the profile of midwifery and promotion of safe births.

2.7 Uncertainties within Midwifery Practice

The increasing evidence-base around the benefits of midwifery-led care and giving birth outside of an OU, along with national policy drivers, continue to strengthen the role of midwives in maternity care policy which is excellent news for the midwifery profession and women who have campaigned for the promotion and protection of holistic woman-centred care choices, midwifery autonomy and normal birth (McCourt, 2014; Henderson and Redshaw, 2017). Despite this debate exists within the published literature about the enduring dominance of risk within the NHS (Scammell and Alaszewski, 2012 ;Edwards, 2018; Mander et al, 2018) and the capacity of midwives to make decisions may be limited because of the control that the medical model continues to exert over their practice (Pollard, 2011). Institutional policies, culture and priorities along with regulatory frameworks and increased technology may diminish midwives autonomy (Edwards, 2004; Kirkham, 2018) as doctors delegate some aspects of work that were originally part of their role whilst retaining overall control of work processes. The consequence being midwives are increasingly undertaking technical and repetitive tasks that used to be part of the doctor's role at the expense of their own expertise and traditional midwifery skills (Prowse and Prowse, 2008). Midwives working in such cultures may incorporate medical discourses to legitimate their position as professionals (Kirkham, 1999; Foley and Fairclough, 2003) as they have learnt to value medicalised and technological skills above those required to support women in normal labour (Pollard, 2011).

The rising birth rate, increasingly complex health and social care needs of the childbearing population and increasing rates of medical intervention have all contributed to the current situation where midwives are under pressure to deliver safe, high quality, women-centred care whilst managing limited resources. Increasing numbers of midwives have left the profession with 40-45% of the current midwifery workforce reaching retirement age by 2020 (CNO, 2010). The introduction of tuition fees for both nursing and midwifery training is likely to increase anticipated staffing shortfalls (RCM 2017) and the centralisation of maternity care is often at odds with a more personalised approach to care.

The publication of recent inquiries into care failings has served to reduce public confidence in maternity care and question midwives autonomy (Francis, 2013; Kirkup, 2015). A lack of basic knowledge, failure to detect and act upon risk and the promotion of normal birth at whatever cost combined with a culture of covering up mistakes were found to have contributed to the preventable deaths of women and babies (Kirkup, 2015). These findings have been particularly damaging to midwives and criticisms have been levied at the RCM's 'Normal birth campaign' (Sandeman, 2017; Harley, 2017) for making women feel inadequate if medical intervention is required or requested. A further review led by senior midwife Donna Ockenden is in progress, due to be published towards the end of 2019, into maternity failings at Shrewsbury and Telford Hospital NHS Trust and has recently been widened to include 250 families who had voiced concern over their provision of maternity care (BBC News, 2019).

The subsequent scrutiny of maternity services and safety of the NHS and its associated regulatory bodies has been another key priority for the DH and strategies have been implemented to achieve this (NHS England, 2014a; Care Quality Commission, CQC, 2015a; NMC, 2014). The process of midwifery supervision, set in statute since 1902 to protect women and their babies, has been judged ineffective (Parliamentary and Health Service Ombudsman, 2013; Nursing and Midwifery Council, NMC, 2015; Kirkup, 2015) and further legislative changes have removed mandatory midwifery supervision provisions along with the Midwives Rules and Standards (Department of Health and Social Care, DHSS, 2016). The introduction of the Fundamental Standards of Care permits the prosecution of organisations that are responsible for serious cases of poor care (CQC, 2016a) and NHS organisations have a legal duty to ensure that patients and their relatives are informed promptly should things go wrong (Criminal Justice and Courts Act, 2015; CQC, 2015a). The importance of all NHS staff having clear objectives, shared values, a willingness to learn from past mistakes and engage with improvement initiatives are considered vital in creating the right safety culture within the NHS (Francis, 2013; Kirkup, 2015; West et al 2015).

Midwives have a professional duty to work in partnership with women and provide women-centred care (NMC, 2015; NMC, 2017; ICM, 2017) which may be difficult if they subscribe to the medicalised model of care within which they work or lack the confidence to justify their actions (Kirkham, 1996; Freire, 2018). The provision of midwifery care during labour requires midwives to be able to negotiate several competing challenges

simultaneously and provide care that is safe *and* woman-centred and a dichotomy presents itself when midwives must demonstrate technical expertise aligned with the medical model of care whilst '*continuing to understand, promote and facilitate normal childbirth*' (NMC, 2017:3). Such challenges are particularly evident during the second-stage as decisions may have far-reaching consequences and where, due to the overwhelming physiological sensations occurring at the time, the active participation of women in the decision-making process may be limited (Anderson, 2010). Midwives may find it difficult to negotiate a terrain and find a path that balances expert midwifery skill, clinical judgement, technological advances and an increasingly complex population of women with the fear of reprisal and its subsequent consequences. Such practices could result in the diminishing of midwifery skills and autonomy despite evidence of the benefits that midwifery-led care provides for women and babies. Midwives are expected to act autonomously and rationalise their decisions and actions (Marshall, 2005; NMC, 2017; NMC, 2019) although the extent to which they can do this may depend on local context and the culture of care within their workplace (McCourt, 2014).

The publication of the Lancet Series in Midwifery¹⁹ examined the contribution midwifery can make to the quality of care of women and infants globally, and the role of midwives and others in providing midwifery care (Renfrew et al, 2014). The scope of midwifery was mapped and a framework for quality maternal and newborn care (QMNC) developed using a mixed-methods approach including synthesis of findings from systematic reviews of women's views and experiences, effective practices, and maternal and newborn care providers (Renfrew et al, 2014). These publications have placed midwifery at the centre of high-quality maternity care and are based on a definition of midwifery that takes account of skills, attitudes and behaviours rather than specific professional roles thus supporting a move from fragmented maternity care that is focussed on risk to a more holistic woman-centred approach (Symon et al, 2018). A central theme is midwifery care for every woman and newborn and whilst the evidence supports a midwife-led continuity of care package for low risk women, questions remain about the causal mechanisms underlying the improved outcomes as it is not clear which aspects of care have resulted in these

¹⁹ The Series comprises four separate papers which have been developed collaboratively by a multidisciplinary group and address key issues on the contribution of midwifery to maternal and newborn health and wellbeing on an international scale.

improved outcomes (Symon et al, 2016)²⁰. This lends further support for the undertaking of this study and use of Qualitative Case Study as a methodology to examine midwifery care within a demarcated case.

2.8 Chapter Summary

This chapter has described the historical and contemporary challenges faced by midwives and sets this study within the current socio-political context. It sets out current relevant issues for midwifery practice within England today which may influence how midwives make decisions. It also makes explicit the perspectives and knowledge that has informed and shaped my thinking during the development of this study. The next chapter will examine the literature pertaining to midwives decision-making during the second-stage.

²⁰ In the first stage of their project to explore and evaluate different care models used in maternity care, the McTempo (Models of Care: The Effects on Maternal and Perinatal Outcomes) collaboration mapped the characteristics of antenatal care models tested in RCTs to the Quality Maternal and Newborn care (QMNC) framework in order to systematically identify and describe the characteristics of care models that may be leading improved outcomes (Symon et al, 2016).

Chapter 3 - Literature Review

3.1 Introduction to the Chapter

This chapter sets out the published research pertaining to midwives decision-making in labour with particular focus on the second-stage. This has been achieved through a systematic process in order to provide justification and context for this study, linking it to the ongoing debate within the literature.

3.2 Literature Review Methodology

Various methods can be used for undertaking literature reviews with the systematic review often heralded as the gold standard (Petticrew and Roberts, 2006). Systematic reviews use rigorous sampling and data collection procedures alongside a formal protocol to avoid reaching inaccurate conclusions that could arise from a biased selection of studies (Polit and Beck, 2017). Whilst there are various forms of systematic reviews, those that review evidence from quantitative studies frequently use meta-analysis, a common metric for combining evidence statistically (Polit and Beck, 2017). An advantage of the meta-analysis method is its ability to adjust for sample size and study quality (Broome, 1993). The use of statistical integration is not always appropriate however and there are various review techniques available that enable greater flexibility to obtain and synthesise findings across a broad range of studies leading to the inclusion of a wider range of literature (Baumeister and Leary, 1997).

Although not a systematic review, a systematic process for the retrieval of relevant literature was employed within this study to demonstrate consistency and transparency (Booth et al, 2012). I chose to conduct an integrative review to produce a comprehensive account of the available evidence. Integrative reviews incorporate a wide range of purposes and include both experimental and non-experimental research in order to understand more fully a phenomenon or concern (Whittemore and Knaf, 2005; Whittemore, 2005; Hopia et al, 2016). Whilst this broad perspective enabled a thorough coverage of the available evidence, the combining of diverse research methods could potentially contribute to bias, inaccuracy and a lack of rigour in the selection process (Whittemore and Knaf, 2005; Russell, 2005). Furthermore, the inclusion of both theoretical and empirical publications may produce superficial and disjointed data evaluation, leading to inaccurate interpretations of the cumulative evidence (Hopia et al,

2016). Despite these concerns, integrative reviews are used widely in healthcare and advocated as having an important role in evidence-based practice (Whittemore and Knafl, 2005; Hopia et al, 2016) whilst stimulating further research within a topic area (Torraco, 2016). They also have the potential to capture the complexity of varied perspectives and different phenomena (Hopia et al, 2016), reflecting the real world of clinical practice, and for these reasons were felt appropriate for addressing the aims and objectives of this review.

Whittemore and Knafl (2005) have modified Cooper's (1988; 1998) theoretical framework to describe an approach to conducting an integrative review. Five stages guide the review design, and these were applied within this review (Appendix B.1) to clearly delineate the process undertaken and demonstrate transparency (Tight, 2017).

3.3 Stage One: The Problem Identification Stage

The initial stage of the review is the clear identification of the review purpose and issue that it intends to address (Whittemore and Knafl, 2005).

3.3.1 Aim and Objectives of the Literature Review

The preliminary research question that guided this study was: 'How do midwives make decisions in the second-stage?' The aim of this review was to identify literature that pertained to midwives decision-making within the second-stage. The objectives for this review were:

- To clarify the current knowledge base and identify what is already known about midwives decision-making in labour with particular focus on the second-stage
- To identify any key issues pertaining to the evidence around midwives decision-making in labour with particular focus on the second-stage
- To critically appraise the retrieved evidence and reflect on the findings from the review to inform my thinking and planning of this study.

3.4 Stage Two: The Literature Search Stage

3.4.1 Development of Search Terms

In order to guide the development of search terms the review objectives were mapped to the PIE/O (Population, Issue, and Effect/Outcome) framework as shown in table 2. This framework was considered more appropriate than PICO (Population, Intervention, Control, and Outcomes) criteria (Polit and Beck, 2017) as the intention was to collate evidence that focused on midwifery decision-making rather than the outcomes of care choices in the second-stage.

Table 2: Development of Search Terms

Population	Midwives
Issue	Decision-Making
Effect/Outcome	second-stage, labour

A scoping review of the literature pertaining to midwives decision-making and use of intuition in the second-stage during the last decade was undertaken in 2017 as part of the upgrade document prepared for my interim assessment. Only one study was retrieved which examined how midwives made decisions during the second-stage (Jefford and Fahy, 2015) therefore the parameters of the search were widened to include midwives decision-making in labour. Within this review, word lists were constructed, and synonym checks applied to these to generate search strings for each domain of the PIE/O framework as shown in table 3.

Table 3: Development of Word Lists and Synonyms

Framework	Words	Synonyms
Population	Midwives	Midwife Midwifery
Issue	Decision-Making	Clinical reasoning, clinical judgement, intuition,
Effect/Outcome	second-stage, labour	2 nd -stage, labor, birth, delivery, intrapartum

Search strings were developed, and truncation used to allow for different endings of 'labour', 'decision-making' and 'midwives' and Boolean operators (AND / OR) used to refine the search. Two search strings were added using midwives AND 'shared decision-making' and midwives AND 'decision-making AND women' to enable retrieval of articles pertaining to midwives shared decision-making with women in labour. These are presented in Appendix B.2

3.4.2 Selection of Databases

Ten electronic platforms and databases were searched because of their relevance for midwifery and childbirth and these are outlined in Appendix B.3. Search strings were inputted using advanced search (Ebsco host platform) and multi-field search (Ovid platform) using the limitations of English language and title. No date restrictions were applied in order to ensure breadth of coverage and inclusion of seminal studies (Cooper, 1988; 1998). The search initially focused on decision-making in the second-stage and then broadened to include search strings using synonyms for decision-making, labour and intrapartum care. This was to ensure that no eligible studies were excluded because of too narrow a search focus (Russell, 2005).

An exclusion criterion was developed to ensure relevant articles were extracted. This is detailed in table 4. Both primary and secondary sources were included. Articles were excluded which were not relevant for midwifery practice in the United Kingdom (UK), for example if the study participants were certified-nurses. As the aim of this study was to examine *midwives* decision-making in the *second-stage*, articles were excluded where midwives were not the participants making decisions, where decision-making was not focused on the intrapartum period and where the focus of the article was on clinical outcomes resulting from the provision of care rather than decision-making. As decision-making is often a collaborative process, articles were included where participants were midwives and women and/or obstetricians and/or student-midwives. Consideration was given to whether articles should be included if they related to midwives decision-making in association to other aspects of midwifery care. A decision was made to include only those articles that pertained to decision-making during the first and second-stage of labour. This was appropriate as the second-stage is a continuum of the first stage of labour and whilst the pace and nature of activities tend to increase within the second stage, the principles of midwifery care remain the same during this time (Coad and Dunstall, 2011).

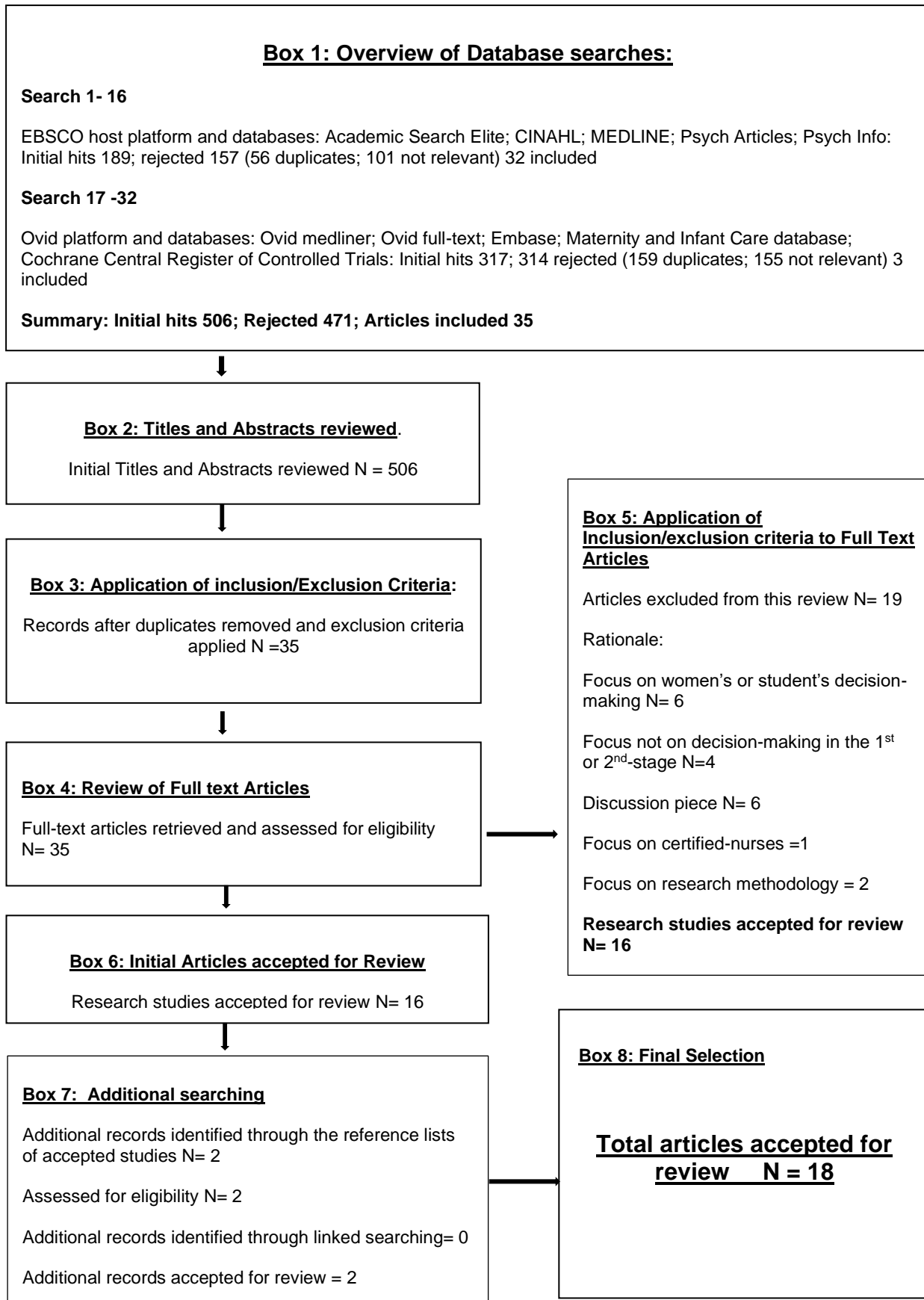
Table 4: Inclusion Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
English Language	Studies not relevant for midwifery practice within the UK, e.g. participants are certified-nurses
Primary and secondary sources	Focus is on the obstetricians or student's decision-making.
Focus must be on the midwife's decision-making or midwife's decision making and another health professional (i.e.) student/obstetrician and/or woman	Focus is on the woman's decision-making
Focus must be on decision-making in the first and/or second-stage of labour	Focus is on clinical outcomes of labour
	Focus is not on the first and/or second-stage of labour
	Discussion article or commentary

3.4.3 Selection Process

Five hundred and six hits were obtained initially following the search. The abstracts of these articles were read to check their relevance to the review objectives and apply the inclusion and exclusion criteria. Those articles that were duplicates of selected articles (n=215) or did not meet the inclusion criteria (n= 256) were excluded. Where relevance to the review objective was unclear the whole article was obtained and read to determine its eligibility. The Prisma chart sets out the retrieval process in Figure 3.

Figure 3: Prisma chart Demonstrating Selection Process



A total of thirty-five articles were retrieved from this process. These were read through to determine their eligibility and a further nineteen^{*21} were discarded as they did not meet the inclusion criteria leaving a total of sixteen articles. It is acknowledged that whilst computerised databases are effective and efficient; limitations associated with the selected search terminology may produce only 50% of appropriate studies (Whittemore and Knafl, 2005). In view of this it is recommended that a comprehensive search for an integrative review employs at least two or three strategies (Coon et al, 2003) and so the reference lists of retrieved articles were scanned for relevant studies. Links to potentially relevant studies identified through electronic searching were also pursued (Polit and Beck, 2017) in order to detect the maximum number of eligible primary sources. A further two eligible studies were selected from reference list searching and nil from linked electronic searching leading to a total of eighteen articles based on seventeen primary studies and one literature review.

3.5 Stage Three: Data Evaluation Stage

Evaluating the quality of articles in an integrative review is complex as each type of research design has different criteria that demonstrate quality (Whittemore and Knafl, 2005). The methodological details of each selected study were extracted and assessed for quality and rigour. The purpose of a quality appraisal is to identify the strengths and weakness of a research study in an unbiased and transparent way in order to determine whether the study should be included or excluded based on their quality (Jun et al, 2016). Quantitative articles were evaluated using the Quality Assessment Tool for Quantitative Studies (Effective Public Health Practice Project, 1998). This instrument, along with a user manual, provided a standardised means to assess the quality of the quantitative studies included within this review leading to an overall methodological rating of strong, moderate or weak. An overview of this tool is presented within appendix B.4

The Critical Appraisal Skills Programme (CASP) for qualitative studies (CASP, 2018) was used to evaluate the quality of the selected qualitative articles within this review. CASP is widely used as a tool to evaluate various research methodologies. Ten questions were

²¹ Two articles were initially included because they provided further detail of the methodology of two of the selected studies (Styles et al 2011b; Jefford and Sundin, 2013) however were excluded from the final selection as they did not meet the inclusion and exclusion criteria.

applied to each qualitative study designed to facilitate quality appraisal and judge the quality and value of each study. A summary of the criteria is presented in appendix B.5. No studies were omitted from this review based on quality however undertaking the appraisal facilitated comparison of the studies based on quality. The methodological details, quality assurance and limitations of the studies are outlined in appendix B.6. Following this common findings were extracted for analysis.

3.6 Stage Four: Data Analysis Stage

Data analysis was undertaken using the constant comparative method described by Whittemore and Knafl (2005:550) which consisted of data reduction, data display, data comparison, conclusion drawing and verification (Miles and Huberman, 1994). Extracts of common findings from all articles consisted of the first stage of analysis, data reduction. Data were extracted from primary articles on sample characteristics, method and findings. Articles were read through several times to identify relevant topics for analysis. Following this data display tables were developed to display all the relevant coded data from each article to facilitate comparison by characteristics and findings. During the next stage, data comparison, the tables were examined to identify patterns, contrasts, similarities and relationships within the data. Finally, conclusions were drawn across the selected studies and verification occurred prior to presenting the data. This was achieved through rechecking the patterns and themes developed with the original data sources. Detailed notes were kept throughout this process to ensure transparency. An overview of the themes developed is shown in textbox 1.

Textbox 1: Theme development within Integrative Review

1. Risk
2. The social context of decision-making
3. The use of cue-acquisition and pattern-matching in decision-making

3.7 Stage Five: Data Presentation

3.7.1 Description of Studies

Eighteen papers met the inclusion criteria and are detailed in appendix B.6. Studies were carried out in Ireland (Healy et al, 2016); England (Scammell and Alaszewski, 2012; Porter et al, 2007; Lankshear et al, 2005; Hollins Martin and Bull, 2005; Young, 2012;

Cheyne et al, 2006); Australia (Cioffi and Markham, 1997; Rattray et al, 2011; Jefford and Fahy, 2015;); New Zealand (Patterson et al, 2015); Sweden (Blix-Lindstrom et al, 2008); the Netherlands (Daemers et al' 2017; Weltens et al, 2019), Singapore (Wu et al, 2013), Malawi (Chodzaza et al, 2018) and Scotland (Styles et al, 2011a; Cheyne et al, 2012).

3.7.2 Study Methodology and Methods

Thirteen of the 18 retrieved papers adopted qualitative approaches of exploration, two applied grounded theory (Wu et al, 2013; Rattray et al, 2011), four an ethnographic approach (Chodzaza et al, 2018; Young, 2012; Scammell and Alaszewski, 2012; Lankshear et al, 2005), and one feminist qualitative design (Jefford and Fahy, 2015) as their methodology. Six studies indicated that they adopted a qualitative design but did not explicitly state their methodology (Weltens et al, 2019; Patterson et al, 2015; Daemers et al, 2017; Blix-Lindstrom et al, 2008; Porter et al, 2007; Cheyne et al, 2006). Having a clearly articulated methodology would enable the reader to understand the theoretical and philosophical stance underlying the choice of research methods used in order to increase the dependability of these studies (Hyett et al, 2014). Methods of data collection included: participant and non-participant observation (Chodzaza et al, 2018; Scammell and Alaszewski, 2012; Young, 2012; Porter et al, 2007; Lankshear et al, 2005); focus groups (Wu et al, 2013; Young, 2012; Blix-Lindstrom et al, 2008, Porter et al, 2007; Cheyne et al, 2006) and interviews (Weltens et al, 2019; Chodzaza et al, 2018; Daemers et al, 2017; Patterson et al, 2015; Jefford and Fahy, 2015; Scammell and Alaszewski, 2012; Young, 2012; Rattray et al, 2011; Lankshear et al, 2005).

The triangulation of data sources was used in five studies (Chodzaza et al, 2018; Scammell and Alaszewski, 2012; Young, 2012; Porter et al, 2007; Lankshear et al, 2005) to enhance the credibility of the findings and help capture a more complete and contextualised picture of key phenomenon (Polit and Beck, 2017). For example, Scammell and Alaszewski, (2012) used four different data collection methods within their ethnographic study that examined how risk is categorised in childbirth and how such categorisation shapes decision-making. Within their study Scammell and Alaszewski, (2012) were able to analyse their observational data alongside data obtained from interviews whilst text analysis provided a broader social and cultural contextualisation to the observation and interview data.

Various data analysis methods suitable for qualitative data were used. Three of the qualitative studies used a constant comparative approach to data analysis (Wu et al, 2013; Rattray et al, 2011; Porter et al, 2007) and thematic analysis was employed by six studies (Weltens et al, 2019; Chodzaza et al, 2018; Daemers et al, 2017; Patterson et al, 2015; Young, 2012; Blix-Lindstrom et al, 2008). Content analysis was used by Scammell and Alaszewski (2012) and Lankshear et al (2005) who used ATLAS.ti to facilitate their analysis. Cheyne et al (2006) used latent content analysis where passages were reviewed in the context of the entire interview to identify and code the thrust of the intent of the section and Jefford and Fahy (2015) employed an inductive and deductive approach whereby a model of clinical reasoning was applied to data to facilitate deductive analysis.

Four of the 18 retrieved studies adopted quantitative methods of investigation. Styles et al (2011a) devised an online correlational design for the purpose of their study. A questionnaire designed to measure risk propensity (predisposition to risk) and series of vignettes were developed and tested on 50 midwives and nurses as a pilot study (Styles et al, 2011b) to ensure face and content validity. These were incorporated into an online package that aimed to explore midwives intrapartum decision-making in relation to their attitudes towards risk (Styles et al, 2011a; Styles 2011b). The remaining three quantitative studies did not explicitly state the methodology used (Cheyne et al, 2012; Hollins-Martin and Bull, 2005; Cioffi and Markham, 1997). Social judgment and signal detection theory was used to inform analysis of the factors used in decision-making assessment and to identify participants' ability to distinguish high and low risk cases and personal decision thresholds (Cheyne et al, 2012). The social influence scale for midwifery (SIS-M) was used to measure and score midwives responses to clinical decisions focused on intrapartum care and scored using a five-point Likert scale (Hollins-Martin and Bull, 2005). Participants were given simulated patient assessment situations of high and low complexity and instructed to use a think out loud technique to generate data within Cioffi and Markham's (1997) study that aimed to examine the process of decision-making as performed by midwives and student midwives in the patient assessment phase.

The quantitative studies also applied various data analysis methods. Within Styles et al's (2011a) study that sought to explore midwives' intrapartum referral decisions in relation to their dispositional attitude towards risk, correlational analysis was undertaken between the total risk scores, personality scores and midwives referral scores using Spearman's rho.

The Mann-Whitney U test and Kruskal-Wallis test were also used to compare referral scores between experienced and inexperienced midwives. A correlational analysis was also conducted between years of experience and referral score. Cioffi and Markham's (1997) study used the related t-test, Analysis of Variance (ANOVA) and post hoc Newman-Keuls to analyse their data. Hollins-Martin and Bull (2005) collected midwives private responses to clinical decisions using a Social Influence Scale for Midwifery (SIS-M) questionnaire and public responses via interview. A 3X2 design ANOVA was used to measure the private and public responses of midwives recruited to their study. Cheyne et al (2012) used social judgment analysis and signal detection analysis to identify the factors used in participant's assessment of risk and their ability to distinguish high and low risk cases and personal decision thresholds.

The sample sizes of the quantitative studies ranged from 30 to 209 participants with clear sampling procedures identified in only three studies (Cheyne et al, 2012; Hollins-Martin and Bull, 2005; Styles et al, 2011a) who employed stratified random sampling (Cheyne et al, 2012; Hollins-Martin and Bull, 2005) and power analysis to determine the sample size required to detect a significance level of 0.05 for Spearman's Correlation (Styles et al, 2011a). The participants in all studies were midwives; two studies also included student midwives (Scammell and Alaszewski, 2012; Young, 2012) and another included obstetricians (Cheyne et al, 2012). Within the qualitative studies, sample sizes ranged from five (Rattray et al, 2011) to eighty-four (Scammell and Alaszewski, 2012) with one study specifying observation hours rather than number of participants (Lankshear et al, 2005). All qualitative studies provided thick description within their results section which enabled the transferability of the findings to other contexts to be evaluated (Lincoln and Guba, 1985; Creswell 2013).

Whereas the above studies provided primary data, secondary data was obtained from an integrative review (Healy et al, 2016) which sought to synthesise primary data from 13 studies (one quantitative and twelve qualitative). The aim of the review was to synthesise evidence of midwives' and obstetricians' perceptions of risk about birth when facilitating care for low-risk women in an OU. The authors applied the five-stage framework originally proposed by Cooper (1998) and adapted for integrative reviews by Whitemore and Knaf (2005). Studies extracted originated from Australia, the UK, Canada, the USA, New Zealand and Belgium. Sample sizes within the included studies ranged from five to 100.

Participants within the review were all midwives with two of the studies also including doctors and nurse- midwives (a United-States US based study) within their sample.

3.7.3 Overview of Identified Themes

The analysis of the retrieved articles is described above and details the process where data were extracted from the articles and examined to identify patterns, contrasts, similarities and relationships within the data. These were developed into themes which were then rechecked with the original data sources. Whilst the focus of all the studies pertained to midwives decision-making during labour, the objectives of the studies varied. Midwives decision-making during labour in relation to specific care practices associated with labour were explored within seven of the studies, for example, the use of Continuous Electronic Fetal Monitoring (CEFM) in low risk women (Rattray et al, 2011), the use of technology (Porter et al, 2007), referral for obstetric review during labour (Styles et al, 2011a), transfer from a rural community to an OU and from midwife-led to obstetric care (Weltens et al, 2019; Patterson et al, 2015; Cheyne et al, 2012), decision to perform an episiotomy (Wu et al, 2013) and midwives experiences of decision-making in relation to augmentation of labour (Blix-Lindstrom et al, 2008). The concept of risk was a dominant theme in studies (Rattray et al, 2011; Styles et al, 2011a; Cheyne et al, 2012; Healy et al, 2016) with one study specifically focusing on the concept of risk and the social context for decision- making during the second-stage (Scammell and Alaszewski, 2012) and three studies highlighting the complexities of work processes and interactions with others (Weltens et al, 2019; Young, 2012; Lankshear et al, 2005). Only six of the studies examined the process of midwives decision-making (Chodzaza et al, 2018; Daemers et al, 2017; Jefford and Fahy, 2015; Patterson et al, 2015; Cheyne et al, 2006; Cioffi and Markham, 1997) with one study examining the process of midwives decision-making during the second-stage (Jefford and Fahy, 2015). The identified themes are discussed below.

3.7.4 The Concept of Risk

3.7.4.1 Risk and Fear of Litigation

The concept of risk and fear of litigation was discussed within most of the retrieved studies and midwives perceptions and individual predispositions to risk may affect their decisions to transfer women to specialist care (Patterson et al, 2015; Cheyne et al, 2012) or undertake unnecessary interventions during labour (Rattray et al, 2011; Porter et al, 2007). Within their Australian study Rattray et al (2011) applied grounded theory to

explore why midwives used Continuous Electronic Fetal Monitoring (CEFM) on low-risk labouring women. Data were collected from five midwives via semi-structured interviews and demonstrated that participants applied CEFM when they were busy to enable them to monitor fetal-wellbeing and potential risk whilst carrying out other tasks or provide reassurance if a concern could not be substantiated. Rattray et al (2011:67) suggested that it was midwives '*personal clinical risk schema*' that influenced their practice caused by challenging workloads, a fear of litigation and an increasingly medicalised approach to risk prevalent upon the unit.

Fear of litigation and heavy workloads featured in the findings of Porter et al's (2007) study and appeared to influence the type of care provided by midwives. Porter et al (2007) sought to explore the reasons why midwives adopted certain decision-making strategies regarding their use of technology in labour. Participant observation and focus groups were employed to collect observational data from 16 midwives providing intrapartum care in two OUs and from eight midwives who participated in focus-group discussions. The authors presented three conceptual models of occupational control that they considered relevant for midwifery decision-making and data were analysed by means of constant comparison with these models of occupational control. The three occupational models of control as described by Porter et al (2007) are summarised within Appendix B.7.

The credibility of Porter et al's (2007) findings was enhanced by the clarification of observational data with participants. Independent analysis was also undertaken to enhance the confirmability of the findings through consensus of interpretation. Whilst the findings demonstrated that all midwives gave strong ideological support to new professionalism and the importance of working in partnership with women, the bureaucratic model was the most prevalent. The participants within the study appeared to recognise that there was a gap between the 'ideal' new professionalism and practice and reasons for this were explored during the focus group. The concept of risk was an important influencing factor on midwives decision-making and the heavy workload of midwives impacted upon their subsequent interactions with women. So for example the greater the workload the less likely the midwife would behave in a new professional manner because the interactions '*implicit in new professionalism took up more time than midwives felt they could afford if they were to fulfil basic standards of care*' (Porter et al, 2007: 530). One midwife within Porter et al's (2007) study stated '*I think it would depend on workload pressures, how many women you were looking after, how much time you've*

got to spend, how much rapport you've built up with one woman ... You know that an open-ended question is going to take longer'. (Porter et al, 2007:530). Fear of litigation coupled with a heavy workload was a motivating factor for the use of technology during labour and midwives adopted a paternalistic approach to decision-making to save time and obtain what they perceived to be the appropriate care response (Porter et al, 2007).

Fear of adverse events and possible litigation was a significant contributory factor to midwives increased perception of risk reported in the findings from an integrative review undertaken by Healy et al (2016). Healey et al (2016) undertook their review to examine how perceptions of risk impacted on midwives' and obstetricians' facilitation of care for low-risk women in labour. Their initial search resulted in the retrieval of 2429 articles which was reduced to 14 through a systematic process using Whittemore and Knaf's (2005) five-stage process for integrative reviews. Most articles were exploratory: four applied grounded theory; five ethnography; one phenomenology, and three a qualitative interpretative approach. Only one quantitative article was included which used a web-based correlational design (Styles et al, 2011a).

Findings from the review by Healy et al (2016) revealed how strict protocols and guidelines increased and perpetuated the perception of birth as a high-risk event. Midwives felt conflict was unavoidable if they deviated from protocol and guidelines in order to act as advocates for women. The personal impact of litigation on midwives lives was emphasised and instilled a sense of fear into their practice. This led to midwives viewing birth as catastrophic and practicing defensively in order to avoid possible future litigation. Healy et al (2016) also suggested that midwives are becoming increasingly risk averse and engage in detailed surveillance of birth to confirm normality, however in doing this have introduced and inflated the concept of abnormality and the possibilities of what might go wrong. Midwives who viewed birth as an essentially normal process faced criticisms from their peers and there was a sense that *'scrutiny from colleagues resulted in a need to meticulously document all care and account for what they did not do rather than the care they did perform'* (Healy et al, 2016:113) .

Within their qualitative study set in the Netherlands, Weltens et al (2019) used thematic analysis to scrutinise interview data from ten midwives working in midwife-led-care to examine the underlying factors in their decisions to refer women to obstetric-led care. Participants spoke about their perception of a shift in societal norms from a desire for

normality towards requesting medically-based intervention. This was reflected in an increase in referral figures from midwifery-led to obstetric-led care nationally which was not explained by changes in the midwifery-led care population of women or associated with improved outcomes (Weltens et al, 2019). Participants blamed the media as being influential in this shift and the presentation of physiological childbirth as a risky business. Women were perceived by participants as being unrealistic in their expectation that medical-care could bring safety guarantees that community-based midwifery could not. The participation of women within the decision-making process influenced midwives decisions to refer early to obstetric-led care, particularly in low-risk situations and senior midwives expressed concern that this changing mindset of women and junior midwives could result in a mistrust of the physiological process of birth and tendency for risk assessment within midwifery-led-care to move from a physiological to a pathological approach.

The risk averse culture of contemporary maternity care is discussed at length within the findings of the UK based ethnographic study undertaken by Scammell and Alaszewski (2012) which explored how midwives made sense of risk and how their concept of risk shaped their decision-making in the management of childbirth. The researchers observed and recorded midwifery talk and practice in various intrapartum clinical settings and their findings describe a paradox whereby midwives rhetoric around the value of normal birth was at odds with the pervading culture of risk within which they worked. Conversational and discourse analysis techniques were used to analyse data which revealed that routine midwifery activity was focused on searching for risk and avoiding blame rather than confirming normality although the value of normal birth appeared to be something that was deeply ingrained within the participants' psyche and often used synonymously with the term midwife-managed birth. The findings demonstrated that whilst midwives viewed normal birth as integral to the activity of a midwife, they were unable to define it as a concrete concept, referring only to what it was not, through the absence of risk, possibly reflecting how the term may have become desensitised over time (Scammell and Alaszewski, 2012).

This disparity between ideology and practice was also noted in the findings of Porter et al's (2007) study where data collected during the focus group showed that participants strongly supported the ideology of new professionalism and the involvement of women as partners in decision-making about their care. In practice however this model was least

likely to be applied by midwives who were more likely to adopt a technocratic model of decision-making whereby policies and guidelines were strictly adhered to and controlled the flexibility that women were offered with their care. The views expressed by participants may have conformed to what they thought were socially acceptable expectations (Bryman, 2012) and these findings demonstrate how what midwives say they do does not always corroborate with what they actually do highlighting the importance of conducting observational studies to collect data about the realities of clinical practice.

3.7.4.2 Midwives Perceptions of Risks

Midwives risk perceptions appear to influence how decisions are made during labour and inform the institutional culture around the provision of intrapartum care (Porter et al, 2007; Rattray et al, 2011; Scammell and Alaszewski, 2012). Styles et al (2011a) undertook a web-based correlation study that sought to examine the association between midwives personality, place of work, years of experience and the timing of their decisions to make referrals to an obstetrician and/or an OU in a series of fictitious case scenarios.

Participants from four Scottish health board areas were invited to complete an online questionnaire which was based on previously validated measures of risk attitude and personality assessment (Styles et al, 2011b). Five common labour case scenarios were tested for face and content validity and presented online as vignettes which asked midwives to make decisions about referral at several points (Styles et al, 2011b). Styles et al (2011a) proposed that midwives risk propensity scores would be related to the timings of their decisions to refer women to an obstetrician in labour; so, for example, a high-risk propensity score would be associated with a high referral rate in labour.

A correlational analysis was carried out between the risk scores, personality scores and midwives referral scores using Spearman's rho. The Mann-Whitney U test and Kruskal-Wallis test were used to compare referral scores for experienced versus inexperienced midwives and a correlational analysis was also conducted between years of experience and referral score. The findings revealed a wide range of scores for midwives referral decisions and no significant correlation was found between midwives total referral scores and risk propensity scores or personality factors, experience or location (Styles et al, 2011a). The authors concluded that midwives referral decisions were not based on their personal propensity for risk (Styles et al, 2011a), personality factors, experience or location of work. A significant difference was found however between the four health board areas with midwives from one health board area making referrals for assistance at

a significantly earlier stage ($p < 0.001$) when compared with midwives from the other three health boards (Styles et al, 2011a). This result was not explained by inexperience as midwives within this health board had significantly more years of experience ($p < 0.001$) and the authors postulated that local factors may have influenced the midwives decision to refer early. This was because the health board had experienced several high-profile adverse events in the time period preceding the study which may have impacted on the midwives decision-making choices.

Considerable variation in midwives decisions to transfer women from rural community care to an OU was also found by Cheyne et al (2012) who examined how midwives and obstetricians made intrapartum transfer decisions in order to describe possible sources of variation in decision-making. Cheyne et al (2012) conducted their study in three stages. In the first stage midwives and obstetricians described factors influencing their transfer decisions. Vignettes depicting an intrapartum scenario were developed based on data from stage one within stage two. Within stage three the vignettes were presented to midwives and obstetricians who were asked to assess the level of risk in each case and decide whether to transfer to an OU or not. Stratified sampling was employed to increase the midwife study population representation and vignettes were piloted and developed from many cases to increase their face and content validity. Social judgment analysis was used to identify the factors used in assessment and signal detection analysis was used to identify participants' ability to distinguish high and low risk cases and personal decision thresholds. The findings showed that midwives and obstetricians made very similar risk assessments when reviewing the same case information within the vignettes. Despite this, a wide range of transfer decisions were still made, suggesting that, unlike the findings from Styles et al's (2011a) study, the main source of variation in decision-making and transfer rates is based on the personal decision thresholds of clinicians.

The threshold for decision-making was likened by Cheyne et al (2012) to a line in the sand which when crossed during risk assessment, prompted the decision-maker to act. Whilst Cheyne et al (2012) reported that midwives and obstetricians made similar case assessments; there was great inconsistency with regards to their subsequent decision to act upon their assessment and transfer women in labour. Cheyne et al (2012) attributed these inconsistencies to participant's tolerance of risk and threshold for decision-making which was informed by the potential transfer distance from rural community care to OU. Cheyne et al (2012) noted that when describing factors influencing their transfer

decisions, midwives tended to refer to specific cases whereas obstetricians spoke in more general terms. The authors postulated how midwives may be able to recall the detail of specific cases more readily rendering them more susceptible to the influence of recall bias and the use of representative heuristics within their decision-making. Another factor may be that in clinical practice midwives generally make the decision to refer women to an OU from community-led care which may account for why obstetricians provided more generalised descriptions (Cheyne et al, 2012). Both Cheyne et al (2012) and Styles et al (2011a) used vignettes to ascertain midwives decision-making choices which whilst validated, may not always reflect the decisions made in real-life situations.

The decision-making processes of midwives who transferred women from rural areas to obstetric-care for slow progress in labour were explored by Patterson et al (2015) in a study set in rural New-Zealand. Data were collected from 15 midwives through interviews and focus groups and thematic analysis used to develop data into themes. The key themes developed were: 'making the mind shift', 'sitting on the boundary', 'timing the transfer' and 'the community interest'. Midwives within the study articulated the dilemma of deciding whether a slow labour was a variation of a normal labour pattern or whether transfer to an OU was required. This was described by midwives as a gradual 'mind shift' and the realisation that normal labour may be changing to abnormal. Midwives spoke about having to consider '*is this normal or am I keeping this normal or am I normalising something that is abnormal*' (Patterson et al, 2015:608) and described the importance of logically thinking through the process and undertaking a risk assessment to inform their actions. There was an awareness that delaying transfer could result in additional stress for the woman and her baby whilst moving too early could mean that the baby was born in an environment that was less safe than the planned birthplace.

Midwives within Patterson et al's (2015) study endeavoured to strike a balance between supporting the aspirations of the women in their care with their own boundaries for normality and guidance pertaining to labour time limits and transfer distance. Midwives decisions regarding the timing of transfer were dependent on partnership working as well as their local knowledge surrounding road conditions. Midwives used a combination of strategies to inform their decision-making that involved watchful waiting, an awareness of both their immediate environment and any unforeseen complications that could occur when making decisions to transfer women to an OU (Patterson et al, 2015).

3.7.5 The Social Context of Decision-Making

The social context within which decision-making occurred appeared to influence midwives decision-making and this section explains how institutional and hierarchical factors may influence midwives decision-making and limit involvement of women within this process.

3.7.5.1 Medical Influence and the Hierarchy of Decision-Making

Medical dominance of the birth environment featured as a significant concept outlined within Rattray et al's (2011) study whose findings suggested that midwives decisions were influenced by trust and workloads within a context of risk management and medical dominance. Medical dominance refers to the overall influence that doctors had on the use of CEFM²² within the health care setting and participants described a greater level of medical involvement during labour and birth and more blurring of professional boundaries than in their previous experiences outside of Australia. One participant stated "*they're [medical officers] calling every shot. If they [medical officers] deem that you do a CTG . . . then you have to do it.*" (Rattray et al, 2011: 68)

The concept of trust was a core issue within Rattray et al's (2011) study which linked to the faith that participants placed in hospital policy and the technology of CEFM. Such views align with the technocratic view of birth (Davis Floyd, 2003) associated with the medical model of care where birth is seen as a risky pathological process of which women are passive bystanders. Porter et al (2007:529) added two further categories to their three categories of decision-making following their data analysis. These were '*traditionalist decision-making*' based on the notion that '*this is how it's always done*' and '*medically dominated decision-making*' where midwives acted according to decisions made by doctors. The perceived professional superiority of doctors meant that midwives sometime took their cue from doctors in terms of which model they adhered to.

Wu et al (2013) undertook a qualitative study using grounded theory to explore midwives' reasons for performing or avoiding episiotomies during the second-stage. Data were collected through three focus groups (n= 20) and coded independently by researchers and

²² Continuous Electronic Fetal Monitoring

then through face-to-face discussions to obtain consensus. An external researcher also reviewed the data and final themes to increase the reliability of the findings. Medical approval was found to be a motivating influence for midwives performing episiotomy as there was a general perception amongst midwives that doctors would disapprove of a perineum with multiple lacerations. This finding may be reflective of intrapartum care in Singapore where perineal repair is undertaken by doctors (Wu et al, 2013).

The influence of doctors on midwives decision-making was explored in-depth within Lankshear et al's (2005) UK based study which suggested that their influence was more complex. Lankshear et al (2005) used an ethnographic approach to examine the complexities of work processes in three maternity OUs. The study aimed to examine those processes involved with decision-making, risk, uncertainty, medical knowledge and professional autonomy prior to the implementation of a computerised decision-making support system. Data were collected using intermittent observation over three hospital sites which involved 620 hours and included the observation of wards and meetings, as well as professional practices which informed decision-making. Midwives were central to care provision on the OU being involved '*in continuous informal decision-making activities*' and were the '*first line of defence*' in identifying possible complications or risk through their continual assessment of the maternal and fetal condition through observations, assessment of CEFM and the progress of labour(Lankshear et al,2005: 374).

Lankshear et al (2005) described the formal decision-making hierarchy process on the three OUs as consisting of consultants and registrars²³ on top followed by (in descending order of hierarchy), the Senior House Officer²⁴ (SHO), coordinating midwife and midwife providing care. In practice however the process appeared more complex as decisions were not always top down and decisions made by the consultant and registrar could be challenged. Lankshear et al (2005) described how midwives were not agreeable to SHOs imposing decisions upon them as the SHO was perceived to be working in a learning capacity which necessitated assistance from other members of the team. One midwife described involving the SHO '*out of courtesy*' as it was generally acknowledged that they would have little useful knowledge to offer (Lankshear et al, 2005: 367).

²³ Senior doctors.

²⁴ Described as a junior doctor,

Although at the bottom of the formal hierarchy, midwives exerted control over decision-making through regulating access to the women they provided care for within the birth room. In this way their knowledge of and access to the labouring woman was used to exert power over the medical team. Doctors entered the birth rooms only if they were requested to do so by the midwife because of an identified problem and permission was asked by doctors from midwives to enter the birth room. Midwives would refuse access if they did not think the visit appropriate and in this way were able to demonstrate control over the SHOs and it was observed how SHOs sat sometimes for hours at the midwifery workstation waiting to be allowed into the birth rooms (Lankshear et al, 2005).

Despite the formal decision-making hierarchy, midwives believed themselves to have considerable autonomy in their relationships with doctors however also wanted 'reassurance' and 'back up' for their decisions (Lankshear et al, 2005:366) when they were unsure, or complications were apparent. This was linked to a possible fear of litigation and needing someone of a 'higher rank' to formally confirm the decision. Lankshear et al (2005:366) described a typical response from a midwife as *'Most of the decisions that a registrar [makes], you have already made yourself . . . You need someone higher to say in writing, 'Yes, this is the decision'. But you know in yourself what is going to happen anyway and nine out of ten times you are right.'*

A discrepancy between rhetoric and practice was seen within Lankshear et al's study (2005) where midwives spoke strongly about being autonomous practitioners who would not hesitate to involve a consultant if a registrar made what was in their eyes a wrong decision, although this was not always observed to happen in practice. Porter et al (2007) also demonstrated that differences may exist between what midwives profess to do and actually do once exposed to the complex structures and influencing factors within clinical practice, highlighting the need for more observational studies to explore midwives decision-making during labour.

Midwives navigation and perceived power during the decision-making process was explored by Blix Lindstrom et al, (2008) who sought to understand how midwives perceived and experienced decision-making about augmentation of labour. Data were collected via focus group discussions held with 20 midwives divided into three groups and the authors used thematic analysis to develop the following categories: 'regulations and guidelines', 'shortage of delivery rooms', 'influence of obstetricians' and 'women in labour'.

Findings showed that midwives perceived their decision-making to be influenced by institutional factors that included a need to comply with regulations and guidelines, negotiate resources such as a shortage of labour rooms and the medical influence of birth.

Within their UK based qualitative study Cheyne et al (2006) employed two focus groups (n= 13) to examine midwives perceptions of the way in which they diagnose labour. Information cues were described by midwives in both groups which could be categorised into those that arose from the women and those that arose from the institution. Themes relating to the institution were organisational factors, midwifery care and justifying actions and it was necessary for participants to negotiate organisational factors that included a lack of beds and staff with the constraints imposed by clinical guidelines and perceived institutional pressure to keep the woman at home. The interaction between the woman, midwife and institution was an important finding from this study which found that the management decision was not necessarily based on the diagnosis of labour alone, as negotiation was required between the women, institution and the clinical judgement of the midwife.

Whereas the participants within Blix Lindstrom et al's (2008) study viewed themselves as experts in normal childbirth, a discrepancy was evident in how midwives navigated the process of decision-making with their medical colleagues. Midwives within two of the three focus groups were employed by large OUs whereas midwives in the third focus group worked within the equivalent of a MU where obstetricians functioned on a consultancy basis only. Midwives reported satisfaction when their experience of decision-making was related to the perceived autonomy they felt when making decisions. This was most prevalent for midwives working on the MU as midwives within this group emphasised the value of fostering good working relationships with doctors whom they perceived worked in collaboration with them. In contrast, participants working within the large OUs described being under pressure to conform to medically imposed time constraints and discussed how they would present findings in such a way to achieve the required decision from the obstetrician with minimal conflict. This is demonstrated in the following excerpt, '*When you are working in a big and overcrowded hospital, there is great pressure... labour and delivery is not allowed to take its time because there is always an obstetrician sitting and pointing at the action line*' (Blix Lindstrom et al, 2008: 194).

The participants within Weltens et al's (2019) study also described their perception of increased autonomy when away from hospital environments where they felt able to practice autonomously with less need to justify their clinical decisions and adopt rigid protocols. Flexibility was most evident within what Weltens et al (2019) perceived to be the 'grey'²⁵ areas of care in non-urgent situations, although a friction was noted in risk identification between obstetric and midwifery-led-care which was influenced by the culture of the individual hospital. Whilst these findings offer important insights into the influence of social and medical influences on midwives decision-making, further observational studies would help strengthen the evidence-base as discrepancy exists between rhetoric and practice, further lending support to this study's research methodology.

The influence of senior midwifery figures on midwives practice was examined in a self-completed postal survey undertaken by Hollins-Martin and Bull, (2005). Within their study the authors used a Social Influence Scale for Midwifery (SIS-M) to assess the impact of senior authority figures on midwives clinical decision-making. This comprised of a ten-item self-report scale developed by Hollins-Martin et al (2004) which encompassed the four domains of conformity, client control, personal control and non-conformity. The researchers hypothesised that midwives would be influenced by a higher-ranking midwife and a formal test based on the SIS-M was sent to 323 midwives in North Yorkshire²⁶ to obtain their private anonymous responses to ten questions related to intrapartum care (Hollins-Martin and Bull, 2005). A return rate of 65% was achieved as 209 completed SIS-M forms were returned which reduced the potential bias inherent within a lower response rate (Polit and Beck, 2017).

Following a nine month period 60 midwives were invited to an interview during which a case study was presented to each midwife before each question and a senior midwife attempted to influence the participant's response by reading out loud information in conjunction with the case study that focused on safety and aimed to arouse fear of potential complications. The results showed that midwives scored significantly higher on

²⁵ Weltens et al (2019) describe this as the continuum between physiology and pathology where clear evidence-based knowledge on how to act is missing (p.e199).

²⁶ Ranging from the equivalent of bands 5, 6, and 7.

a measure of social influence following their interview when compared with their earlier private responses meaning that their answers at interview were more risk averse when compared with the earlier questionnaire. The interviewer within the study worked as a university-based midwifery link-lecturer at the local maternity hospital whose grade was the equivalent to a band 8 clinical midwife, and thus higher than the bands of the participants within the study. The researchers suggested that the study findings may reflect the influence that perceived authority figures have upon midwives practice. It is not clear however if the midwifery lecturer was known to all 60 midwives or if they were aware of her band 8 status meaning that the validity of the study was compromised as the interview responses could be affected by other factors. The nine-month gap between completion of the private questionnaire and interview may also have influenced the results as participants may have been exposed to events during this time which could influence their recall and responses at interview as noted in Styles et al's (2011a) study.

Within her UK-based ethnographic study Young (2012) explored decision-making among students and newly qualified midwives. Data were collected from 49 participants through participant observation, interview and focus groups (students only). Reflective of the findings of Lankshear et al (2005), the findings from Young's (2012) study describe a social element to decision-making amongst midwives whereby they accessed colleagues in parallel positions for peer support and discussion of care and management rather than seeking advice from a senior person. Newly-qualified midwives and students had to negotiate workplace culture in order to learn the etiquette regarding accepted practices that were not necessarily woman-centred or evidence-based, lending further support to the evidence demonstrating the influence of institutional factors on decision-making. Whereas guidelines were a useful resource for newly-qualified midwives, participants found there was variation in the interpretation of guidelines by senior midwives. Some participants described midwives as being rigid in their practice, expecting juniors to follow their rules even when they went against the mothers wishes. Where there were 'grey' areas identified in practice, participants were expected to follow the unwritten rules of the clinical area rather than use their initiative to rationalise care.

3.7.5.2 Inclusion of Women within Decision-Making

The participation of women within the selected studies was often limited (Porter et al, 2007; Styles et al, 2011; Young, 2012; Hollins-Martin and Bull, 2005) and the lack of involvement of women within decision-making was described by Rattray et al, (2011:68)

as an '*unexpected finding*' of their study as women were described by participants as being passive within the decision-making process. Within Porter et al's study (2007) midwives were viewed as adopting an authoritarian approach to women which was increased in situations where risk was apparent. Paternalism was apparent as participants justified not including women in the decision-making process by making assumptions about their ability to understand technical information and having unrealistic expectations (Porter et al, 2007). Whereas participants within Weltens et al (2019) study spoke about incorporating the wishes of women into their care decisions, they described how they were least likely to do this during an urgent or high-risk situation, a view also expressed by the participants in Porter et al's (2007) study. Women were not included in the formal decision-making hierarchy described on OU in Lankshear et al's (2005) study where decisions were presented to women to agree with rather than have active involvement within the process. Lankshear et al (2005) commented that this was due to the medicalised context of birth on the OU where decisions involving doctors were made outside of the room before being presented to women for agreement. This may go some way to elucidate the perceived paternalistic approach taken to women in some medicalised birth settings where health professionals view their knowledge as privileged over the woman's knowledge of her own body and labour (Dixon et al, 2013).

Within their qualitative study based in the Netherlands, Daemers et al (2017) aimed to identify the factors that influenced midwives decision-making and explore how midwives made decisions through data collected from in-depth interviews and the use of vignettes with 11 participants. Five themes were developed from the data that influenced everyday clinical decision-making. These were the pregnant woman as a whole person, the midwife as a whole person, sources of knowledge, collaboration between maternity care professionals, and organisation of care. Participants stated that they considered the preferences and needs of women although the extent of this varied. Some participants discussed everything with the woman to offer informed choices whereas others used guidelines to direct decision-making. Participants talked about protecting the physiology of pregnancy and childbirth but often felt under pressure to refer to obstetric-led care earlier than they felt necessary and experienced conflict between supporting a physiological approach and pressure to refer to medical help and possible disciplinary action if they were perceived to be breaking accepted rules.

Four themes were described which informed midwives diagnostic and management decisions in relation to the woman in Cheyne et al's (2006) study. How the woman appeared to be coping, her expectations, need for reassurance and social support were all factors that were taken into consideration by the midwife when making management-decisions and the inclusion of women in the decision-making process was implicit rather than explicit within the study. Participants perceived that women's distress and coping abilities were strongly related to their expectations and preparation for labour which were often unrealistic, being driven by the media and ineffectual antenatal preparation. This resulted in some participants experiencing conflict in care provision and management caused by disparities between their own clinical findings, the expectations and wishes of the woman and her family alongside institutional and resource demands. Participants also felt that difficulties in making decisions were further compounded by working within a model of care where they did not know the woman and had to make snapshot decisions within a short space of time.

Women's preferences were thought to influence overall trends in care as demonstrated in the findings of Weltens et al's (2019) and Wu's (2013) studies. A perceived increased request for medicalised care and intervention from women in the Netherlands was described as a possible reason for increased transfer rates to obstetric-care among low-risk women (Weltens et al, 2019). Within Singapore, Wu et al (2013) suggested that the general trend for a reduction in episiotomy rates may be due to an increasing awareness amongst women and younger women of the lack of evidence to support the routine use of episiotomy in practice. However, despite this there was limited involvement with women and shared-decision-making within these selected studies.

3.7.6 The use of cue-acquisition and pattern-matching in decision-making

The process of decision-making was explored in several studies and elements of the hypothetico-deductive model (Cheyne et al, 2006; Patterson et al, 2015; Jefford and Fahy, 2015; Daemers et al, 2017; Chodzaza et al, 2018), intuition, heuristics (Cioffi and Markham, 1997) and 'pattern matching' were described as components of the decision-making process.

3.7.6.1 Pattern-Matching and the use of Heuristics

Cioffi and Markham (1997) examined the process of clinical decision-making using two simulated-assessment situations involving low complexity²⁷ and high complexity²⁸. Midwives were instructed to ask questions similar to those asked in actual practice situations using a thinking-aloud technique and the authors sought to detect the use of heuristic processes by the midwives as well as the relationship between the use of heuristics and task complexity. Data were examined to identify the use of inference and previous knowledge. The approach of Kuiper's et al (1988) was used to categorise the judgements that implied some estimate of probability and to identify two major types of heuristics: anchoring and adjustment and representativeness (appendix B8, table 33). Participants were judged to have used heuristics in their decision-making when estimates of probability were used, that were based on inferences and previous knowledge, for example, '*no increase in bleeding, half a cup of bright red blood, moderately soaked pad – may have been slightly heavier than usual show*' was construed as the use of anchoring and adjustment heuristics combined with representativeness (Cioffi and Markham, 1997: 268).

The study findings showed that participants did employ heuristic processes to support their reasoning in the simulated assessments although only three examples were provided within the published study. Midwives were found to use heuristic processes within their decision-making which increased when dealing with higher complexity situations. The use of the representative heuristic was found to be relied on more than other types of heuristics which was particularly evident within the complex assessment. In conditions of uncertainty Cioffi and Markham (1997) speculated that midwives take shortcuts in their reasoning as a way of simplifying the complexity of their judgement tasks which supports the earlier work of heuristics undertaken by Tversky and Kahneman (1973). The participants in the study also tended to over-estimate the baseline rates of antepartum haemorrhage, possibly due to its association with both maternal and fetal complications which may lead to a bias in their judgements and subsequent provision of care (Cioffi and Markham, 1997). The tendency of midwives to use clinical information from previous

²⁷ Low-risk intrapartum care.

²⁸ Antepartum Haemorrhage.

cases to inform their thinking has been demonstrated in previous studies (Cheyne et al, 2012; Young, 2012; Lankshear et al, 2005) and this has been referred to as 'intuitive thinking' or the 'similarity recognition' (Dreyfus and Dreyfus, 1986; Benner and Tanner, 1987; Cioffi and Markham, 1997).

Styles et al (2011a) hypothesised that the availability heuristic influenced midwives within one Scottish health board to be more risk averse when compared with three other health boards. The maternity services within the more 'risk averse' area had experienced several high-profile adverse events prior to the study which appeared to influence midwives decisions to make referrals at a significantly earlier stage than midwives from the other three health boards (Styles et al, 2011a). This had the potential to influence subsequent care and outcomes for women and strengthens the contention that experience of adverse events affects decision-making (Healy et al, 2016; Scammell and Alaszewski, 2012).

In contrast, the participants in Patterson et al's (2015) study revealed a sense of duty to support women with their plans for a normal birth and a feeling that they did not want to fail the women in their care regarding their wishes. This led to some midwives using anchoring heuristics whereby they became anchored to the view that labour was normal until they experienced a '*mind shift*' (Patterson et al, 2015:610) where they consciously moved from thinking that labour was normal to abnormal, a process that varied amongst participants. Patterson et al (2015:610) have described how this '*mind shift*' demonstrated how midwives move from a non-analytical way of thinking to a slower form of thinking which they equate to probabilistic thinking, a more rational process that was facilitated by conversations with midwifery colleagues.

3.7.6.2 Cue-acquisition and the Hypothetico-deductive Model for Decision-making

Within their qualitative study Jefford and Fahy (2015) interviewed 26 midwives to determine how they engaged in clinical-reasoning processes when making decisions in the second-stage. This is the only study to date that explicitly focuses on midwives decision-making in the second-stage and the authors described clinical-reasoning as the analytical ways that practitioners use to make decisions. This is based on the Hypothetico-deductive model of decision-making where cue acquisition, clustering and interpretation are used to describe how midwives collect and align clinical data in order to generate multiple hypotheses (Jefford et al, 2011) and is aligned with the 'probabilistic' thinking referred to by Patterson et al (2015).

Jefford and Fahy (2015) adapted and validated a model of clinical reasoning to guide data analysis. This model incorporated both analytical decision-making and non-analytical decision-making which was associated with the use of intuition or what the authors referred to as '*pattern-matching*' (Jefford and Fahy, 2015:524). Participants were asked at interview to provide two narratives that would demonstrate both a positive and negative example of their clinical reasoning during the second-stage and subsequent actions. Midwives were perceived to have undertaken optimal decision-making when they had employed analytical decision-making.

Three categories were developed from the analyses which were defined as analytical decision-making; partial analytical decision-making but failure to act and non-analytical decision-making (Jefford and Fahy, 2015). Data were categorised as analytical when the narratives presented demonstrated how the midwife's thinking processes matched the steps in the clinical-reasoning model and non-analytical when the narratives were judged to demonstrate how pattern-matching had been used by the midwives to inform their decision-making. Nine of the 20 participants included within the analysis were considered to exhibit good clinical reasoning as their cognitive processes were judged to match the clinical reasoning process described in the model. An example of this is provided, '*...When I heard the first doctor repeat that he was going to do a vacuum extraction I asked him if Janes cervix was fully dilated (Cue acquisition). He said 'Yes'. Jane had only been in second-stage for no more than 20 minutes at this point (Cue clustering). I was thinking several things: the CTG I had looked at before I left the birthing room.... wasn't that bad (Cue interpretation)*' (Jefford and Fahy, 2015: 523).

Four midwives partially used clinical reasoning but did not make a decision and/or implement their decision and seven midwives used non-analytical ways of decision-making which Jefford and Fahy (2015) described as being reliant solely on pattern matching, described in the following excerpt, '*I wasn't looking closely at Carla so I don't know whether there were any other physical signs of second-stage to be seen... (Failure to acquire cues by assessment). To me it was very obvious Carla was in second-stage (pattern matching)*' (Jefford and Fahy, 2015: 524).

The authors concluded from their analysis that whilst 13 of the participants possessed the ability to use clinical-reasoning skills, only nine of the participants followed the process through to the end by acting on their clinical findings (Jefford and Fahy, 2015). The

findings are clearly laid out within this paper with detailed extracts of narrative provided to show how the model of clinical reasoning was applied to the data which increased the trustworthiness of the findings. It is possible however that the narratives collected in Jefford and Fahy's (2015) study did not fully reflect the reality of what happened at the time. The time-frame between the events and narratives is not clear and the authors made judgements based on narratives that could be subject to possible recall bias. Several strategies were employed by Jefford and Fahy (2015) to increase the rigour of their study, including respondent checking and critical conversations between the researchers, although the authors acknowledge that further prompting of the midwives may have led to more details of midwives analytical reasoning and suggest the need for the triangulation of data where the interviews could be built on observational data and the woman's perceptions could be sought to help strengthen the trustworthiness of the findings.

Within Cheyne et al's (2006) study the authors describe the initial assessment of the woman's physical appearance and demeanour as akin to pattern-matching whereby an impression was built as to whether the woman was in active labour. This judgement was impeded by the lack of prior knowledge participants had of the women which were felt to restrict their judgement. Participants then sequentially gathered physical cues to confirm or refute their initial assessment of the woman's status, and aggregated cues to further inform clinical diagnosis and diagnosis of active labour. This aligns with the cue acquisition, cue aggregation, cue interpretation stages of the Hypothetico-deductive model. Midwives diagnostic judgement was usually made first followed by a decision pertaining to the management of the woman. Cheyne et al (2006) described how usually the diagnostic judgement informed the management decision, although when the woman was not in established labour the management decision was influenced by the woman 's expectations and coping ability along with the institutional context.

Whereas the elements described by participants in Jefford and Fahy's (2015) and Cheyne et al's (2006) studies represent a linear way of applying the Hypothetic-deductive model to decision-making, Chodzaza et al (2018) present a different application of the model's components in their ethnographic study which sought to explore the decision-making processes of Malawian midwives when caring for women during the first-stage of labour in a hospital setting. Data were obtained from 27 observations and interviews (n=9) conducted over a period of six months and used to develop a six-stage conceptual framework to demonstrate the role of cue-acquisition in decision-making. Similarly, to

midwives within Patterson's et al's (2015) study the '*underlying principle*' that shaped participants decision-making was '*supporting normality*' (Chodzaza et al, 2018: 58) and the midwives appeared to have a larger threshold for uncertainty when compared with the findings of other studies. Participants used components of the Hypothetico-deductive model to continually collect, assess and evaluate cues regarding the woman's changing physiological and emotional status. The model was applied in an iterative rather than linear way as the findings described how midwives cognition moved backwards and forwards which involved both inductive and deductive reasoning helping them to build a '*bigger picture*' when dealing with complex and uncertain situations regarding labour progress (Chodzaza et al, 2018: 62). Participants used baseline objective observation and clinical skills alongside more '*covert ways of knowing and doing*' (Chodzaza et al, 2018:60). Such knowledge was valued and whilst not fitting within the parameters for Jefford and Fahy's (2015) 'optimal' decision-making may be reflective of cultural and maternity differences in addition to the clinical realities of the practice environment.

3.8 Summary of Review

Policy published over the past twenty five years has emphasised the importance of working in partnership with women and optimising opportunities for better births however this does not always translate into practice as midwives are influenced by a complex working environment that needs to be socially negotiated and involves hierarchies of surveillance and control (Scammell and Alaszewski, 2012; Rattray et al, 2011; Blix Lindstrom et al, 2008; Porter et al, 2007; Lankshear et al, 2005).

This review has sought to examine the evidence pertaining to how midwives make decisions during labour and the factors that influence their decision-making with only one study published that explicitly explores midwives decision-making during the second-stage. Midwives are central to the care of women during labour and are involved in a continual process of decision-making (Lankshear et al, 2005) however there was limited evidence of shared decision-making taking place in any of the studies presented with often the involvement of the women being implied rather than explicitly discussed. The studies have demonstrated how midwives attempted to engage in analytical clinical reasoning to facilitate their decision-making with varying degrees of success (Jefford and Fahy, 2015; Patterson et al, 2015). Several factors may influence midwives decision-making, including the expectations of women, colleagues and the wider institutional context of care and concept of risk assessment.

The studies within this review have used various data collection methods with observational data being collected in only five of the studies. Midwifery decision-making cannot be assessed through observation alone and it is helpful to combine observational data with interviews and/or focus groups to clarify understanding and strengthen the validity of the findings as discrepancies may exist between what midwives profess to do and what they actually do, especially where hierarchies of social influence and control are evident (Scammell and Alaszewski, 2012; Lankshear et al, 2005; Porter et al, 2007).

There is limited research that examines the skills, knowledge and information sources that midwives employ to facilitate and rationalise their decision-making. This study intends to fill this gap by examining the decision-making of midwifery practice during the second-stage to explicate the knowledge and skills that midwives use during this time to inform their decision-making.

3.9 Research Question

Having carefully considered the relevant literature the final research question posed was:

- What are the skills, knowledge, information sources and other factors that may inform and influence midwives decision-making in the second-stage of labour?

3.9.1 Aims and Objectives

The aim of the study was to explore midwifery practice during the second-stage to understand how midwives make decisions

The key objectives of the study were to:

- identify the skills and knowledge used by midwives to inform their practice in the second-stage of labour
- critically analyse the factors that influence the practice and decisions that midwives make in the second-stage of labour
- critically examine how midwives have justified and accounted for the decisions that they make during the second-stage of labour.
- scrutinise the context and process of midwives decision making

3.10 Chapter Summary

This chapter presents the findings from the literature review undertaken to inform this study. The review methodology, search strategy, selection of literature, analysis of the

studies and subsequent development of themes is described alongside relevant supporting extracts from the articles. The next chapter will consider the research methodology and methods used to generate new knowledge regarding midwives decision-making in the second-stage.

Chapter 4 - Methodology, Research Methods and Analysis

4.0 Introduction to the Chapter

This chapter presents the theoretical perspectives and methodology guiding this study and positions the research within a philosophical framework. The research methods and methodology are explained and the rationale for the chosen methodology and methods presented

4.1 Paradigms of Inquiry

4.1.1 Personal Worldview

At the outset it was important to consider the nature of the phenomena under investigation and contextualise the knowledge I hoped to derive from the study through clarifying my own perspective. I hoped to explore midwifery practice during the second-stage to understand how midwives made decisions. An overview of the relevant literature presented in this thesis (chapter 3) revealed only one published study to date has explored midwifery decision-making during the second-stage. A gap in the literature exists relating to how midwives make decisions during the second stage, the knowledge and sources that inform their decisions and how such knowledge is rationalised. My personal world-view and belief system is that the social world we inhabit is shaped by our individual and collective perceptions generating multiple realities where people make sense of their reality through their interpretations of their world and others as they are revealed through social acts (Dykes, 2004). My world view and experience as a midwife have shaped the choice of paradigm of inquiry and methodology applied to the research presented in this thesis and are articulated in the following sections.

4.1.2 Research paradigms

Research paradigms have been described as a set of beliefs about science and scientific knowledge (Crotty, 2015) which can guide the way that knowledge is generated and interpreted. Put simply, they demonstrate our beliefs or ways of thinking about the social world which are often characterised through our response to ontological and epistemological questions (Polit and Beck, 2017). Ontology is the study of 'being' and is concerned with '*what is*' (Crotty, 2015:10) as it refers to the nature and structure of reality

as we ourselves know it (Crotty, 2015; Creswell, 2013; Denzin and Lincoln, 2018). Epistemology refers to the study of knowledge and how reality can be known, and so epistemological and ontological issues are closely linked as in order to make decisions about how knowledge is generated during a research study it is necessary to consider '*how do we know what we know*' (Crotty, 2015:8). These questions help us make sense of and understand what knowledge is and how it can develop and generate new knowledge (Hart, 2002). Various ontological and epistemological positions exist within the field of social research and the principle ones will be discussed briefly below.

Ontological theories fall broadly into one of two categories, relativism and realism (Burr, 2015). Realists maintain that the external world exists independently from human action, observation and our representation of it (Blaikie, 2007; Burr, 2015) and there has been continuous debate about what is real and what constitutes reality (Miller, 2006; Lincoln et al, 2018). Realism supports the epistemological positions of objectivism which incorporate the understanding that there is an objective reality in existence from which knowledge is derived which is driven by natural causes and effects (Kingdon, 2009). In this way objects are viewed as existing '*as meaningful entities independently of consciousness and experience, that is, they have truth and meaning residing in them as objects*' (Crotty, 2015:5). Objectivism aligns with positivism, a prominent philosophy that gained momentum in the work of early 19th century philosophers and sociologists. Positivism is rooted within the natural science approach. Within this approach scientific methods are used to generate knowledge through the study of observable phenomena within an objective reality to test hunches about the phenomena being studied (Polit and Beck, 2017). Deductive reasoning is applied to generate predictions and test hypothetical-deductive generalisations (Patton, 2015) with the intention of identifying universal features that offer explanation, control and predictability (Crotty, 2015). Data collection strategies typically employ quantitative methods where data is analysed statistically with the intention of generalising the findings to a wider population.

Relativism takes the opposing view that the world does not exist independently from our perception of it (Blaikie, 2007) and our 'reality' as we know it is based upon our subjective representations of the world that we inhabit. Often referred to as subjectivism, relativism aligns with the epistemological positions of interpretivism, constructionism and constructivism (Burr, 2015; Crotty, 2015). Interpretivism and its associated tenets arose as a challenge to objectivism and positivism and are primarily concerned with how meanings

about the social world are constructed, negotiated, sustained and modified (Schwandt, 2003). From a Constructivist perspective, knowledge is constructed through our lived experiences and interactions with other members of society (Lincoln et al, 2018). Within this perspective, reality is not a fixed entity, being mentally constructed by individuals, and a flexible, evolving approach is required to capture the complexities of the social world within a naturalistic context (Polit and Beck, 2017). Data collection strategies employ qualitative methods as the interpretations and voices of participants are central to understanding the phenomena under investigation and findings are subjective, based on the interaction and interpretations between the researcher and participants.

The literature review presented in this thesis (chapter 3) revealed that midwives decision-making in labour is a complex and multi-factorial activity influenced by many perspectives and experiences. It was appropriate to place this study within a constructivist epistemology and relativist ontology, as I sought to understand how midwives made decisions through my interpretation of their individual perceptions and lived experiences during the provision of intrapartum care. This aligns with my personal world view regarding the generation and construction of knowledge (section 4.1.1).

4.2 Selection of Methodology

Research methodologies are the process through which new knowledge is acquired (Denzin and Lincoln, 2011). This study required a methodology that permitted insights to be gathered that were grounded in the experiences of midwives and enabled interpretations to be developed from midwives perceptions and explanations of their decision-making in practice to enhance understanding (Lincoln and Guba, 1985). Qualitative research methodologies are distinguished by their emphasis on the holistic treatment of phenomena (Silverman, 2009) as explanation and meaning is developed through human perception and understanding (Stake, 2010). In view of this a qualitative methodology was necessary to capture the varied elements of midwives decision-making from multiple perspectives and interpretations thereby meeting the aims and objectives of this study. Qualitative methodology aligns seamlessly with this study's constructivist perspective as the voices and interpretations of study participants are crucial to understanding midwives decision-making and the findings are interpretive, based on constructions between the participant and myself as researcher.

4.2.1 Preliminary Considerations

Phenomenology was briefly considered as a methodology during the early planning stages of this study. Phenomenological studies describe the meaning of individuals lived experience of a concept or phenomenon (Creswell, 2013) and I was interested in exploring midwives lived experience of making-decisions in the second-stage. This methodology was discounted following the literature review presented within this thesis which revealed how narratives collected via focus group and/or interview might not always reflect the reality of practice and discrepancies existed between what midwives professed to do and actually did. It was important that I selected a methodology that incorporated participant observation within its methods as observing midwives decision-making in a naturalistic setting is an integral part of understanding the factors that might influence and inform midwives decision-making.

The literature review presented within this thesis identified four studies that used an ethnographic approach to examine midwives decision-making. Ethnography has its roots in anthropology and is distinguished by its objective to understand the social meanings and activities of people in a given 'field' or 'culture', through the undertaking of fieldwork in this setting (Brewer, 2000; Hammersley and Atkinson, 2007). Culture, described as the *'acquired knowledge that people use to interpret experience and generate social behaviour'* (Spradley, 1979:5) is integral to the ethnographic process (Spradley, 1980; Van Maanen, 2011; Atkinson, 2015). Ethnography was initially explored as a methodology because data needed to be collected within a naturalistic setting, to permit the reality of midwives working lives to be socially construed and consider the broader influences on their decision-making.

Whilst ethnographic methods were selected for use within this study, ethnography as a methodology was not selected. This was because in order to answer the research question, aims and objectives of this study I required a methodology that would enable me to undertake an in-depth analysis of the process of midwives decision-making and gain a rich understanding of the context within which such decisions were made. In alignment with this study's constructivist approach, I was not seeking to discover universal truths but instead the opportunity to scrutinise the specificity of midwifery practice within a clearly defined case, so that the intricacies of decision-making could be probed deeply within a demarcated framework. Qualitative Case Study (QCS) provided the opportunity to uncover midwives tacit knowledge, learn from close observation of real-life situations

(Flyberg,2011) and examine the particularity of midwifery care within this context thus considering the detail not only of '*what*' and '*when*' but '*how*' and '*why*'. QCS was the most appropriate methodology for this study as it provided an opportunity to fill a gap in the contemporary knowledge-base by examining in detail the complexities of midwifery decision-making within a defined naturalistic setting to better understand how midwives make decisions during the second-stage.

Stake (2005) has emphasised how the selection of key issues is crucial to the organisation of QCS and recommends the development of issue questions to help maximise understanding of a case and guide what can be learned within the study. Such issues are etic, devised at the start of the study and can be described as strategic questions that help tap into the basic values of the case (Abma and Stake, 2014). Emic issue questions may also arise throughout data collection and some etic questions may become less relevant as new emic questions arise once the researcher is immersed within the case (Abma and Stake, 2014). Stake (2005) has described the construction of issue questions within QCS as akin to the development of a personal contract between the researcher and phenomena under investigation as they can be used to facilitate conceptualisation of the issue whilst determining opportunities for learning within the study.

Topic questions can also be devised within QCS to elicit the information required when describing the case and its context (Stake, 1995). The opportunity to develop issue and topic questions was viewed as being of value within this study and a further reason for selecting QCS as they helped ensure the specificity of the case was probed, and data collected that was pertinent to the research question, aims and objectives. Both issue questions (Appendix C1) and topic questions (Appendix C2) were developed from my own world-view following the literature review to help focus and maximise understanding of the case, whilst guiding data collection and analysis.

To summarise, QCS is an appropriate choice for this study as it focuses on the experiential knowledge of a case (Stake, 2005; Yin, 2014) to produce deep understanding and an appreciation of the complexities of a case that will contribute to and add to existing knowledge of midwives decision-making during labour and the second-stage.

4.2.2 Qualitative Case Study

The fundamental goal of QCS is to conduct an in-depth analysis of a case within its real-life context with a view to understanding it from multiple perspectives (Stake, 2006; Simon, 2009). Stake (2006) has emphasised how experiencing the activity of the case as it occurs within its contexts is a fundamental element of QCS. Case-study has been informed by a variety of disciplines (Harrison et al, 2017; Tight, 2017) and has made several significant contributions to the development of nursing knowledge (Anthony and Jack, 2009). These include the ability to explore and explain phenomena in real life contexts and retain a holistic and real-world perspective enabling readers to get close to reality (Yin, 2014; Thomas, 2016). The crucial requisite for using case-study being the impetus to illuminate understanding of complex phenomena (Harrison et al, 2017; Yin, 2014; Merriam, 2009; Stake, 2006) enabling the answering of how and why research questions (Harrison et al, 2017) and as such was of particular value in answering the research aims and objectives of this study. Anthony and Jack (2009) have concluded from their analysis of 42 case-study research papers in nursing with particular focus on QCS that ‘ *outcomes arising from increased knowledge about and use of QCS methodology not only contribute to nursing science, but also make significant contributions to health and wellbeing*’ (Anthony and Jack, 2009: 1179).

Despite its increasing popularity, clarity is still required when using the term case-study possibly due to it only receiving detailed attention in research textbooks relatively recently (Yin, 2014). The understanding and use of QCS has been encumbered due to a lack of uniformity in its description (Anthony and Jack, 2009; Harrison et al, 2017). Case-study has been identified as a research method (Yin, 2014), a design frame (Thomas, 2016) and methodology (Baxter and Jack, 2008). The conflation within the literature of case-study being perceived to be both the unit of study, as in ‘the case’ and the product of the investigation may further contribute to misunderstanding (Brown, 2008; Merriam, 2009; Anthony and Jack, 2009). Whereas Yin (2014) defined case-study in terms of the process of empirical inquiry, Stake (1995) has focused on the unit of study or ‘the case’ as the defining feature although later suggests that ‘ *a case study is both a process of inquiry about the case and a product of that inquiry*’ (Stake, 2005: 444). The term case-study is also used in many disciplines and contexts other than research which may have further contributed to confusion around its meaning (Brown, 2008).

Various typologies and terminologies have been used to describe case-study and Tight (2017) has presented nine alternative typologies of case-study demonstrating the spectra along which the characteristics of case-studies may vary. These include the classification of case-studies as explanatory, descriptive or exploratory (Yin, 2014) and whether the approaches of the case-study are descriptive, interpretive, illustrative, theory building or theory testing (Thomas, 2016). Two dominant approaches have influenced case-study, the first proposed by Robert Stake (1995) is underpinned by a constructivist epistemology and the second proposed by Robert Yin (1994; 2003; 2014) is informed by a post-positivist epistemology. In his more recent work, Yin (2014:17) has emphasised how case-study '*embraces different epistemological orientations*' and can accommodate both a realist and relativist perspective. The explicit articulation and alignment of the study's epistemological foundation with its methodology and research methods is a crucial component in establishing rigour in research (Hyett et al, 2014) and whilst my thinking has been informed by several QCS researchers (Thomas, 2016; Merriam, 2009), I have drawn upon the approach proposed by Stake (1995; 2005; 2006; 2010; Abma and Stake, 2014) to provide the theoretical framework for this study. The constructivist epistemology underpinning Stake's QCS aligns well with the process of knowledge generation most appropriate for this study and permits the flexibility required to explore in-depth midwives decision-making in labour.

A critique voiced about QCS is its lack of generalisability (Thomas, 2016; Polit and Beck, 2017) meaning the degree to which the findings from QCS can be generalised to a broader group than the participants within the case (Polit and Beck, 2017). However, this is almost to miss the point about the unique value of QCS, its ability to provide detailed knowledge of a case through the in-depth probing of the particularities of that case (Stake, 2005). QCS is recognised as providing a unique platform for credible research (Harrison et al, 2017) as it enables explorations and understandings through rich descriptions of complex phenomena within a clearly delineated case. Both Stake (1995; 2005) and Simons (2009) refer to the paradoxical element of case-study whereby researching the uniqueness of the particular one can understand the universal through vicarious experience. Through incorporating thick description, it is anticipated that the reader could consider the applicability of the data to other clinical contexts as they reflect on the findings in relation to their own clinical experience. In this way readers can reconstruct their knowledge in ways that make it more likely to be useful as new experiences merge with the old and the reader brings their conceptual frameworks to the case in order to look for commonalities (Stake, 2005).

4.2.3 Defining the Case

There are various definitions of case-study. Simons (2009:21) refers to case-study as '*an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution, program or system or 'real life' context...The primary purpose is to generate in-depth understanding of a specific topic*', whereas Tight (2017: 9) simply states it is '*small scale research with meaning*.' Stake (1995: xi) has defined case-study as '*the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances*.' Whilst definitions and approaches to case-study may differ, the fundamental components of QCS agreed by all prominent researchers are that it is the study of a complex functioning case or cases which must be clearly bounded or delineated, within its natural context, using multiple sources of evidence. Delineating the object of study, or case, is the single most defining characteristic of QCS (Stake, 2000) and differentiates case-study from other research strategies (Brown, 2008). The case can be an individual, a group, an institution or a large-scale community (Gillham, 2000), simple or complex (Stake, 2005) and may include '*individuals, organisations, processes, programmes, neighbours, institutions and even events*' (Yin, 2014: 15).

Stake (1995; 2005) has proposed three main types of case: the intrinsic case, the instrumental case and the collective case. The purpose of the intrinsic case is to provide a better understanding of a single case (Stake, 2005); the purpose of an instrumental case is to facilitate understanding and provide insight into an issue (Stake, 2005; Simons, 2009). Collective or multiple cases are where several cases are studied jointly to form a collective understanding or comparison of an issue or phenomenon (Stake, 2005). Within this study a single instrumental QCS was completed to facilitate a detailed exploration of midwives decision-making in the second-stage of labour and generate knowledge relating to how the midwives made decisions and the information that they drew upon when making decisions within the case.

Defining the case can present challenges as many points of interest and variables overlap and connect within case study research (Harrison et al, 2017). Yin (2014) refers to the phenomena or entity of interest within the case as 'the unit of analysis' and there is agreement amongst prominent authors of the need to establish the parameters of the case which includes participants, settings and the processes to be explored (Merriam, 2009; Stake, 2006; Yin, 2014). Stake (1995; 2005) has referred to the case as both a

'bounded' (Stake, 2005:444) and 'integrated' (Stake, 1995: 2) system, meaning that the case should have an external boundary and contain components or working parts.

4.2.4 Internal Functioning and Components of the Case

The internal functioning of a case may be simple or complex (Stake, 2005) as it consists of a functioning body with different components. Stake (2005:449) describes how the case has subsections, groups, dimensions and domains and provides the following examples of how these might be interpreted: subsections (production, marketing, sales department); groups (patients, nurses, administrators), occasions (workdays, holidays). Whilst no specific example is provided by Stake of what constitutes the dimensions and domains of a case, Stake (2010: 82) suggests that 'information domains' relate to the issue questions used to guide the case and ensure that maximum learning is obtained. Within this QCS information domains based on the issue questions (appendix C.1) relate to the skills, knowledge, information sources and other factors that may inform and influence participants decision-making, for example: interaction with other clinicians, guidelines, the woman and her partner, clinical cues and other knowledge that the participant may have. This information would be collected via participant observation fieldnotes (within the case) and clarified through interviews.

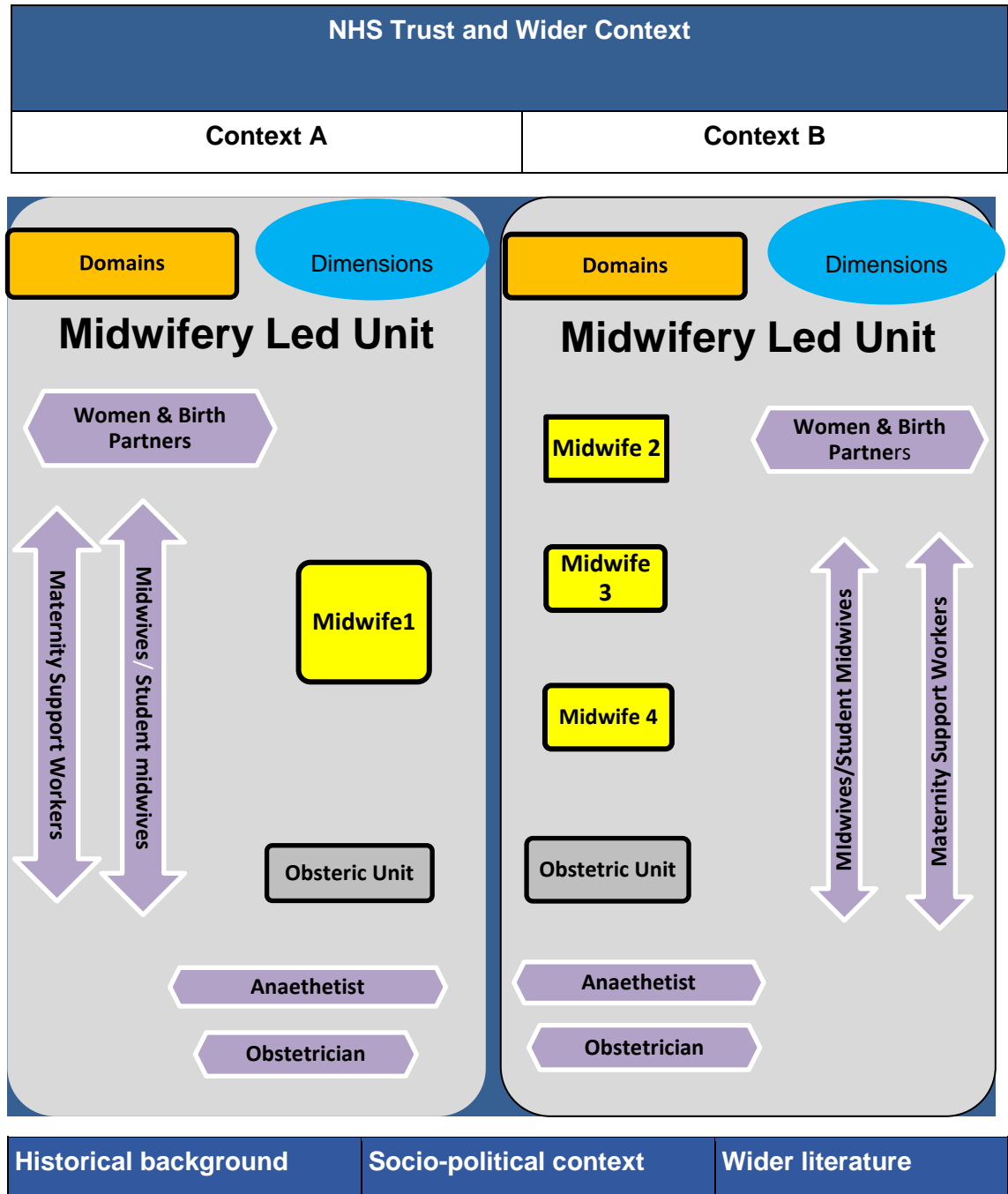
Situations outside of the case may also influence the domains within the case (Stake, 2005; Stake, 2006) and Stake (2005) has emphasised the importance of providing context for the components of the case. These are represented within this QCS as the dimensions of the case and were explored using topic questions (appendix C.2) and considering the wider context for the case (section 4.2.5, section 6.2). Broader issues such as the historical background, socio-political context and the wider literature (chapters two and three) provide interesting insights when seeking to understand the case (Stake, 2005) although remain outside the bounded system as shown in figure 4. Table 5 demonstrates how the Case components (as described by Stake, 2005; 2010) have been represented within this QCS, whilst figure 4 provides a diagrammatic overview of how these components are positioned within the case.

Table 5: Explanation of the components of the bounded case

Case Component	Application of case components within this QCS
Subsection	The two clinical contexts: AMU A and AMU B where care commenced, as well as the OU where one participant worked following the transfer of the woman (Appendix C3)
Participants	These are four midwives who regularly work in one of two AMUs (A and B) of one NHS Trust
Groups	These included: the women and their birth partners that participants provided care to (section 6.2) and other midwives and health professionals working within the bounded system (section 5.2.6, 6.2 and section 6.4.2.2).
Occasions	Represent the periods of observation where midwives were observed providing care for the woman in established labour until after the birth of her baby (section 5.3, table 7)
Dimensions	Represented as the context of each occasion (section 4.2.5, section 6.2, Chapter 6).
Domains	Represented as the issue questions that guide the information required to ensure maximum learning from the case in relation to the research question (Stake, 2010) (Appendix C1 sets out the issue questions and Appendix D3 shows how code development linked to issue questions).

Figure 4: Overview of the bounded case

Colour Key: Grey represents the subsections of the case, yellow midwife participants, purple the groups within the case, orange information domains, lighter blue dimensions and darker blue the wider context outside of the case.



4.2.5 Context of the Bounded Case

Understanding the wider context within which the case is positioned is important as historical, physical and cultural contexts may also influence the activity within the case (Stake, 2005; Stake 2006; Baxter and Jack, 2008; Thomas, 2016). Contextual issues such as the historical background and socio-political context of midwifery care are set out in Chapter two, with Chapter three presenting the wider literature relating to midwives decision-making in labour. A detailed overview of the local external context for the case is provided below.

Two case-sites facilitated data collection. Context A was an AMU in an NHS Trust situated in the South East of England and context B was an AMU situated within another part of the same NHS Trust also situated in the South East of England. Both contexts had been established for approximately six years.

Context A serves a local population of women who are ethnically diverse and economically deprived (Care Quality Commission, CQC, 2014a; ONS, 2011a) with 34.5% of residents of white 'British' ethnicity and 67.4% of households having English as their main language (ONS, 2011b). Context A is ranked significantly below average in the ONS Indices of deprivation and classification (Department for Communities and Local Government, 2015) which may have an impact on maternity care policies and practices as women from ethnic minority groups and areas of social deprivation have increased morbidity and mortality rates when compared with the general childbearing population (Knight et al, 2014).

Context A had experienced a period of turbulence and was classified inadequate (CQC, 2014a) following this context B acquired context A and both Trusts amalgamated. The CQC report classified context A as good following its amalgamation with context B (CQC, 2016b). Recruitment for this study was originally planned for context A but was extended to context B due to problems experienced with recruitment within context A (section 5.2.1 and 8.4.1). Factors attributed to context A's earlier inadequate performance were financial underperformance coupled with a high turnover of senior leadership figures (CQC, 2014a). Concerns regarding the quality and safety of the maternity care provided at context A were also reported which included the failure to report incidents, accusations of improper downgrading of their severity alongside suggestions of defensive practice. Even

though the midwife to birthing ratios were often satisfactory, the department was heavily reliant on agency staff as there were 26.4 whole time equivalent vacancies for midwives (CQC, 2014a). Recruitment to context A took place during 2014-2015 and although amalgamation of context A with context B occurred before data-collection, these issues may have contributed to difficulties with recruitment at context A (section 8.4.1).

Context B serves a predominantly white, English speaking population with significantly less deprivation (Department for Communities and Local Government, 2015). Context B was rated as outstanding by the CQC in 2014 (CQC, 2014b), Notable features of context B's performance were its strong leadership, financial performance, multidisciplinary team working and staff commitment and engagement (CQC, 2014b).

Each case site included an OU with direct access to obstetric theatres, an AMU and community midwife service. The AMU within context A is on the first floor of the maternity unit whereas the OU can be found on the ground floor. The OU and AMU at context B are adjacent to each other on the first floor. Whereas midwives within context A do not continue to look after their woman on the OU should transfer be required, the midwives working within context B continue to care for their women on the OU and are used to practicing within both areas. Both AMUs offer the use of the birthing pool, entonox (gas and air), pethidine or diamorphine and aromatherapy for pain relief. The AMU within context A was closed for refurbishment towards the end of the recruitment period. It appeared clean and functional in appearance and was usually staffed by two midwives with a Maternity Support Worker (MSW). The AMU within context B was also staffed by two midwives with a MSW. Attention had been paid to creating a relaxed atmosphere as mood lighting and background music played in the main corridors so that it immediately felt different from the outside areas when you entered the AMU. Motivational quotations and the AMU philosophy were placed on the walls in the main corridor and staff room. Further detail of the case sites is provided in Appendix C.3

4.3 Research Methods

4.3.1 Sample

Purposive sampling is a deliberate non-random method of sampling a group of people with a particular characteristic (Bowling, 2014). It is guided by the researcher's judgment as to typicality or interest in order to provide in-depth, relevant information (Robson, 2002;

Patton, 2015). Stake (2005) has advocated drawing a purposive sample that incorporates variety and provides opportunity for intensive study as the richness of case-study is related to the amount of detail and contextualization that is possible rather than representation of a wider population (Thomas, 2016; Creswell, 2013). Sample sizes within QCS are small to enable depth of study and depend on the purpose of the study (Stake, 2005; Thomas, 2016). The recruitment process is described in section 5.2 and a sample of four participants acquired who worked in either context A or B within one NHS Trust. As a non-random method of sampling the intention was to seek deeper understanding and gain new insights into midwifery practice and decision-making during the second-stage within a bounded system. The sample for this case was selected to help understand midwives decision-making during labour and so midwives were selected who regularly provided intrapartum care to women upon the AMU to enable a rich description of the case and provide an in-depth exploration of midwives decision-making.

4.3.2 Data Collection Tools

The in-depth collection of data from multiple sources is an important aspect of QCS (Creswell, 2013). The following methods of data collection were used in this study: observation, fieldnotes and interviews thereby generating a rich data set. The direct observation of midwives provided opportunity to view the social and physical context within which midwives practice; records of the observation were recorded in fieldnotes and clarification of midwives' own personal perspectives were then sought through interviews.

4.3.2.1 Observations and Field Notes

Experiencing the activity of a case is crucial to QCS (Stake, 2006) and Stake (1995) has emphasised how observations enable the researcher to gain a greater understanding of the case through the generation of observational data and fieldnotes. The direct observation of participants enabled me to identify what was occurring in a given context and who was involved. This enabled data to be collected around the dimensions and occasions of the case as well as the groups that participants interacted with and subsections of the case (section 4.2.4, table 5). An observation guide was developed to facilitate the observation process and focus each observation (appendix C.4). The observation guide was based on the three phases of observation described by Spradley (1980) (appendix C5). The guide provided space to record my field-notes which enabled me to apply the guide whilst simultaneously writing my observations. Documenting my observations during the event enabled me to record specific concrete detailed

descriptions of events as they occurred which helped me to recall the event vividly when writing up my notes following the observation.

Emerson et al (2011) have emphasised how there is no uniform way for writing fieldnotes. This is because no checklist can be relied upon to guide all aspects of fieldwork during observation and it is important to continually make judgements about what is worth recording (Patton, 2015). The observation guide contained space for personal reflections to be recorded and to make explicit thoughts and reflections that occurred to me during the observation to enhance reflexivity (Stake, 1995; Thomas, 2016). In line with constructivist tenets, no act of observation can be free from the underlying assumptions that guide it (Stake, 2005). The subjective nature of my observations meant they were constrained by the limits of my own perspectives (Brewer, 2000) and I endeavoured to avoid making presumptions or coming to early conclusions. Adopting a reflexive approach enabled me to critically reflect on my presence within the case (Lincoln et al, 2018) whilst remaining attentive and focused throughout the observation period.

The use of low inference descriptors, verbatim accounts and concrete terminology to record observations has been advocated to enable the provision of detailed factual accounts of what happened (Seale, 1999). In contrast, Stake (2005) has suggested that meaning is more important than precision during data collection; the first responsibility of the researcher during observation being to '*know what is happening, to see it, hear it, and try and make sense of it*' (Stake, 2010: 94). Within this study I recorded detailed factual accounts of what I observed during the observation episode in my fieldnotes. The possible meanings of these observations as well as my personal reflections on this meaning were written concurrently. In doing so I hoped to ensure that my own personal perspectives and insider knowledge did not limit my observations whilst simultaneously using my insider knowledge to recognise or sufficiently unpick those elements that might otherwise be taken for granted (Hodkinson, 2005).

Silverman (2009) has emphasised the importance of ensuring that the observer's identity is clearly defined and within this study I adopted the role of observer as participant. Gold (1958) has proposed that within this role the observer has some connection to but only minimal involvement with the social setting being studied and an overview of Gold's typology presented in appendix C.6. This is appropriate within this study where I am a midwife who is observing a case that is not within my usual place of work. Adopting the

role of complete observer would have been inappropriate as some participation within the case was required and I undertook small tasks to help participants such as making tea, collecting towels and opening doors. In view of this I chose to wear smart casual clothes that would identify me primarily as a non-clinical person.

Through observation I was hoping to gain insight, from both an emic (insider) and etic (outsider) perspective of the practices of the midwives caring for women during the second-stage. The observer's or Hawthorne effects are terms used to describe the reactive effect that my presence might have on participants' typical behaviour (Robson, 2002) causing them to change or modify their behaviour as a result of being observed. This has the potential to undermine the integrity of any conclusions drawn from the collected data. Whilst I was unable to know what the participants behaviour would have been like if they were not observed, steps were taken to minimise the impact that my presence might have had on their behaviour. In both AMUs the participants worked 12.5-hour shifts and during the planned observation periods I arrived at the beginning of the participant's shift and commenced the observation once it was ascertained that the woman was in established labour and consent had been obtained. Whilst my focus was on the second-stage, being present throughout the first-stage of labour meant that my presence was less intrusive to the woman and her partner than if I were to enter the room at the start of the second-stage. I hoped to minimise any impact that my presence might have upon the developing dynamics forged between the midwife, the labouring woman and her partner and provide opportunity for them to become used to my presence prior to the second-stage. Spending time within the case enabled me to become '*experientially acquainted*' with the case as advocated by Stake (2005:454) and provided opportunity to describe the context and record detailed notes to facilitate subsequent analysis and integration with data gained from interviews. Lincoln and Guba (1985) have emphasised the importance of prolonged engagement during observation in order to establish trustworthiness and ensure that the findings are credible.

To summarise, the observational episodes and completion of fieldnotes enabled data to be collected about midwifery practice and decision-making during the second-stage and the context within which it occurred. Further data was gained through interviews with the aim of gaining an in-depth understanding of participants decision-making.

4.3.2.2 Interviews

Simons (2009) has advocated the use of interviews in QCS for uncovering and representing unobserved thoughts and feelings that cannot always be observed. The use of semi-structured interviews with open-ended questions provided an opportunity for participants to speak freely and enabled data to be collected around the information domains of the case which may not have been available via observation (Stake, 2010). Interviews were planned to take place as soon as possible following the observation period to provide opportunity to observe the participants' practice and then seek further clarification and explanations at interview in order to strengthen the credibility of the data obtained.

Whilst there is no right way for conducting an interview (Stake, 1995; Patton, 2015), Simons (2009) has emphasised how establishing a rapport, active listening and open questioning are fundamental skills required by the interviewer, therefore an interview proforma was developed which included some initial questions to act as icebreakers (Emerson et al, 2011). The intention being to initially establish rapport before embarking on the interview process (appendix C.7) however in reality they were not necessary due to considerable time having already been spent with the participant during each observation. Following each observation, I read through my fieldnotes carefully and developed a list of possible questions to help clarify observational data and address those issues that could not be addressed by observation.

4.3.3 Data Analysis

The analysis of QCS data should be built on themes and explicitly linked to the purpose, rationale, guiding conceptual framework and research questions (Zucker, 2009). A transparent process of analysis was necessary to provide a clear audit trail and demonstrate how data were integrated to display an understanding of the issues within the case pertaining to the research question.

Thematic analysis is a method of data analysis commonly used within qualitative midwifery research (Braun and Clark 2006). It offers a structured approach for identifying, analysing, organising, describing and reporting themes developed by the researcher from data sets (Braun and Clark, 2006; Nowell et al, 2017). Braun and Clark (2006:5) have outlined a six-phase guide to undertaking thematic analysis which was implemented in

this study (appendix C.8). My intention was to demonstrate transparency and insight into the cognitive processes used throughout the analytic process in order to contribute to the trustworthiness of the findings.

Transparency is facilitated by a process of code generation, development of subcategories, categories and the proposal of concepts and themes. This process aligns with what Stake refers to as '*direct interpretation*' (Stake, 1995: 71-90) where meaning is drawn from single instances (coding) and 'categorical aggregation' (categorising) where single instances are combined to seek issue-relevant meanings and 'patterns' or consistencies within the data. Naturalistic generalisations are then developed to enable the reader to evaluate the applicability of the data to other contexts (Stake and Trumbull, 1982; Stake, 1995; Stake, 2005). Data analysis is fully illustrated in section 5.7.

4.4 Chapter Summary

This chapter has set out the theoretical and methodological underpinnings guiding the completed research. The rationale for the choice of epistemology, methodology and research methods is made explicit as is the case for adopting QCS to answer the stated research questions, aim and objectives. The following chapter outlines the research process and sets out how recruitment, data collection and analysis were undertaken.

Chapter 5 - The Research Process

5.1 Introduction to the Chapter

This chapter outlines the research process and sets out how recruitment, data collection and analysis were undertaken. The importance of ethical conduct is discussed, and details provided of how robust ethical principles were applied throughout. Data analysis is presented followed by the measures implemented to increase the trustworthiness, credibility, transferability; confirmability and dependability of the data. The chapter ends with a discussion about the importance of reflexivity and how it has been applied within this study.

5.2 Recruitment

The aim of the recruitment process was to purposively recruit qualified midwives who worked at band 5, 6 and 7 level on the OU and AMU of context A and context B and who had personal responsibility for facilitating births. Ethical approval was obtained from the NHS Research Authority Research Ethics Committee (appendix C.9) and Research Governance Online (ERGO) (appendix C10). In line with research governance procedures, permission was also gained from the Research and Development (R and D) departments (appendix C11), Heads of Midwifery (HoM) and managers for context A and B. An overview of the inclusion criteria is provided in textbox 2.

Textbox 2: Participant Inclusion and Exclusion Criteria

Inclusion Criteria
Qualified midwives working on the OU and AMU
Working at band 5, 6 and 7 level with personal responsibility for intrapartum care
Exclusion Criteria
Working in a supernumerary capacity

5.2.1 Recruitment Process: Context A

Permission to contact midwives via community, AMU and OU meetings was obtained through the HoM, deputy HoM and relevant midwifery managers. Six meetings were arranged at context A and I was able to access one community midwives meeting and

one AMU meeting to provide information about the study, opportunity for discussion and questions, and hand out information sheets (appendix C.12) and labelled envelopes for midwives to leave for collection if they wished to participate. I arranged to attend four meetings on the OU, but each was cancelled due to OU clinical workload. In view of this I attended 11 clinical handover meetings on OU to inform midwives of my study, provide opportunity for discussion and questions, and hand out information sheets. A further 20 information sheets were left addressed to midwives who were not present at the meetings with a labelled envelope for collection. I also attended a Supervisor of Midwives (SoM) meeting to discuss the study and provide information sheets. The challenges encountered during recruitment will be discussed in section 8.4.1. Following a robust nine-month recruitment period, one midwife from the AMU was recruited and two observational periods planned for data collection. The second observational period was cancelled due to the AMU closing to deploy staff elsewhere in the unit. No further observations could be planned as the AMU closed for refurbishment. Recruitment was then extended to context B.

5.2.2 Recruitment Process: Context B

Permission to contact midwives via community, AMU and OU meetings was obtained through the HoM, deputy HoM and midwifery managers as I was able to access their operational meeting. Following this I attended a community midwife meeting to provide information about the study, opportunity for discussion and hand out information sheets (appendix C.12). I had missed the monthly AMU and OU meetings and following discussion with the OU lead midwife provided 30 participant information sheets and labelled envelopes for midwives working on the OU. A meeting was arranged with the AMU clinical lead to discuss the study and provide information following which one participant was recruited.

In summary at this point following 12 months of recruitment activities I had circulated 70 participant information sheets, attended five departmental meetings, 11 clinical handover meetings and had undertaken six conversations with heads of service and recruited two participants.

Two observational periods were planned for data collection with the midwife recruited at context B. During the first observational period a further two AMU midwives expressed interest in the study. Participant information sheets were provided, and the midwives

agreed by email to participate in the study. A further midwife was recruited during the observation of participant 03 making a total of five midwives (one from context A and four from context B). I was unable to arrange an observation period with one midwife (within context B) and so only four midwives participated in the study.

Whilst there is no specific requirement regarding sample size for QCS, with some studies focused on one participant, I originally planned to recruit 6-8 midwives from context A. Whilst I did not set out with a specific number of observation hours in mind, I wanted the opportunity to obtain sufficient observational hours of midwifery care provision during the second-stage to gain a greater understanding of the case through the generation of observational data and fieldnotes. I hoped that the recruitment of 6-8 midwives would provide this opportunity and was aware that there may be challenges in obtaining observational data, for example, if the second-stage was not reached within a participant's shift.

I was unable to achieve my recruitment objective at context A and so planned to recruit a further 4-5 midwives at context B. After successfully recruiting and planning observational periods with four participants to collect data I was able to complete 17.75 hours of observation during five episodes of care and had spent a total of 60.5 hours within the bounded case (section 5.3). A period of personal sick leave and recovery from surgery meant that it was necessary to cease recruitment in view of the time spent on recruitment activities and the time limits of the Doctorate.

5.2.3 Recruitment Outcome

Following a 12-month recruitment period I recruited four participants. Demographic data is outlined in Table 6.

Table 6: Overview of Participants

No	Hospital	Age range (years)	Band	Length of time qualified (years)	Main place of work
1	A	30 - 40	7	15	AMU
2	B	40 - 50	7	18	AMU
3	B	50 - 60	6	12	AMU
4	B	30 - 40	6	12	AMU

5.2.4 Gaining Consent: Midwives

Throughout the research process the principles for ethical research were applied and prior to commencing the research I undertook Good Clinical Practice training (appendix C.13) (National Institute for Health Research, 2016; NHS Health Research Authority, 2017).

During the recruitment process potential midwife participants were given an information sheet which provided a detailed account of the research study (appendix C.12) and were encouraged to ask questions and express any concerns they might have. It was articulated that midwives were under no obligation to participate in the study and could choose to withdraw at any time with no adverse consequences and without offering a reason. Potential participants were given a copy of the information sheet and consent form in advance to provide opportunity to answer questions. Checks were made on the day of observation to clarify their understanding and the consent form was signed on the day of the observation (see appendix C.14).

5.2.5 Gaining Consent: Mothers and Partners

Consent was obtained from the community manager to deliver an antenatal information sheet (appendix C.15) to community midwives to give to women booked for a vaginal birth at context A and B at their 34-36-week antenatal appointment. The information sheet included two tick boxes and gave women the opportunity to communicate in advance if they did not wish to be asked to participate in the study when admitted in labour. The aim was for the information sheet to be left in the maternal notes which would alert the midwives if the woman did not wish to participate within the study.

These information sheets were not found in the maternal notes of the women who arrived in labour during the planned observation periods and therefore, initially, midwives were not aware of the views of the women they would be caring for. To ensure women were fully informed of the study and given the opportunity to decline being observed, the midwife participant explained the aim of the study and requested permission for my presence within the birthing room to observe her practice. Once verbal agreement had been obtained from the woman, a short information sheet was presented for the woman and her partner to read followed by a consent form for the woman to sign (appendix C.16). It was explained that the woman could request that the observation be stopped at any point without an explanation and it would not affect her care in any way as the midwife would continue to care for her in the same way. To avoid any perception of coercion I did not meet the woman and her partner until after consent was gained.

5.2.6 Members of the Multi-Disciplinary Team

The participants encountered various other health workers during their shift, and these included other midwives, two anaesthetists, a student midwife and obstetric registrar. I adopted a pragmatic approach and explained my presence to all clinicians when they entered the birthing room and remained in the background. At all times the welfare of the participant and the labouring woman and her partner were paramount, and I planned to exit the room if my presence appeared unwelcome or caused distress to the woman and her partner although this was not necessary.

5.3 Preparation for Entering the Case

I attended the AMU on eight occasions to collect observation data however on four of these occasions there were no woman in labour under the care of participating midwives. On these occasions I remained on the AMU for three to six hours to wait for a labouring woman to arrive. During the time that I remained on the AMU I waited in the staff room, engaged in naturally occurring conversations and made notes relevant to the topic questions. The details of the times, dates and an overview of the hours of observation completed is provided in table 7:

Table 7: Detail of Observation Dates and Hours spent on the AMLU and in Direct Observation

Date	Time on MLU	Episode of observation	Hours of direct observation	Hours on MLU	Place	Outcome	Participant No
11.09.16	07:00 – 19:00	08:00 – 12:00	4	12	Hospital A MLU	Labour and birth of baby	01
11.09.16		13:45 – 15:30	1.75	As above	Hospital A MLU	Labour and birth of baby	01
23.09.16	07:00 – 10:00	0	0	3	Hospital A MLU		01
20.12.16	19:00 – 01:00	0	0	6	Hospital B MLU		02
31.12.16	07:00 – 13:00	0	0	6	Hospital B MLU		02
02.01.17	07:00 – 18:00	07:00 – 08:00	1	11	Hospital B MLU	Labour and birth	02
02.01.17		08:45 – 17:00	8.25	As above	Hospital B MLU and LW	Labour but midwives shift ended before 2 nd stage and data not used	03
07.06.17	21:00 – 04:00	21:30 – 00:00	2.5	7	Hospital B MLU	Labour and birth	03
07.07.17	07:00 – 13:00	0	0	6	Hospital B MLU		02
24.07.17	07:30 – 17:00	07:30 – 16:00	8.5	9.5	Hospital B MLU and LW	Labour and birth	04

5.3.1 Entering the Case

I entered the research site at the beginning of the shift for each of the planned observation periods. The decision to commence data collection when the participant took over care of the woman in labour was based on the view that entering the field at this point would be less intrusive to the woman and participant. I was introduced by the participant as another midwife who was observing the midwife's practice as part of a research project.

5.4 Observation: Activity

During the first period of observation, I did not engage with the woman and her birth partner after preliminary introductions were made and endeavoured to blend into the background. Participant 01 stated after the observation that whilst she felt slightly nervous at first because of my presence; she had '*forgotten you were there*' as the observation progressed (notes taken from reflective diary 11.09.16). During subsequent observations participants 02, 03 and 04 chose to include and refer to me throughout the observation period and because of this it felt appropriate to make polite conversation with the woman and her partner, offer reassurance where appropriate and help with small tasks such as making tea.

Throughout all observations I remained in the birthing room with the participant until following the birth. Participants were offered the opportunity to view the fieldnotes after each observation was completed and only participant 03 chose to do this and agreed that they were congruent with her perceptions of the care she had provided. Following each observation period, I arranged an interview time with the participant and reviewed my field notes to inform the interview and future observations whilst they were fresh in my mind.

5.4.1 Outcome of Observational Data Collection

During data-collection I spent a total of 60.5 hours within the bounded case however was often unable to collect observational data due to participants not being engaged in intrapartum care. During this time, I waited in the restroom and at the reception desk often with the participant, engaging in naturally occurring conversation. Five episodes (17.75 hours) of observation with four participants engaged in providing care during the first and second stages of labour were completed (table 7).

Four of the five observational periods took place on the AMU and resulted in the woman achieving a spontaneous birth with all four babies born in good condition with no resuscitation required. Perineal suturing was undertaken by P01 following observation A of a first-degree tear and the remaining three women had intact perineum's. The fifth observational period ended with a forceps birth on the OU and the woman sustained an episiotomy which was sutured. The baby had a low cord pH at birth, initially requiring inflation breaths although no further intervention was required. A summary of the births observed within the case is provided in section 6.2.

5.4.2 Field Notes

Field notes were generated throughout the observation period using the proforma set out in Appendix C.4. These recorded observations of what was happening and included descriptions of the time, date, activities carried out by the midwife and provided context by detailing the room set up, positioning of the woman and midwife and progress of the woman as well as the involvement of any groups. Personal reflections were included as they occurred to me and I included verbatim extracts provided by the participant where possible to provide rich data for analysis. Field notes were reviewed immediately following the observation period and my initial thoughts recorded alongside any naturally occurring conversation with the participant.

5.5 Interviews

Semi-structured interviews were arranged to take place after the successful completion of an observation period with each of the four participants. The intention was to interview the participant immediately following the period of observation, but this was only possible in one instance (participant 02). Participant 01 was interviewed three days after the observation period as she was tired and keen to go home following her busy shift. Participant 03 was interviewed 23 days after the observation period as there was no opportunity to undertake the interview within the shift and the participant was unable to stay after her shift to be interviewed. The participant was then on holiday although arranged to meet me on the AMU on her day off for the interview when she returned. Participant 04 was interviewed 29 days after the observation period. Three earlier interview dates were arranged but cancelled due to workload as participant 04 chose to be interviewed whilst at work. I had telephoned the participant prior to driving to the case site to meet her and on each occasion the unit had been busy, and she could not guarantee that she would be free for an interview. Issues related to recall will be explored further within chapter eight when discussing the limitations of the study.

Interviews were undertaken in a private area on the ward so that the participants could not be overheard. Data collection took place across the two case sites and care taken to ensure that any direct identifiers were removed, and verbatim excerpts anonymised.

5.6 Data Management

Fieldnotes were typed up following each observation as well as interview transcripts which were stored electronically as word documents. MP3 (MPEG1 Audio Layer3) recordings of the interviews are also stored on a password protected computer in line with the Data Protection Act (1998) and University of Southampton's research data management policy (2014/2015). A back up copy of the data is stored on an external hard drive within a locked filing cupboard which is password protected.

Careful Consideration was given to maintaining the confidentiality of participants however ensuring participant anonymity during observations was not possible because other members of the team were aware of my presence. Participants also spoke openly about the study to their colleagues. All participants received a code name which was used in all records. Data was stored in a locked fireproof cabinet and participant details contained only on the consent forms stored separately from the coded transcripts and field notes. A data management plan was formulated to facilitate the systematic and safe collection of data (appendix C.17)

5.7 Data Analysis

This section presents the analysis of data and describes the approach taken to organise, analyse and integrate observational and interview data from four participants to provide a rich description of the case and answer the research question. The active role that I played within the data analysis process is made explicit to ensure any assumptions I have which may influence the analysis are made clear to the reader to enable others to confirm my findings. Both the research question and issue questions (appendix C.1) informed my thinking throughout data analysis.

Stake (1995:21) emphasised how issue questions need to be reviewed throughout the study as issues '*emerge, grow and die*' and require '*repair as issues evolve and emic issues develop from inside the case*' (Stake, 1995:20). The issue questions were reviewed on a regular basis to ensure they remained pertinent and no changes were made.

5.7.1 Phase One: Data Familiarisation

Data from both observational fieldnotes and interview recordings were read through and listened to on several occasions before typing up and transcribing to stimulate meaning

and increase my understanding and recollection of the observational episodes and interviews. I transcribed all data recordings verbatim following interviews and listening and typing took place simultaneously. Recordings were listened to many times throughout this process to ensure accuracy of transcribing and increase my familiarisation with the data (Nowell et al, 2017). I actively engaged with the data (Sandelowski, 1995) as I captured my initial thoughts developed from reading through data using analytic memos. This included for example, commentary that related to care practices, my personal response, possible dilemmas and decisions that could be explored further in subsequent data collection. A key focus for my thinking at this point was to obtain a sense of the situation and context (Creswell, 2013; Stake, 2005) and to prepare cognitively for the undertaking of meaningful qualitative analysis (Dierckx de Casterle et al, 2012).

5.7.2 Phase Two: Generating Initial Codes

The next stage moved from familiarising myself with the data, reading and memoing to coding both observation and interview data. A code in qualitative inquiry has been described as '*a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data*' (Saldaña, 2009:3). Braun and Clark (2006) have recommended initially coding for as many potential patterns as possible because data originally considered irrelevant may become interesting later. During the first cycle of coding I read through data line by line to break into discrete parts. Whilst the issue questions were in my mind when reviewing the data, codes were developed for all groups of text that appeared salient or interesting to ensure that coding was also developed inductively. I applied labels to segments of text that appeared to relate to, or be similar, to each other within each transcript. These labels were my codes that were applied to further similar segments throughout the transcript.

5.7.2.1 Observation Data

Following the first cycle of coding observational data for participant 01 (P01) a code key was developed (appendix D.1) and the codes operationally defined. This was to ensure consistency of meaning when applying the codes to further similar segments of data and to provide an internal "*reality check*" of my thinking processes (Saldaña, 2009:35).

Descriptive and process codes were used throughout the coding process depending on the context and how I interpreted the segments of text. Descriptive coding is defined as when a short description of the code and its function is provided whereas process coding applies to the connotation of an activity or interaction within the data (Saldaña, 2009). The

operationally defined codes were then reapplied to the observational data for P01 to ensure that their meaning was clear to me. Refinement of some of the codes was made at this point, for example, the code 'physical cues' was changed to 'external cues' as it related to any instance where the midwife appeared to be looking for or confirming the presence of external cues that may be physical or relate to the woman's overall demeanour in relation to her labour progress. An example of an 'external cue' is P01 using a mirror in the pool to observe Cathy's²⁹ perineum. The code 'responsive' was changed to the codes 'reassurance'; 'guidance' and 'affirming'. I had observed P01 responding to women in different ways during the two observation periods and wanted to ensure that these differences were encapsulated by the codes. Table 8 provides examples of how the codes were developed from the observational data of P01:

Table 8: Example of Code Generation from Observational Data for P01 (Observation A)

Observational Data Extract	Code
Contractions appear to be doubling. P01 discusses this with Cathy (W). ⁶ Provides reassurance.	⁶ REASSURANCE
P01 ³ 'stay with your body' 'relax into the pressure'	³ GUIDANCE
P01 ⁷ 'you are so in tune with your body I don't have to tell you what to do'	⁷ AFFIRMING

Codes were developed deductively and inductively as the data was approached with specific questions in mind as well as codes being derived directly from the data. An example of codes that were developed deductively to answer the issue questions '*how does the woman influence the midwives practice?*' and '*What sources of knowledge do midwives draw upon to inform their practice?*' is shown in table 9:

²⁹ A pseudonym was provided for all women and their partners within the case (section 6.2).

Table 9: Example of Observational Data Coding to Answer Two Issue Questions

Observational data (P01, Observation A)	Codes developed
<p>10:45 P01 using mirror¹ in the pool. States Show¹+++ , Fetal Heart Heard (FHH), soft tone – P01 asks Cathy to ³‘slow breathing down a little bit’ ‘Cathy ‘can’t take much more’ P01 ⁵clarifies ‘pressure?’ Any urges? No medicines to take the pressure away. ⁶Reassurance provided by P01 +++ ⁷Tells Cathy you can do it; your body can do it. Cathy states that her body is rubbish, doesn’t know if she wants to push – does and doesn’t. ⁶Reassurance by P01- ⁷‘you’re really in tune with your body’. ⁵Clarifies feelings. ⁵‘Are you feeling now how you did towards the end of last time’– Cathy wasn’t so much wanting to push just ‘pressure pressure pressure’. ⁶Reassurance by P01 ³‘stay with your body’ ‘relax into the pressure’P01 ⁸intently watching Cathy.</p>	<p>¹EXTERNAL CUES ¹EXTERNAL CUES ³GUIDANCE ⁵CHECKING WITH THE WOMAN ⁶REASSURANCE ⁷AFFIRMING ⁶REASSURANCE ⁷AFFIRMING ⁵CHECKING WITH THE WOMAN ⁶REASSURANCE ³GUIDANCE ⁸WATCHING THE WOMAN</p>

P01 was observed to use a mirror frequently to view Cathy’s perineum closely whilst she was in the birth pool and articulated the presence of a heavy show³⁰ being apparent in the water. P01 also appeared to be intently watching Cathy’s demeanour at times and these observations were interpreted as the midwife using external cues to inform her practice. The participant was observed to respond to Cathy in several ways by providing guidance, reassurance and positive affirmations in relation to Cathy’s ability to labour. In addition, the participant clarified with Cathy how she was feeling. This was interpreted as the midwife responding to Cathy using her emotional awareness and relates to the issue question ‘*how does the woman influence the midwives practice?*’ Whilst the issue questions were in mind when coding data, not all the issue questions could be answered

³⁰ A show is the operculum or mucoid plug that sits within the cervix and comes away as the cervix softens and opens.

through observational data as they required an understanding of the participant's cognitive processes. Table 10 shows how 12 of the 16 final codes developed from the observational data (for P01) were informed by four issue questions.

Table 10: Codes Developed from Observational Data Informed by Issue Questions

CODES	Issue Questions
EXTERNAL CUES	What sources of knowledge do midwives draw upon to inform their practice?
GUIDANCE	How does the woman influence the midwives practice?
CHECKING WITH THE WOMAN	How does the woman influence the midwives practice?
REASSURANCE	How does the woman influence the midwives practice?
AFFIRMING	How does the woman influence the midwives practice?
WATCHING THE WOMAN	How does the woman influence the midwives practice?
NORMAL PROCESSES	What sources of knowledge do midwives draw upon to inform their practice?
PHYSIOLOGY	What sources of knowledge do midwives draw upon to inform their practice?
RESOURCES	Does knowledge about factors external to the woman's care influence midwives practice and decisions?
GUIDELINES	What sources of knowledge do midwives draw upon to inform their practice? Is the use of guidelines implicit or explicit within midwives practice?
PRESENCE OF COLLEAGUES	To what extent do midwives discuss care decisions with other midwives and how does this inform their practice?
RELATIONSHIP BUILDING	How does the woman influence the midwives practice?

Four codes ('PROXIMITY', 'INFORMATION GIVING', 'ANTICIPATING EVENTS' and 'COMFORT') were developed inductively from the coding of observational data (P01) and an example of these codes is shown in the data extract below (table 11). Reflective notes made at the time of the observation are shown in italics. These notes indicate my emic knowledge as a midwife and prompted me to reflect on whether I was making assumptions during the observation.

Table 11: Observational Data Extract Demonstrating Inductive Coding

Data Extract	Code
Eye contact. Calm. PO1 ¹¹ Talks about what baby will look like (<i>I am thinking diversion tactic</i> ³¹)	¹¹ ANTICIPATING EVENTS
P01 helped tie ¹⁵ Cathy's hair back and ⁵ checked to see if feels better. ¹⁶ O1 close by Cathy at the side of the pool.	¹⁵ COMFORT ⁵ CHECKING WITH THE WOMAN ¹⁶ PROXIMTY
¹⁷ This room is your room. If you need something just say, e.g. coffee'. ¹⁷ Talks about vitamin K – benefits of drops versus IM; feeding; skin to skin, involves dad. ¹⁷ Talks about emergency situation, use of chair if need to transfer and reasons for this. (<i>Fieldnotes P01, Observation A</i>)	¹⁷ INFORMATION GIVING ¹⁷ INFORMATION GIVING

5.7.2.2 Interview Data

Transcript data were scrutinised line by line to ensure codes were developed inductively where excerpts of text appeared relevant to the research question but did not appear to be related to the issue questions. Table 12 illustrates how coding was developed from the interview data to answer the issue questions '*how does the woman influence the midwives practice?*' and '*what sources of knowledge do midwives draw upon to inform their practice?*' thereby illustrating the integration of the data from both observational and interview data collection methods and the development of the coding list in relation to

³¹ I am thinking a '*diversion tactic*' may have been used by P01 when talking about the impending birth of the woman's baby to help focus the woman at a time when she appeared increasingly overwhelmed.

these questions. The Codes 'CONTROL' and 'WAITING' were inductively developed and will be discussed further below.

Table 12: Interview Data Extract Showing Coding in Relation to Two Issue Questions (P01):

Interview data	Codes Developed
<p>'Cathy wasn't actively showing any signs¹ of pushing she was just breathing away with the gas and air ... maybe there was some kind of nerve damage⁸, maybe something, the trigger was definitely not there for her to actively push as you would expect with all of that pressure sitting just there⁸...and the baby was descending at a very slow pace¹... in the back of mind I was thinking if she just gives one push this baby's going to come up beautifully and this is all going to be over for her but then if I got her to push really hard would she lose the control²⁶...that's there so I probably say that that was a dilemma²⁸ in my mind at that point ... and I ²⁹waited and I waited and I waited em and then I said ²maybe you should just try and just give a little push and she didn't even need to give much she just gave that little push and it moved the baby forward em I think that em she has some⁸ medical background issues over having her bowels open from after having her first baby and she said that she hadn't had that feeling in a while, ... since before she had her first child ... she said that she hadn't had that feeling to actually have her bowels open'</p>	<p>¹EXTERNAL CUES ⁸PHYSIOLOGY ⁸PHYSIOLOGY ¹EXTERNAL CUES ²⁶CONTROL ²⁸ARTICULATING A DILEMMA ²⁹WAITING ²GUIDANCE ⁸PHYSIOLOGY</p>

The above data was interpreted as the participant using external cues to inform her judgement that Cathy was not pushing, and descent of the baby was slow. P01 expected Cathy to have the urge to push at this point based on her experiential and physiological knowledge of labour, causing her to consider if Cathy's previous birth experience³² was influencing this. P01 thought that the baby would deliver easily if Cathy gave one push but

³² Cathy's had experienced complications following the repair of a third-degree tear after her first birth.

was concerned about the possible consequence of Cathy losing the control that she perceived Cathy to have at that point if she asked her to push thus demonstrating emotional awareness. This was articulated as a dilemma by P01 and so she waited to see what would happen before suggesting that Cathy gave a little push to help the baby to descend into the birth canal. P01 explained that she thought Cathy may have had an issue with having her bowels opened which was why she was reluctant to push. Table 13 shows new codes that were developed from the interview data and informed by four further issue questions.

Table 13: Codes Developed from Interview Data Informed by Issue Questions (P01)

Codes	Issue Questions
Having an Inkling	How do midwives describe knowledge that they are unable to rationalise
Practice Experience	What sources of knowledge do midwives draw upon to inform their practice?
Personal Experience	What sources of knowledge do midwives draw upon to inform their practice?
Articulating a Dilemma	Are midwives explicitly aware of their thought processes when making decisions and can they articulate these?
Influence of Colleagues	To what extent do midwives discuss care decisions with other midwives and how does this inform their practice?

Nine codes were developed inductively from the data and these were: 'POWER', 'TRANSITION', 'BEING FACTUAL', 'SAFETY', 'AUTONOMY', 'ADVOCACY', 'CONTROL', 'WAITING' and BIRTH ENVIRONMENT. An example of the codes 'CONTROL' and 'WAITING' is shown in table 12 and a further two codes developed inductively from the data is shown in table 14:

Table 14: Interview Data Extract of Inductive Code Development (P01).

Data Extract (Interview Data P01)	Codes Developed
I think automatically as soon as you're introduced as the midwife in charge of them you are ¹⁸ given the power. They have chosen to come to hospital to see you and for you to look after them and so naturally you are ¹⁸ put in a powerful position. I try consciously to make sure that I don't em take I don't take ¹⁸ advantage of that power.	¹⁸ POWER
I don't know whether I will commit to that erm because ²² obviously we are here to be factual ²² you have to have some fact to define the second-stage ²² there has got to be fact to start it so for me the second-stage either I see it or I feel it, so either its 10cm or I've seen the head and that's when I will start the second-stage officially.	²² BEING FACTUAL

The initial code list developed from the interview and observational data (for P01) is shown in appendix D.2. The operationally defined codes were then reapplied to the interview data for participant 01 to ensure that their meaning was clear to me. Refinement of the codes was made at this point and the code 'COMMUNICATION' was discarded and the segment of text it applied to coded 'ARTICULATING A DILEMMA' as I interpreted the text as P01 voicing a dilemma with how to proceed in observation B due to not being sure if Trisha understood her (table 15).

Table 15 : Interview Data Extract Demonstrating Refinement of Coding (P01)

Data Extract	Codes
I found it quite ²⁸ difficult actually with Trisha because I think that English was her second language and because she was in so much pain erm she wasn't able to communicate with me she wasn't able to answer simple questions back	The code ³² COMMUNICATION was discarded and the code ²⁸ ARTICULATING A DILEMMA applied to this segment of text

5.7.2.3 Development of Coding Across the Data Set

The developing integrated code list for both observational and interview data was systematically applied to the data set for participants 02, 03 and 04 and then reapplied to the previous data sets to recheck the relevance and suitability of each code. In this way the process of coding was systematic, chronological and iterative as the data was read through many times, codes were checked and rechecked involving constant moving back and forwards between the data collected from each participant (Creswell, 2013).

A coding list was developed which explicitly linked codes to the issue questions as well as denoting those that were derived inductively from the data. The issue questions were reviewed and remained unchanged as they appeared to remain both relevant and pertinent. This resulted in the final integrated code list as shown in Appendix D.3. Braun and Clark (2006) and Stake (1995; 2010) have emphasised the importance of retaining context when coding and efforts were made to ensure that context was not lost throughout this process so that selected data remained meaningful. Throughout this process analytic memos were made to articulate any interesting patterns or possible links that were noted within the codes.

Saldaña (2009:33) has referred to coding and analytic memo writing as concurrent activities within data analysis and cited Weston et al, (2001:397, cited by Saldaña, 2009) who explained there is '*a reciprocal relationship between the development of a coding system and the evolution and understanding of a phenomenon*'. Whilst memos can be described in different ways depending on their primary purpose (for example, theoretical or reflective), Saldaña (2009) uses analytic memoing as his term of choice reasoning that all memos are analytic regardless of content. The use of analytic memoing was crucial in enabling me to make sense of developing patterns within the data as I began to sort codes into categories. It also enabled me to identify how my own perceptions may affect my interpretations of the data which will be discussed further below.

5.7.3 Phase Three: Searching for Themes

Phase three commenced when all data had been coded and collated resulting in a long list of the different codes (appendix D.3) that had been identified across the data sets (Braun and Clark, 2006). This phase involved grouping codes into subcategories and categories in preparation for developing themes (appendix D.4).

5.7.3.1 The Developing Categories

Developed codes were grouped according to similarity to develop the most salient categories in the data set (Saldaña, 2009). Codes were moved between potential categories several times as I made decisions about which codes fitted together to describe the activity within the case and I analysed the codes and considered how they might combine to produce an initial concept. Subcategories were formed to facilitate the development of final categories and an overview of subcategory and category development from coding is provided in Appendix D.4. Stake (1995) has emphasised the importance of demonstrating the cognitive processes used throughout analysis and the development of these initial categories explained below:

The codes ‘HAVING AN INKLING’, ‘CHECKING HUNCHES’, ‘ARTICULATING A DILEMMA’, ‘CHECKING WITH COLLEAGUES’, ‘BEING FACTUAL’, ‘PERSONAL EXPERIENCE’ AND ‘PRACTICE EXPERIENCE’ combined to formulate the category ‘*experience and developing hunches*’. This category was interpreted as participants expressing that they ‘just knew’ or had an intuitive feeling for something in relation to their care provision that was informed by experience. They acted upon this by checking facts, thinking it through logically and checking out their hunches with their colleagues. This is demonstrated further in the following data extract (Table 16):

Table 16: Data Extract from Interviews

Data Extract from Interviews	Category
<p>‘..so I asked 3 different people to come and look at this baby and then it went over to the ward and I said to the midwife over there I said I don’t know what it is about this baby I am really not happy and 6 hours later it just erm crashedand I honestly couldn’t put my finger on what was wrong with that baby but just then and that was definitely something intuitive in me’ (P02)</p> <p>‘I can’t tell you why it’s not right and I did act on it but ... there was just something kind of niggling me I can only describe it as a niggle it’s almost like at the back of your brain a kind of whisper – does that make sense?’ (P04)</p>	<p>‘Experience and developing Hunches’</p>

The category '*responding to uncertainties*' was developed using the codes 'ARTICULATING A DILEMMA', 'MAKING A PLAN', 'CHECKING WITH COLLEAGUES' and 'GUIDELINES' and was interpreted as the action participants took when they were unsure of the situation. The precursor for this was often articulated as a hunch and informed by experience as participants sought to check out uncertainty through rational thinking, planning and checking with colleagues and guidelines. It was because of these similarities that the '*responding to uncertainties*' category was collapsed into the '*experience and developing hunches*' category and the category renamed '*experience, developing and checking hunches*'. '

The codes 'RELATIONSHIP BUILDING', 'BELIEF IN THE WOMAN', 'PROXIMITY', 'COMFORT', 'GUIDANCE', 'KNOWLEDGE OF THE WOMAN', 'CHECKING WITH THE WOMAN', 'REASSURANCE', 'AFFIRMING', 'INFORMATION GIVING', 'ADVOCACY' and 'CONTROL' combined to develop the category '*responding to the woman*.' This category was interpreted as how the participant responded to the woman on an emotional level to develop a supportive relationship with the woman which informed their decision-making.

The category '*responding to women*' linked with the category '*external influences on care provision*' which contained the codes 'PRESENCE OF COLLEAGUES', 'INFLUENCE OF COLLEAGUES', 'RESOURCES', 'DISRUPT ENERGY'. This category was developed in response to my interpretation of the factors external to the woman and participant that influenced the participant's care. A relationship between this category and the category '*responding to women*' was noted as external influences were observed to influence the participant's response to the woman.

The codes 'PHYSIOLOGY', 'NORMAL PROCESSES', 'ANTICIPATING EVENTS', 'WAITING', 'WATCHING THE WOMAN', 'EXTERNAL CUES', 'TRANSITION' and 'SAFETY' were grouped into the category '*Observing the process*'. This category was interpreted as the information that participants used when observing and construing the process of labour from these observations. It involved participants recognising external cues and their related physiology as well as having knowledge of normal processes and anticipating what would happen next within that process. This category influenced the '*experience, developing and checking hunches*' category as well as participants response to women.

The two final categories developed following coding were '*Influence of the birth environment on care provision*' which contained the codes 'BIRTH ENVIRONMENT', 'TIME RESTRICTIONS', 'GUIDELINES³³', and '*Working in partnership*' containing the codes, 'INSTRUCTING', 'INFORMATION-GIVING', 'GUIDANCE', 'AUTONOMY', 'PARTNERSHIP WORKING' and 'POWER'. The category '*Working in partnership*' was influenced by the category '*Responding to the woman*' and the codes 'INFORMATION GIVING' and 'GUIDANCE' aligned both with the '*Responding to woman*' and '*Working in partnership*' category. This is because I interpreted *how* participants gave guidance and information to women to be related to the extent they appeared to be working in partnership with the woman. This is demonstrated in the data extract below (textbox 3) which shows how information or guidance can be given in a way where the woman is encouraged to take the lead and follow her body (P03, observation data) and more authoritarian where the participant is instructing the woman with her pushing (P04, observation).

Textbox 3: Observational Data Extracts showing how information is provided to women

Karen making pushing sounds P03 "this is all normal just go with your body" "it's all good signs that hopefully it's not going to be too long. Just relax in-between. Don't be scared."
"You can push that's fine. Just do what your body tells you to." (P03)

'P04 puts her fingers in Amy's vagina whilst she is pushing "I'm just going to feel where this head is." "Now go for it, big push, pushing my fingers away, you're definitely pushing in the right place".'(P04)

The categories '*Working in partnership*' and '*Responding to women*' were both influenced by the categories '*Influence of Birth Environment on care provision*' and '*External influences on care provision*' which appeared to be drivers for how participants responded and worked in partnership with women when making decisions. The category '*Influence of Birth Environment on care provision*' encompassed data pertaining to time limits in the second-stage that midwives spoke about at interview and was also influenced by the

³³ The code GUIDELINES aligned with the categories 'influence of the birth environment on care provision' and 'experience, developing and checking hunches' as participants referred to guidelines in times of uncertainty however this was also influenced by the birth environment.

category 'External influences on care provision' which included data demonstrating the influence of colleagues on participants decision-making. This is demonstrated in the data extract in textbox 4.

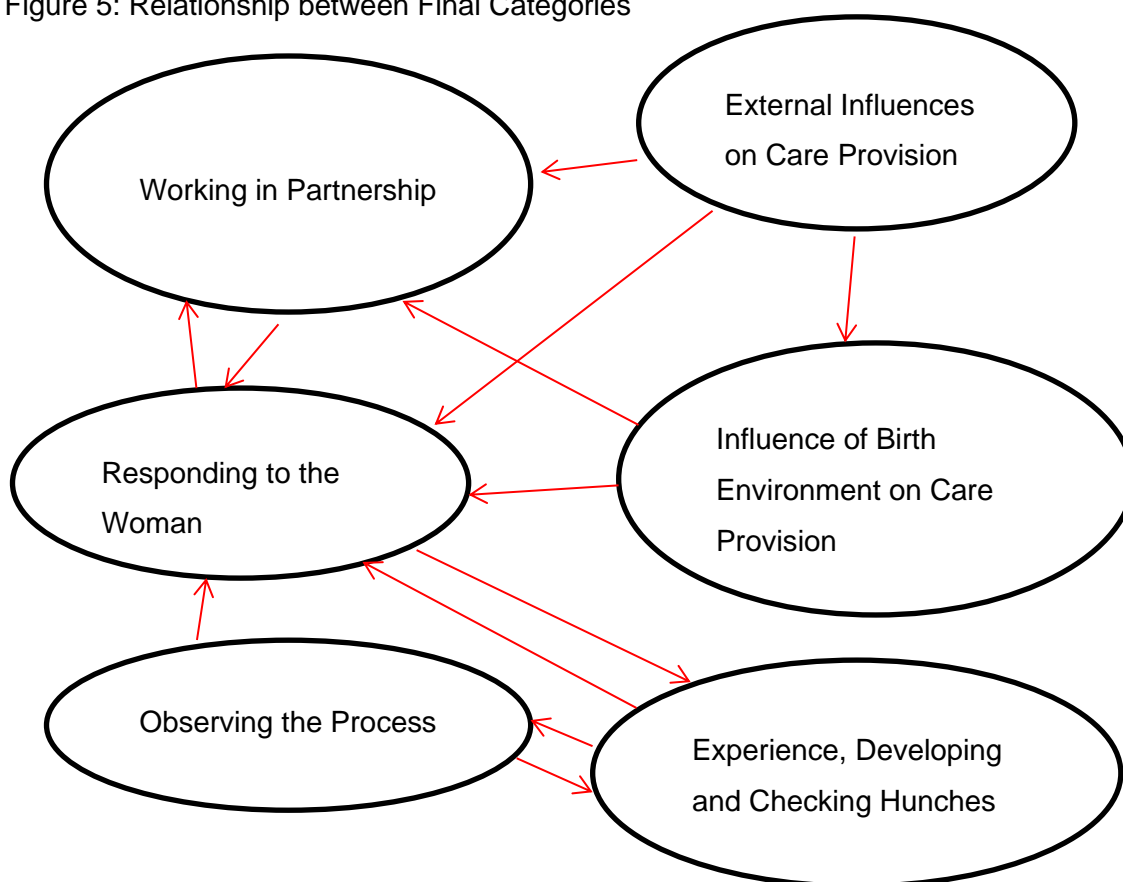
Textbox 4: Interview Data Extracts demonstrating how the category 'Influence of Birth Environment on care provision' was also influenced by the category 'External Influences on Care Provision'

'...it is a different environment and I think arguably we are slightly different when we go down there [to the OU] you've also got to report to somebody you've always got to invite somebody else into the room and it's very difficult because you're quite autonomous up here and I don't come out and tell anyone what my ladies are doing you know I'm making those decisions by myself really' (P02)

'I certainly don't put women on time restrictions whereas cos we're autonomous practitioners here [on the AMU], on labour ward [the OU] you've got somebody who's got a board with 12 women and they want to know what's going on'. (P03)

A diagram of the final categories and their relationship to each other is shown in figure 5.

Figure 5: Relationship between Final Categories



This demonstrates how the categories could simultaneously influence and be influenced by other categories. For example, the participant's observation of the process of labour caused them to have an 'inkling' or develop a hunch about how the woman would progress which they responded to by focusing their observation of the process and response to the woman.

5.7.3.2. The Developing Themes

A theme is a way of articulating a concept and is described by Braun and Clarke (2006:10) as capturing '*something important about the data in relation to the research question*' which represents '*some level of patterned response or meaning within the data set*'. Themes have been described as concepts that make '*overt the implicit meaning of dialogue, behaviour, and events within qualitative research*' (DeSantis and Ugarriza, 2000:367). I reviewed the codes and categories and read through data transcripts again to reflect upon the overall meaning within the data corpus. The issue questions, research question, aim and objectives of the study were in mind throughout this process.

Four key concepts were developed which explicated my interpretations of the data set and appeared to coherently capture the coded and categorised data.

1. Midwives responses to women on an emotional level to build supportive relationships which influenced their decision-making
2. How midwives acquired knowledge through the observation of labour and linked this to their expectations around physiology and normal progress of labour to inform their decision-making
3. How experience was fundamental to midwives decision-making and informed how they responded to concerns or hunches that arose during their observations of the woman and process of labour
4. How midwives negotiated external influences and the birth environment in relation to care provision and decision-making.

These concepts informed the development of initial themes as explicated within table 17 alongside the associated codes and categories:

Table 17: Summary of Initial Theme Development

Preliminary Themes	Associated Categories	Associated Codes
Responsivity and building a supportive relationship with the woman	Responding to the woman Working in partnership	ADVOCACY; CONTROL; INFORMATION GIVING; POWER; KNOWLEDGE OF THE WOMAN; BELIEF IN THE WOMAN; RELATIONSHIP BUILDING; PROXIMITY; GUIDANCE; CHECKING WITH THE WOMAN; REASSURANCE; COMFORT; AFFIRMING; INSTRUCTING; PARTNERSHIP WORKING
Acquiring knowledge through the observation of labour and linking this to expectations around physiology and normal progress	Observing the process	PHYSIOLOGY; NORMAL PROCESSES; ANTICIPATING EVENTS; WAITING; WATCHING THE WOMAN; EXTERNAL CUES; SAFETY; TRANSITION
Experience and responding to concerns or hunches that arose during their observations of the woman and process of labour	Experience, developing and checking hunches	HAVING AN INKLING; CHECKING HUNCHES; ARTICULATING A DILEMMA; CHECKING WITH COLLEAGUES; BEING FACTUAL; PERSONAL EXPERIENCE; PRACTICE EXPERIENCE, MAKING A PLAN
Negotiation of external influences and issues in relation to care provision.	Influence of birth environment on care provision External influences on care provision	TIME RESTRICTIONS; GUIDELINES; AUTONOMY; BIRTH ENVIRONMENT; INFLUENCE OF COLLEAGUES; PRESENCE OF COLLEAGUES; DISRUPT ENERGY, RESOURCES;

5.7.4. Phase Four: Reviewing the Themes

As I reviewed the initial themes and considered the categories, codes and coded data two final themes were developed. Checks were made to ensure that the themes sufficiently

encapsulated my interpretations of the coded and categorised data and that the data aligned with each theme was coherent and formed a clear pattern (Patton, 2015). The final themes were:

- Having holistic knowledge of the labour process
- Adapting to external Influences

Examples of how analysis and integration of observation and interview data informed the development of each theme is provided in Table 18.

Table 18: Final Themes aligned with analysis and integration of observation and interview data

Theme	Analysis
Having Holistic Knowledge of the Labour Process	<p>During the observation period I hypothesised that P03 had made a judgement that Karen had reached the second-stage because she encouraged Karen to ‘go with her body’ and spontaneously bear down with her uterine contractions. I also noted how P03 began to auscultate the FH frequently, every five minutes, which aligned with local and national guidance for auscultating the fetal heart in the second-stage for low-risk labours (NICE, 2014; NHS Trust Clinical Guideline, 2015). I explored this hypothesis in interview in which P03 described her cognitive processes at the time, <i>‘It was just obvious that things had progressed from early labour to it looked like established labour so I just gave (Karen) the gas and air and told her to go with her body. I think it was about 2 hours later she had her baby, but I didn’t confirm fully dilated I just went with my skills’</i> (P03, Interview). When asked about the knowledge and skills that informed her decision P03 explained that it was <i>‘ external signs that [Karen] was coming up to fully dilated or transition erm she was actually quite calm as well I think I remember she was calm and she knew, her body knew what to do so why disrupt it by examining’</i> (P03, Interview). P03 was observed to remain close by Karen, watching and waiting and at one point asked, <i>‘What is your body telling you to do?’</i> (P03, fieldnotes). When probed further, P03 explained <i>‘telling a woman to trust her body gives them ownership of it, they know what to do and they’ve just got to believe in their body’s ability to do it because its natural’</i> (P03, Interview).</p>

Theme	Analysis
Adapting to External Influences	<p>Following Amy's transfer, I observed that Amy received a further vaginal examination by the obstetric registrar and was found to be fully dilated with the fetal head one centimetre above her ischial spines. Amy's contractions were palpated by the obstetric registrar who instructed P04 to start syntocinon³⁴ once the epidural was effective, verbalising a plan for Amy to begin pushing one hour following this. I hypothesised that both P04 and Amy appeared absent from this decision-making process and I observed how different P04's interactions with Amy appeared now as her focus moved to the setting up of equipment, monitoring the CTG and epidural. P04 described at interview how the environment influenced her decision-making, <i>'you move down onto labour ward and a lot of your decision-making is made by CTGs and doctors coming and saying things to you and examining them.'</i> P04 described how she would endeavour to make the environment less clinical but found it difficult because the environment was now so different <i>'so I try and take elements from the AMU to there [the OU] with positions and trying to keep it less clinical but you can't help practicing slightly differently .. because it's now more clinical than up here [the AMU]'</i> (fieldnotes, P04). This was supported by P02 who reflected on how she would be <i>'a different midwife'</i> if she worked on OU, comparing it with her earlier experiences working on OU where <i>'it was easy to get swept up'</i> with intervention, which I construed suggested that the indiscriminative use of intervention was accepted practice within OU.</p>

5.7.5 Phase Five: Defining and Naming Themes

During this stage I checked to ensure that the final themes were clearly defined (Braun and Clark, 2006). Data aligned with each theme were reread to check that the themes were an accurate reflection of the data corpus (Nowell et al, 2017). The definition of the final themes is presented in table 19. Figures 6 and 7 summarise the development of theme one and two and figure 8 presents a thematic map of the final themes

³⁴ A synthetic version of the hormone oxytocin used during labour to augment contractions.

Table 19: Theme Definition and Scope

Theme	Definition
Having holistic knowledge of the labour process	This theme relates to how participants gathered information and the knowledge and skills that they drew upon to inform their judgement and decision-making. Participants viewed labour as a holistic process and used experiential knowledge to inform their interpretation of cues and rationalise their judgement and described 'having a hunch' when they had a feeling that they were unable to explicitly rationalise. Participants appeared to demonstrate emotional awareness and responded to women on an emotional level which further informed this process.
Adapting to external Influences	This theme relates to how participants adapted their care to fit in or minimise what they perceived to be the effects of external influences on the birthing environment. These external influences comprised of different groups and subsections of the case as well as different practices associated with these groups and subsections and influenced how midwives worked in partnership with women.

Figure 6: Summary of the Development of Theme One

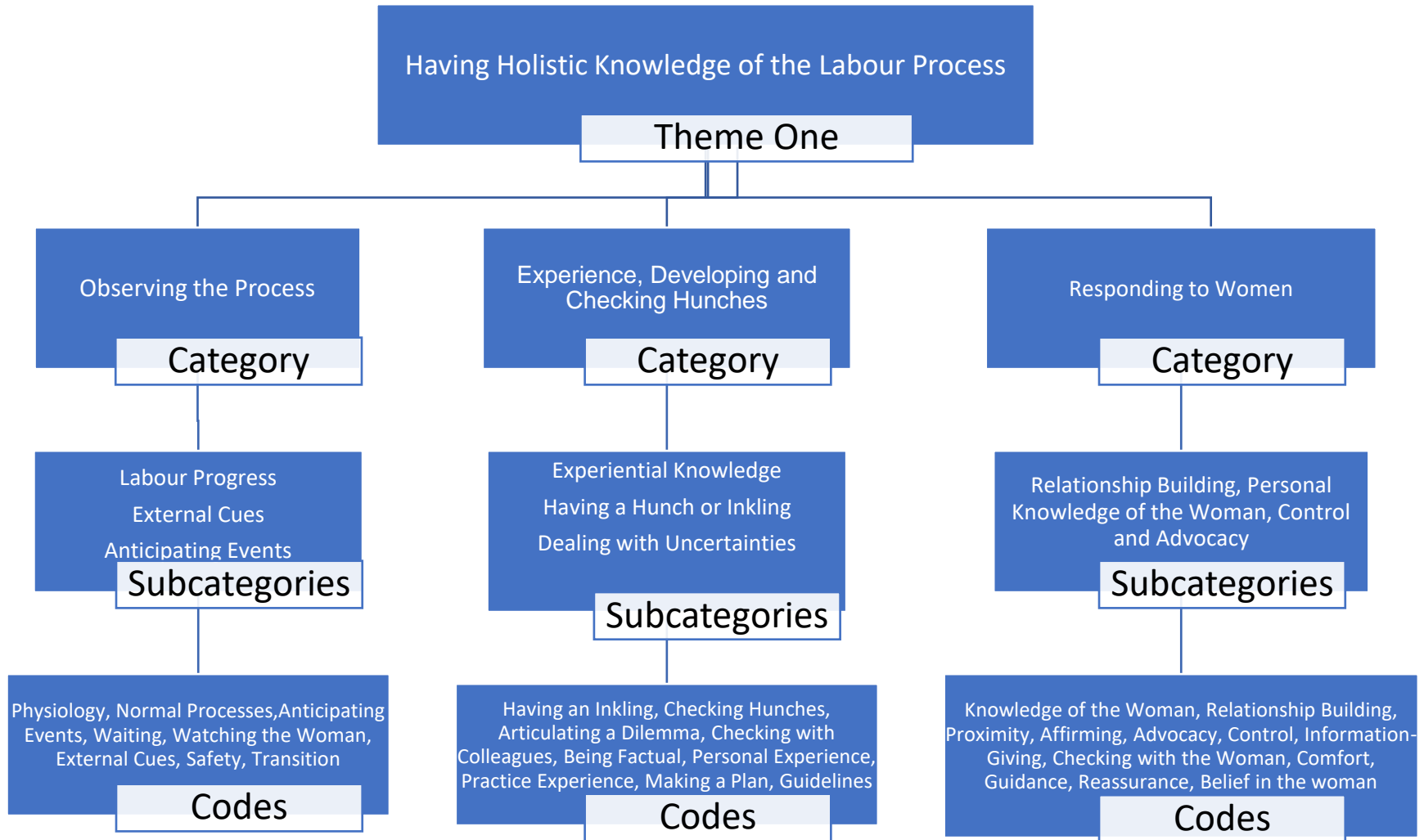


Figure 7: Summary of the Development of Theme two

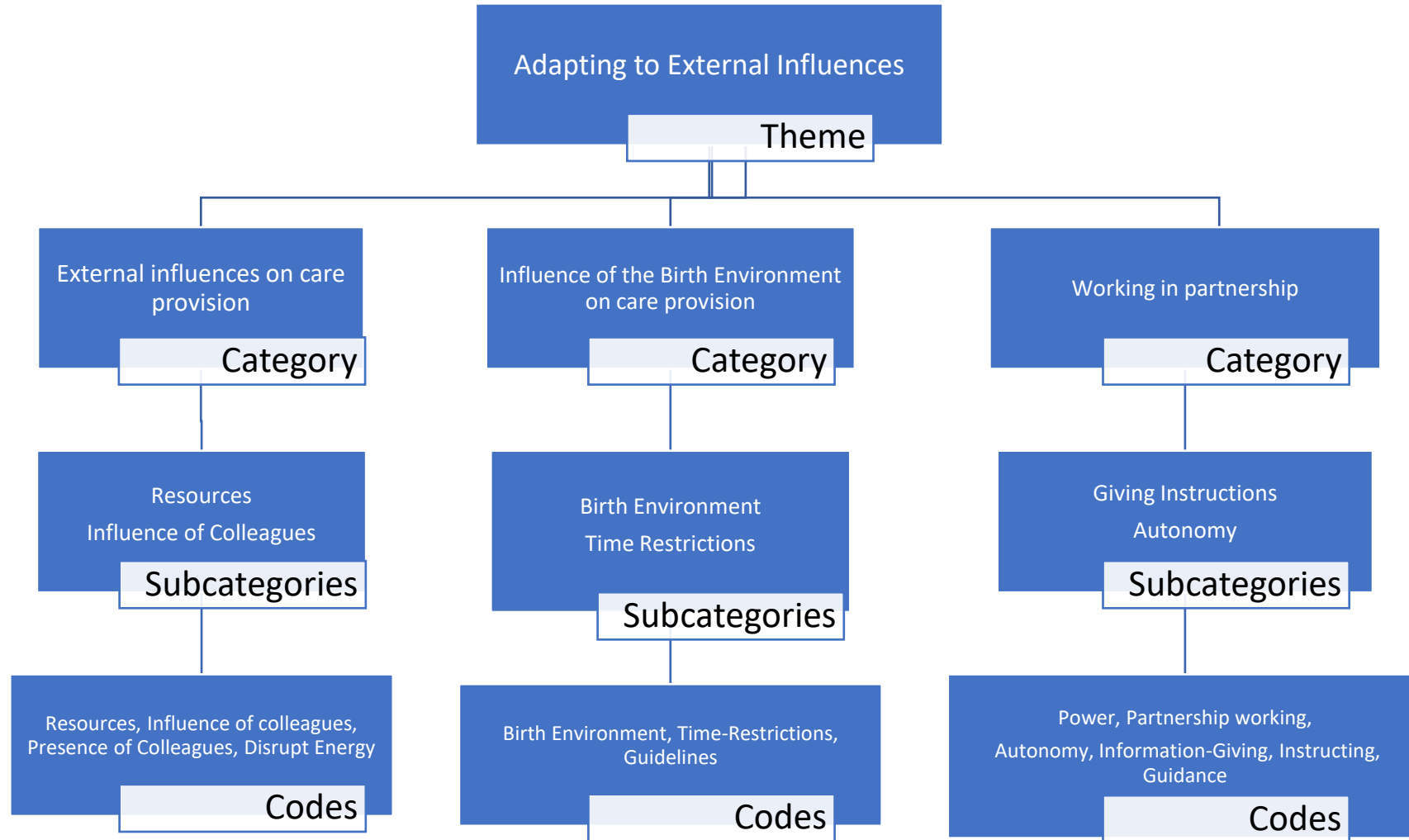
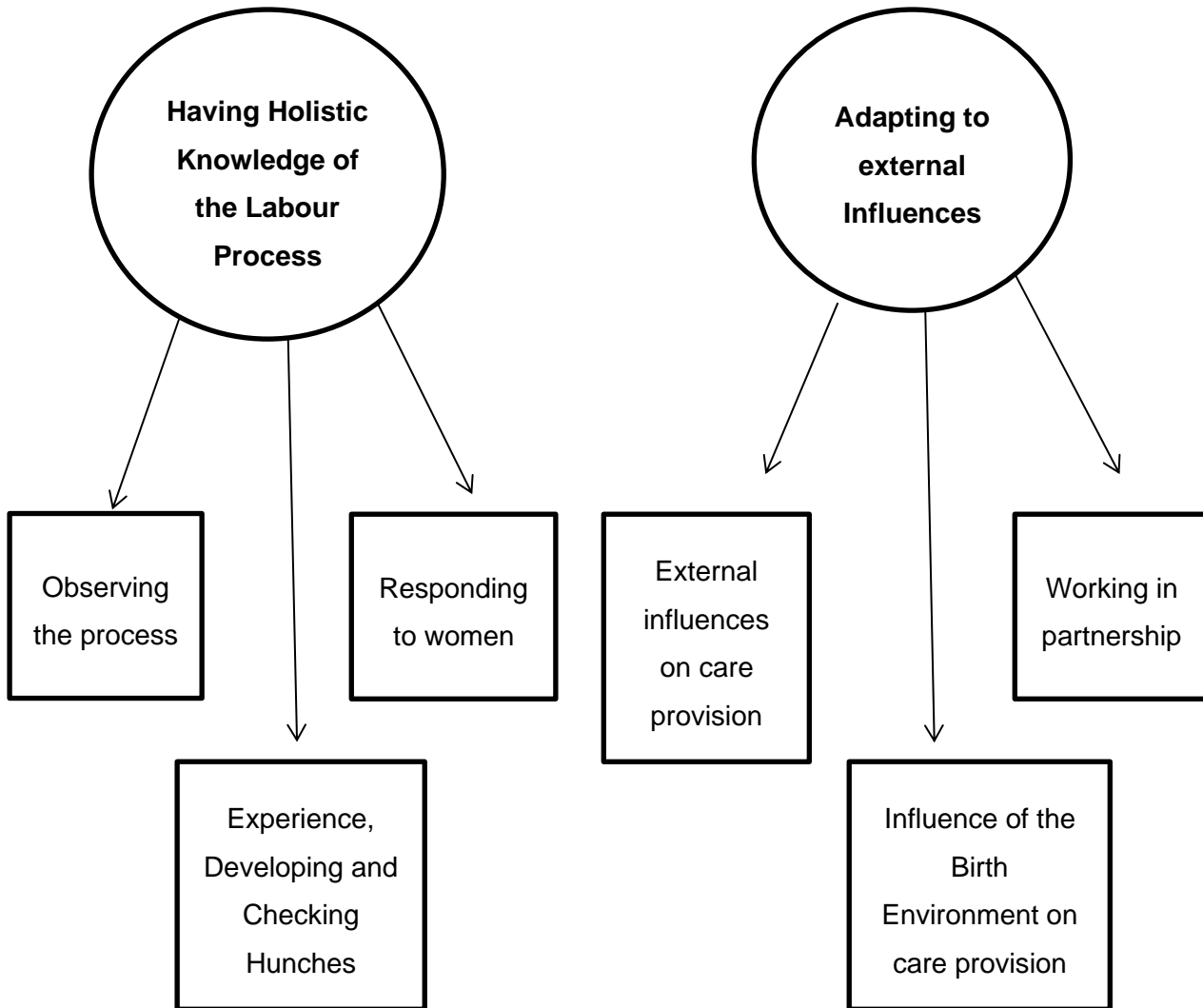


Figure 8: Final thematic Map showing the two themes and categories



These themes will be discussed in chapter six and extracts from observational and interview data used to convey meaning, support the findings and provide a rich description of the case.

5.8 Quality Assessment

Criteria for assessing the rigour of qualitative research are articulated as credibility, transferability, dependability and confirmability, and strategies to promote trustworthiness should be built into the process of inquiry rather than '*declared*' by researchers as having

happened (Creswell, 2013; Morse, 2018:804). Steps have been incorporated throughout this study to enhance the rigour of the research process and trustworthiness of the findings:

5.8.1 Dependability

Dependability involves being able to demonstrate transparency within the research process to enable others to view the robustness of the methodological decisions made (Tight, 2017). Having a well-defined case, conceptual framework and explicit rationale for methodological decisions made are important factors in demonstrating dependability (Hyett et al, 2014). Within this study, seminal authors have been cited and their methods applied to the construction of the case, conceptual framework and methodological decisions made to increase dependability. A detailed overview of data analysis and the use of analytic memos further increases dependability by demonstrating the cognitive processes underpinning the decisions made.

5.8.2 Credibility

Credibility can be viewed as the extent that researchers can show that their data is accurate and appropriate (Denscombe, 2009). Prolonged engagement within the case and observing the participants in their natural environment ensured that detailed contemporaneous fieldnotes were taken of my observations of participants practice. Techniques to increase the study's credibility have been employed using *respondent validation* (Bryman, 2012: 274) otherwise known as *member checking* (Stake, 2010: 126) which Stake (1995; 2010) has advocated as a means of controlling assumptions. Within this study participants were given the opportunity to comment on how their observations and views were recorded following observation episodes and interview transcribing to check I had sufficiently represented their actions and words and enhance the accuracy of my interpretations (Stake, 1995). Only one participant chose to review the observation data and agreed it was an accurate representation of her actions and I received no response regarding the interview transcripts which I sent to participants. Whilst this could be interpreted as participants confirming that my transcripts appropriately represented their voices, I could not be sure that they had read them. As a further check, all my fieldnotes and interview transcripts were reviewed by my supervisors and feedback provided following this with regards to my initial interview technique which is described in section 5.9.

Credibility can also be strengthened through the triangulation of data which Stake (2010:123) referred to as '*looking and listening from more than one vantage point*'. Triangulation aims to identify different realities in order to clarify meaning through the identification of different perspectives of the case (Stake, 2005). The use of observation and interview data collection methods enabled me to apply meaning to my observations through my interpretations of the participant's interpretations of their care provision provided at interview. I was also able to clarify any assumptions that I may have made. The use of critical insiders and outsiders has been advocated by Stake (2006) and my progress within the study and data analysis has been reviewed by my supervisors and their feedback incorporated within the process. I have endeavoured to show how the development of issue questions has informed coding and to describe my thinking throughout data analysis.

Codes applied to both observation and interview data extracts have been operationally defined to ensure consistency of application and make my interpretations of individual codes explicit. Codes have been aligned to categories and my interpretations of the different categories developed explained to ensure their meaning is overt. The use of analytic memos has facilitated this process and the development of final themes explained. Checks have been made throughout this process whereby I checked to make sure that data aligned with codes, categories and themes appeared relevant and formed coherent patterns. Detailed extracts of data have been provided to demonstrate this process and provide an audit trail of analysis.

5.8.3 Transferability

Transferability refers to the consistency and applicability of the research findings and is concerned with the extent to which the findings of one study can be transferred or have applicability to other situations (Polit and Beck, 2017). Stake (1995) has suggested that the amount of transferability lies in the interpretations of the reader as well as the researcher who is obliged to provide enough detail to enable readers to make their own judgements. The careful consideration and incorporation of detail into the writing of the QCS report is critical to enable the transfer of knowledge from researcher to reader (Stake, 1995; Thomas, 2016). Thick descriptive detail has been provided to present the findings and enable the reader to evaluate the applicability of the data to other contexts (Lincoln and Guba, 1985; Creswell 2013). Therefore, if practitioners believe their situations to be similar to those described in this study, they may relate the findings to

their own experiences (Stake, 1995; Stake, 2005). In this way readers can reconstruct their knowledge in ways that make it more likely to be useful as new experiences merge with the old as the reader '*brings their conceptual frameworks to the case in order to look for commonalities*' (Stake, 2005:455).

5.8.4 Confirmability

Confirmability has been stated as being achieved when credibility, transferability and dependability are attained (Lincoln and Guba, 1985). It refers to objectivity and the assurance that the data is truthful and represents the information provided by the participants (Polit and Beck, 2017). In this case, confirmability was also interpreted as relating to transparency which was provided by a clear methodological audit trail and detailed accounts of the research process, data collection and analysis. The development of the final themes has been clearly laid out so that the reader can follow the process of coding and categorising and judge for themselves the confirmability of the information provided. Table 20 presents the criteria used to measure trustworthiness in qualitative research and sets out how these have been applied within this study.

Table 20: Overview of Measures to Ensure Trustworthiness within this Case

Criteria	Implementation within this Study
Dependability	<ul style="list-style-type: none"> - Research question, topic and issue questions developed, and issues questions refined. - Case placed within historical, socio-political and practice context. - Case clearly delineated and overview of the bounded system and internal components provided. - Issue questions used to focus data collection and observation and development of inductive and deductive codes explained. - Researcher's role clearly identified, and attention paid to reflexivity (section 5.9).
Credibility	<ul style="list-style-type: none"> - Observations undertaken within participant's natural environment. - Informal checking of my reflections on observations via naturally occurring conversation. - Efforts made to control Hawthorne effect by entering birth environment at the start of care by participant. - Efforts made to minimise recall bias but endeavouring to undertake the interview as soon as possible following observations. Three of the four participants had an excellent recall of the case. - Participants given opportunity to review fieldnotes and interview transcripts (only undertaken by one participant). - The use of observation, field notes and interview data. - Fieldnotes and observations reread several times at the beginning and throughout analysis to provide meaning. - Coding checks undertaken and process of coding and categorisation clearly explicated and aligned with data extracts. - Critical outsiders used as supervisors reviewed transcripts and development of coding, categorisation and themes. - Use of analytic memos to enhance reflexivity and capture my thinking. - Data extracts provided to show development of categories and themes and enable readers to make their own interpretations.

Criteria	Implementation within this Study
Transferability	<ul style="list-style-type: none"> - Detailed descriptions of data provided within analysis and to support the findings (chapters 5 and 6). - Efforts made to articulate the particularity of the case through description of the case and findings.
Confirmability	<ul style="list-style-type: none"> - Providing a transparent overview of the research process and a clear methodological audit trail.
Reflexivity	<ul style="list-style-type: none"> - Reflective diary. - Reflective notes within fieldnotes. - Use of analytic memos throughout coding and categorising to capture my cognitive processes.

5.9 Reflexivity

Reflexivity is the process of reflecting critically on the self as researcher through the conscious experiencing of the self within the research process (Lincoln et al, 2018). It involves acknowledging the influence that I have had on the research process and case and endeavouring to demonstrate transparency through the explication of known assumptions, values, and experiences that I might bring to the study (Creswell, 2013). Adopting a reflexive approach can enhance the trustworthiness of data (Lincoln and Guba, 1985:328) by clarifying the reflections and perceptions of the researcher throughout the research process, enabling the reader to judge how this may have shaped the data collected and its interpretation.

5.9.1 Emic and Etic Perspectives

Closely intertwined with reflexivity, emic perspectives represent the views of those that are an 'insider' or part of the culture or group being studied whereas etic perspectives are those taken by a researcher who is an outsider to the group (Creswell, 2013). As knowledge is socially constructed it is important that my own meanings and assumptions are unpicked, explained and verified throughout the research process enabling the reader to assess my credibility (Patton, 2015). As a midwife I belonged to the same professional group as the participants within the bounded system and can be described as an 'insider' with an emic perspective in as much as I am familiar with the language, codes and rules that are used within midwifery practice. This was evident during the first observation of participant A where I experienced a strong sense of empathy and identification with the

participant. On reflection I reasoned that this response was likely to be the '*over rapport*' described by Hammersley and Atkinson (2007:87) whereby the strength of my rapport with midwives may have resulted in personal identification with some participant's perspectives. Such a response may present challenges through the hindrance of critical observation and asking uncomfortable but important questions later at interview due to a sense of loyalty towards the participant.

It may also have led to assumptions being made regarding the actions and words of the participants as I instinctively 'filled in the gaps' with my own interpretations. Clarification of my observations via interview enabled me to check my observations and referral to my reflective diary kept throughout the process explicated my thoughts and assumptions making it easier to differentiate my assumptions from the actions and words of participants. The use of analytic memos and reflections throughout the observation also enhanced this process. My field notes and interview transcripts for P01 were reviewed by my supervisors following data collection and I was advised to ensure that I remained neutral in my observations and refrain from making assumptions and importing my emic knowledge. On a couple of occasions, I had asked P01 to respond to statements based on assumptions I had made in relation to touch and the use of power. The participant clarified at interview that this was not her interpretation. Care has been taken to ensure that I did not introduce leading questions in the following interviews.

Throughout the research process, I have concurrently aimed to achieve an emic and etic perspective and balance my clinical experience with my current role of researcher. My reflective diary provided insight into any personal tensions and dilemmas experienced during the research process and enabled me to reflect critically on my position within the study. It also enabled me to reflect upon and monitor any assumptions I might have formed from holding a too narrow a focus or failing to record significant observations. I found it difficult to traverse my role of midwife with that of researcher when first entering the field. I felt exuberant as I returned home following my first observation and have written in my reflective diary that I needed to '*calm down*' and '*get focused*' (personal reflective diary notes, 11.09.16). As a midwife who worked in education, I found it reinvigorating to be back within the birthing environment and reflected on the need to not make assumptions about midwives practice and use the low inference descriptors to provide factual accounts of what I was observing (Seale, 1999).

According to Van Maanen (2011) this is a common response to fieldwork particularly at the beginning of observation work as I sought to position myself as a researcher. Burns et al (2012) have suggested that whilst professional insider knowledge offers many advantages to midwife researchers, cultural competence can present challenges due to role ambiguity and a culturally entrenched role expectation of oneself in relation to the data. My personal reflections within the field notes revealed how I sometimes found myself second guessing what the midwife would do and found it difficult to not become 'involved' as a midwife. This presented a possibility for bias in terms of endeavouring to fill in any gaps with a plausible explanation and explanation.

Strengths of an emic perspective lie with the ability of researchers to examine data in the context of their own history of experiences which may enhance their ability to judge the sincerity, motivations, applicability and significance of what they have collected (Roseneil, 1993, cited in Hodkinson, 2005). As a non-participant observer, I was privy to the informal discussions and conversations that took place surrounding care and was able to scrutinise this information to identify critical events (Coughlan et al, 2007). My familiarity with midwifery practice enabled me to recognise elements of care that may be taken for granted (Hodkinson, 2005) such as the response and proximity of the midwife to the woman within the birth environment and the checking for external signs such as a flattening perineum. I endeavoured to both empathise and scrutinise concurrently so that I was using my midwifery knowledge to detect changes in the midwife's responses whilst also checking my own responses for any assumptions based on my own insider knowledge. Any uncertainties were followed up at interview or through naturally occurring conversation during the observations with the participant.

5.10 Chapter Summary

This chapter has presented the research process and describes how recruitment, data collection and analysis were undertaken. The development of coding, categorisation and themes has been illustrated. Strategies to ensure the credibility, transferability; confirmability and dependability of the research process have been articulated followed by a reflection on the potential influence of the researcher on data generation and analysis. The next chapter will present the findings and discussion.

Chapter Six - Findings

6.1 Introduction to the Chapter

This chapter presents the findings from the study following thematic analysis of the data and the development of two final themes: Having Holistic Knowledge of the Labour Process and Adapting to External Influences. Stake (1995) suggests using vignettes to show the activity within a case and vignettes are presented within these findings to provide examples of how observational and interview data combined to address the study question and objectives and offer an in-depth and credible explanation of how midwives made decisions in the second-stage of labour. The chapter is structured according to the themes, categories and subcategories developed from coded data (figure 6 and 7). An overview of the aim of the study and objectives is presented below:

The study aim is to explore midwifery practice during the second-stage to understand how midwives make decisions. The study objectives were to:

- identify the skills and knowledge used by midwives to inform their practice in the second-stage of labour
- critically analyse the factors that influence the practice and decisions that midwives make in the second-stage of labour
- critically examine how midwives have justified and accounted for the decisions that they make during the second-stage of labour.
- scrutinise the context and process of midwives decision making

6.2 Research Context

My interpretations of midwives decision-making commenced with my observations of their practice within the case. I considered the groups, subsections and specific activities undertaken by participants and the decision-making associated with these. A summary of each birth observed is presented in table 21, to provide context and enhance the transferability of my findings. Pseudonyms have been used to ensure anonymity.

Table 21: Summary of births observed within the Case

Participant	Parents	Parity ³⁵	Subsections	Groups	Summary of labour and birth
P01	Cathy and Jack (birth 1)	Gravida 2 Para 1 (G2P1)	Context A AMU	Maternity Support worker (MSW) Second-midwife (from ward)	P01 brought Cathy and Jack from the OU where they had been booked in for an induction of labour (IOL) for post maturity to the AMU at the beginning of her shift. P01 had previously met the couple two days ago at the postdates clinic where she had performed a membrane sweep. Cathy had a found her previous birth traumatic and sustained a 3 rd degree tear. The IOL did not commence due to Cathy's contractions starting spontaneously. Cathy requested the pool for pain relief and gave birth kneeling in the pool. Cathy's baby was born in good condition, APGARs 9 and 10. A first degree tear was sustained and sutured by P01
	Trisha and Andy (birth 2)	G2P1	Context A AMU	Second-midwife (from ward)	Trisha was in established labour when she was brought to the AMU from the ward by the ward midwife. Trisha used the pool for pain relief and gave birth squatting in the pool. Trisha's baby was born in good condition, APGARs 9 and 10. No perineal tear was sustained.

³⁵ Gravida pertains to how many pregnancies a woman has experienced (including the present pregnancy) and parity births, for example, G1 P0 means first pregnancy which following birth would be recorded as G1P1

P02	Jo and Rod	G3P1+1	Context B AMU	No	Jo arrived on the AMU from home in established labour and gave birth quickly in an all fours position on the bed. No perineal tears were sustained, and her baby was born in good condition.
P03	Karen and Paul	G1P0	Context B AMU	MSW	Karen arrived on the AMU from home in early labour and had been given pethidine for pain relief during the earlier day shift. Karen gave birth on all fours and her baby was born in good condition. No perineal tears were sustained.
P04	Amy and Rob	G1P0	Context B AMU and OU	Senior Midwife (AMU); Midwife-in-charge (OU); Midwife (OU); Anaesthetic registrar (OU); Consultant anaesthetist (OU); Obstetric registrar (OU); Paediatrician (OU)	Amy was in the pool and a diagnosis of the second-stage had been made prior to the start of the observation period based on a vaginal examination undertaken by the previous midwife caring for Amy. A later vaginal examination by P04 showed Amy's cervix was not yet fully dilated and Amy was transferred to the OU for an epidural at Amy's request. Intravenous syntocinon and hydration fluids commenced following the epidural procedure and Amy received intravenous paracetamol for a temperature of 37.5 and intravenous antibiotics for prolonged rupture of membranes (just over 24 hours). Amy gave birth with the assistance of forceps and her baby required five inflation breaths at birth with good effect. No further treatment of the baby was required. Amy sustained an episiotomy which was sutured by the obstetric registrar.

6.3 Theme One: Having Holistic Knowledge of the Labour Process

6.3.1 Introduction to the Theme

The theme 'having holistic knowledge of the process of labour' was developed from the categories 'observing the process', 'experience, developing and checking hunches' and 'responding to women' (Figure 6: Summary of the Development of Theme One). This theme articulates my interpretation of how midwives applied inductive and deductive reasoning during care provision to inform their decision-making within the bounded case. Within the AMU, participants appeared to view labour as a holistic process, demonstrating flexibility in their interpretation of labour stages and using experiential knowledge and knowledge derived from their interactions with women to inform their expectations and decisions about labour progress. All participants were observed to undertake an initial structured assessment of information cues to ascertain maternal and fetal wellbeing and form the basis for future decision-making. These included obtaining information through the assessment of vital signs, abdominal palpation, auscultation of the fetal heart (FH) and clarification of each woman's relevant history. Whilst participants continued to assess maternal and fetal wellbeing, these assessments were observed as being unobtrusive, undertaken with minimal disruption to women within the subsection of the AMU.

The close observation and interpretation of external cues were informed by participants knowledge of physiological labour processes, clinical experience and interactions with women. Participants also acknowledged a more intuitive knowing that informed their decision-making which they were unable to rationalise, but which prompted them to undertake a slower more analytical assessment of information. Participants strove to develop supportive, reciprocal relationships with women which influenced their responses to women. This was an iterative process used to inform the decisions that midwives made during the second-stage

6.3.2 Observing the Process

Participants used observational skills to look for various physical and behavioural external cues that they aggregated to develop judgements that informed their decision-making in relation to the progress of labour and onset of the second-stage. The acquisition of external cues became more focused, for example, constant checking of the perineum and the gathering of further information to rule in or out their hypothesis that the woman had

reached the second-stage, for example by undertaking a vaginal assessment if no further signs of progress were evident.

6.3.2.1 Labour Progress

Participants were observed to acquire information about the progress of labour through their close contact with the woman, and within the AMU were observed watching and waiting. Fieldnotes describe how all participants were '*intently watching the woman*' (P01, *fieldnotes observation A*) and stayed close to the woman '*Watching woman and close proximity*' (P03 and P04, *fieldnotes*). Being present and using observational skills was highlighted as important by all participants when assessing the progress of labour as it enabled them to observe, interpret and be informed by the subtle nuances, verbal and non-verbal cues that women exhibited. When explored at interview spending time with women enabled midwives to '*know the woman*' and '*watch the process [of labour] changing*' (P03, *Interview*). Labour was viewed holistically as an evolving process and attention was paid to the physiological and behavioural signs of progression.

6.3.2.2 External Cues

Participants described actively looking for external cues to inform their judgement about labour progress, the onset of the second-stage and their response to uncertainties that arose during labour. Whilst vaginal examinations are commonly performed within practice to diagnose labour progress and second-stage onset (NICE, 2014), vaginal examinations were not routinely performed within the AMU constructs of this case and only one vaginal examination was observed during the observation periods on AMU³⁶. The observation and interpretation of external cues is demonstrated in the example of P03, who took over the care of Karen, a primigravid³⁷ lady who had arrived several hours previously in early labour³⁸ and received an injection of Pethidine for pain relief before falling asleep. At the start of the observation Karen had awoken, was contracting regularly and appeared in distress. The intensity of Karen's experience was observed to rapidly increase as she became uncommunicative, moaning and complaining of pressure. Following an initial

³⁶ This was undertaken by P04 to help inform a decision regarding transfer to the OU.

³⁷ Her first pregnancy.

³⁸ Karen had consented to a vaginal examination two hours before P03 took over her care and was assessed as being in early labour, contracting irregularly with a cervical dilatation of 2-3cm.

assessment³⁹, P03 remained close by Karen providing reassurance and support and was observed to gather information through intently watching Karen, palpating her contractions frequently and observing Karen's perineum. P03 articulated her decision to continue to observe for external cues and wait *'we'll just see how we go; waters have gone, we won't examine until 4 hours or I see a baby. You're doing really well.'* (P03, fieldnotes) and reassured Karen using phrases that included *'you're coping with it brilliantly'; 'It's all good signs that hopefully it's not going to be long' 'baby's fine'* (P03, fieldnotes).

As the labour continued, Karen's urge to push became stronger, and P03 explicated her thought processes stating, *'might be having a quick baby... pethidine pop I call it, I won't confirm she's fully until I see a head, good signs though'*(P03, fieldnotes). As the lighting in the room was subdued, P03 used a spotlight to observe Karen's perineum during a contraction stating *'more waters coming out, that's good... you can do it, you are doing it, you're fantastic'* and encouraged Karen to *'just go with your body'*, making frequent reference to the external cues that she was observing, for example, *'definitely good signs there, perineum's flattening'* and *'really good signs, I'm just going to lift your towel off your bottom so I can see'* (P03, fieldnotes).

P03 articulated her decision not to perform a vaginal examination on two occasions and at interview explained that *'I'm a believer in what you don't know doesn't hurt you and it just gives ladies time to do it in their time'* (P03, Interview). P03 used her knowledge of external cues in relation to labour progress to inform her judgement that whilst Karen was displaying *'external signs that she was coming up to fully dilated or transition'* she was coping well and appeared to be calm. P03 did not want to disrupt this by examining Karen, potentially undermining her confidence, drawing on her experiential knowledge to rationalise this decision, *'because quite often I've found if you examine women and I never use the words "you're only" because to me your only 2 [centimetres] but you've been zero so 2 [centimetres] is good, so if I were to examine and say I think she was 3cm and then 5cm she might be thinking "oh my god this is bad I've got 5 more to go".'* (P03, Interview).

³⁹ Involving assessment of vital signs, history, abdominal palpation and auscultation of the fetal heart.

Local guidelines specified that vaginal examinations should be undertaken four hourly during the established first stage of labour and hourly during the second-stage (NHS Trust Clinical Guideline, 2015). Karen had previously been diagnosed as being in early labour following her arrival on the AMU when she received a vaginal examination by another midwife who found Karen's cervix to be 2-3 centimetres dilated. Whilst P03 made an assessment though her interpretation of external cues that Karen was in advanced labour, she chose not to confirm this with an examination to safeguard Karen's confidence, sense of control and provide her with more time to labour. This is because once established labour or the second-stage is 'confirmed' through a vaginal examination, guidelines recommended that time limits are applied to the progress of labour. Whereas vaginal examinations were not routinely performed within the case, it is uncertain whether this reflects the wider culture within the AMUs or the individual midwives, who had considerable, knowledge, expertise and appeared confident and competent in their practice. P03 felt confident to practice flexibly based on her judgement that progress was normal and fetal wellbeing was assured.

All participants described the external cues they would look for and which would inform their judgement of labour progress. These included changes to the woman's demeanour, having an urge to push, rising of the maternal sacrum, anal pouting and the development of a reddish/ purple line that was observed to rise from the anal margin towards the cleft of the maternal buttocks. Participants often aligned the external cues they were observing with the underlying physiological process, for example, P02 related the development of a purple line to the descent of the fetal presenting part, clarifying *'it's just where the crease of their buttocks is and it just rises up towards the sacrum and then yeh everything just flattens out whereas if you think about what's going on physiologically I suppose like the heads coming down and pushing the coccyx back and that's what causing that flattening that's what you see externally'* (P02, Interview).

6.3.2.3 Anticipating Events

Participants knowledge of labour physiology and observation of external cues led them to anticipate events, for example imminent birth and make decisions based on this anticipation. However, when events did not proceed as anticipated, participants questioned their initial judgement and sought further information to inform their decision-making. For example, P04 anticipated that she would observe external signs consistent with the second-stage because Amy had previously been assessed as having reached the

second-stage by another midwife⁴⁰ prior to P04 taking over Amy's care. Whilst P04 continued to reassure and support Amy when taking over her care, she looked at me at one point and mouthed '*nothing*' (P04, fieldnotes). P04 later clarified how she had anticipated seeing external cues consistent with the second-stage but experienced a dilemma as to whether Amy's cervix was actually fully dilated because '*there was no signs on the outside, there was no anal dilatation there was nothing, there was no movement*' (P04, Interview). In view of this P04 decided to encourage Amy to exit the pool for a vaginal examination, rationalising that she perceived Amy to be '*completely exhausted and I think she'd hit a wall and I just felt no she's not going to do this*' (Interview, P04). P04's decision to encourage Amy to have a vaginal examination outside of the pool was informed by her judgement that birth was unlikely to be imminent (based on her assessment of external cues) and her judgement that Amy was exhausted and may have difficulty continuing with the labour without assistance⁴¹

P04's assessment and interpretation of external cues enabled her to make the (correct) judgement that Amy had not yet reached the second-stage and prompted her to appropriately plan further pain relief and transfer to the OU. Participants also recognised and reflected on how '*external signs*' could sometimes be '*misleading*' causing them to anticipate that '*women are progressing well but really they may be ... not quite fully but they look like they are fully*' (P02, Interview). Participants were aware that there could be other physiological causes underpinning the external signs that they observed and attributed to approaching second-stage, for example, having a full rectum may mimic the signs associated with descent during the second-stage, '*you start to see a little bit of anal dilatation and [the woman] might just be like really constipated and the heads coming down .. causing that to look like that*' (P02, Interview).

Within the constructs of the AMU all participants appeared to view labour as a holistic process that they primarily chose not to demarcate into specific stages (through cervical

⁴⁰ This midwife had undertaken a vaginal examination and documented that Amy's cervix was fully dilated.

⁴¹ Following the vaginal examination performed by P04, Amy was assessed as being 9cm dilated and transferred to the OU for an epidural at Amy's request following discussion between P04 and Amy.

assessment and vaginal examination), preferring instead to make decisions based on their interpretation of external cues, knowledge of the woman and physiological processes of labour. Both AMU philosophies emphasised the provision of woman-centred care and participants personal views of birth appeared to align with this, for example, '*we should be meeting their [the woman's] expectations and supporting them and supporting their decisions*' (Interview, P02). Whilst participants anticipated that labour would progress normally, they remained alert to possible differential diagnoses and the potential for bias to influence their judgement.

6.3.3 Experience, Developing and Checking Hunches

Within this case I hypothesised that participants accessed different modes of cognition simultaneously and used multiple sources of knowledge to inform their care practices and decision-making during the second-stage. Fast thinking was used by participants to make quick judgements that were informed by pattern-matching and their experiential knowledge. This was explicated by all participants at interview by referring to previous similar situations that informed their clinical judgement. A slower, more analytical form of reasoning was also applied as participants systematically assessed maternal and fetal well-being and gathered external cues to inform their decisions. All participants spoke about using additional knowledge, which they described as 'a hunch' or an 'intuitive feeling' where they would '*have an inkling*' or '*just knew*' if, for example, the woman was making good progress, had reached second-stage or was going to require assistance. This hunch prompted them to undertake a more focused, slower systematic assessment of the woman and discuss their thoughts with their colleagues. Guidelines were used to support further intervention when participants were unsure in these instances.

6.3.3.1 Experiential Knowledge

Participants within the case had extensive experience (over fifty years between them) of providing care for women in labour and two occupied senior clinical positions. Reference to previous clinical experiences (experiential knowledge) was made by all participants when rationalising the decisions that they made during labour and participants frequently used descriptors that indicated the application of prior knowledge or 'pattern-matching' to inform their judgement. Pattern-matching is based on one's ability to recognise subtle likenesses to previous experiences and relate these to the current situation (Dreyfus and Dreyfus, 1986). Participants within the case used pattern-matching to inform their initial judgements, as demonstrated in the following vignette.

Jo appeared distressed when P02 took over her care at the start of her shift and was observed to sit on the edge of the bed reluctant to move until the last moment when she moved down onto her knees and gave birth. P02 used her experiential knowledge to inform her judgement on admission that Jo *'was in obviously strong labour erm so I was already thinking that you know things were moving on and she was probably maybe about to have her delivery soon, hoping she was'* (P02, Interview) and articulated that whilst she recognised Jo's position wasn't ideal for birth⁴², it *'was ideal for Jo'* referring to a recent experience to support this judgement. In this experience P02 recalled that the lady had arrived and sat in a similar way to Jo before proceeding to give birth on all fours. P02 used this experiential knowledge to rationalise Jo's behaviour, for example, *'I think she pretty much kept her legs closed... till this little baby was just delivered which isn't unusual. I think some multips⁴³ know what's coming so they're kind of fighting back and she was probably ready to push sooner but she was holding back a little bit until she couldn't do anything but push'* (P02, Interview). This experiential knowledge informed P02's decision to not interfere or impose her own agenda upon Jo, stating *'it's nice when women just come in and intuitively adopt the position that they find is helping them and I think it's really nice to encourage that or just make way for women to do that'* (P02, Interview).

Within this case all participants described the influence of previous experience on their decision-making, *'I think you reflect on all your previous experience that makes you the clinician you are today ...good and bad experiences I think you take that with you into every situation that you go into'* (P02, interview). These experiences gave participants the confidence to practice flexibly whilst always being prepared to be surprised when making judgements and decisions. This is illustrated by P04 when making a judgement about whether a baby would birth spontaneously or require assistance, *'there's always one which catches you out which is nice, so there's your past experience that guides your decisions you know the situation but always being prepared for well it could be asynclitic⁴⁴ but it may adjust its head and then suddenly deliver'*.

⁴² Jo was sitting on the edge of the bed with her legs closed, not wanting to move.

⁴³ Multiparous women.

⁴⁴ When the fetal head presents asymmetrically.

Participants described how their personal experiences of childbirth and motherhood influenced their judgement, prompting them to listen to women, *'if a multip says it not right, it's not right'* (P02, Interview, referring to multiparous women voicing concerns in the second-stage) and respond to any concerns expressed whilst recognising the uniqueness of each woman's individual experience. Participants also described how their early midwifery experiences providing intrapartum care in a homebirth or MU setting influenced their decision-making. P03 spent a large proportion of her student training working in a MU which she believed enhanced her knowledge of the normal birth process, giving her the confidence to *'leave it⁴⁵ alone'* (P03, interview) whilst P01 described how she was influenced by her mentor at home births, as *'certain things that she did in home birth environments you don't necessarily see it so much in the labour ward environment.'* (P01, Interview).

6.3.3.2 Having a Hunch or Inkling

The articulation of a 'hunch' differed from pattern-matching when participants recalled previous similar experiences that they used to inform their judgement. Participants were unable to explicitly articulate or rationalise the knowledge that informed their hunch, however it prompted them to take further action through undertaking a focused systematic assessment to refute or confirm their 'hunch' as described by P02, *'I think I just try and be quite clinical about it and just think like the fetal heart is ok, its good, its variable and the maternal obs are normal, labours progressing, is the woman hydrated and moving around and are there any risk factors'* (P02, Interview).

Participants described this hunch in several ways, P04 described it as *'a niggle ... It's that little voice in the back of your head a niggle or something not quite right here it's like a tapping on your shoulder watch for this or ... just a kind of at the back of your head there's something not right, it's not always something bad but it's a sixth sense'* (P04, Interview). This internal knowledge was perceived to originate from clinical experience as explained by P04 at interview *'I think it comes with experience and exposure to lots and lots of different types of women and situations'*. Knowledge gained through experience was considered by participants to inform these intuitive feelings or hunches, as described by

⁴⁵ Referring to labour processes.

P03, *'I feel that I'm quite intuitive with labouring women and just my skills over the years of watching women ... I'll quite often will come out and say to my colleagues she's doing so well it won't be long before she'll want to push or whatever'* (P03, Interview).

Participants confirmed that they would not rely on their hunch alone when caring for a woman as *'In retrospect I think that you have a feeling for something but you can't justify a feeling and so you always have to back it up with fact and then afterwards you think that's fine'* (P01, Interview). Participants did however use this 'hunch' as an additional source of knowledge when making care decisions as it would prompt them to apply the slow thinking described by Kahneman (2011) and talk to their colleagues and other members of the multi-disciplinary team. Three participants gave vivid descriptions of previous instances where they believed they had acted correctly upon a 'hunch' or 'intuitive' feelings and used their 'hunch' as a prompt to review the situation with a positive outcome for the woman. This involved taking steps to refute or confirm their 'hunch' as described by P02, *'if I'm not happy I'm thinking why aren't I happy and I'm going through everything in my mind.'* P02 described how she would apply rational systematic thinking to work through her hunch *'logically'* and *'step by step'*, considering *'all the physiology of labour'* before *'talking to my colleagues'* (P02, Interview).

6.3.3.3 Dealing with Uncertainties

Whilst participants viewed labour as a holistic process and had the confidence to apply guidelines flexibly when observing labour progress, all participants described how they would refer to Trust guidelines to support their decision-making when experiencing uncertainty in their practice. Guidelines would also be used to rationalise and justify why an intervention such as a vaginal examination might be required following interpretation of external cues, for example, *'if the lady had been pushing involuntary pushing for about a good hour and I hadn't seen anything I would explain to the woman that well I'd explain the guidelines and say you know it's been an hour just want to really check that all the cervix has gone'* (P03, interview).

In times of uncertainty participants appeared to make decisions that were informed by fast thinking but supported by slower rational thinking as they recognised the importance of being able to *'justify what your thought processes were and why did you do that although sometimes you do it and it was natural instinct'* (P01, Interview). An example of how participants applied fast thinking and slower rational thinking to inform their decision-

making was described by P02 who explained at interview how she made a rapid judgement based on her experiential knowledge and preliminary observations that Jo's labour was progressing rapidly, for example, '*they start doing I don't know if you remember but [Jo] was starting to breathe and then going mmmhhhhh [makes guttural noise] like that and you are already thinking straight away oh she might be coming up to fully.*' (P02, Interview). P02 then began to aggregate cues to further support her hypothesis that Jo was approaching the second-stage, '*so all the time I'm thinking you know what's she doing, how far dilated is she, erm her waters hadn't gone ... and then I'm looking at the way she's acting, the sounds she's making all the non-verbal signs that we look out for not just what she's telling me but all those non verbal's*'(P02,Interview). This informed P02's subsequent actions of preparing the room in anticipation for Jo's impending birth, '*just made sure everything was there that I needed in case she did have her baby very quickly*' (P02, Interview).

6.3.4 Responding to Women

Within the subsections of the AMU participants appeared responsive and demonstrated an awareness of the imprint they might have on the woman's emotional wellbeing and labour. The use of observational and interpersonal skills facilitated participants interpretation and response to behavioural cues relating to the woman's demeanour. Participants provided information with the intention of empowering women to remain in control and were observed to adopt an approach that was woman-centred within the AMU meaning that the woman was the focus of their care and aligned with the philosophy of both units. This woman-centred approach was integral to the supportive relationships that participants quickly developed with women within the AMU. Participants were observed to work quickly to develop a rapport through being present with women within the birthing room. This enabled participants to be more receptive to behavioural cues exhibited by women which informed their subsequent responses, '*just you just know the women don't you. I think it's because you've built that relationship or I spend a lot of time in rooms with women*' (P03, Interview).

6.3.4.1 Relationship Building

Participants were observed to respond in a reciprocal way which enabled relationships to be built with women that informed their decisions around care provision. P03 described at interview how she endeavoured to adapt her responses to different women and used her communication skills to build quick relationships, '*You just work out don't you different people...I can adjust to different people, situations erm yeh I think I adapt myself to the*

type of person they are or what they expect of me'. Differences in this approach were observed during the care of Cathy and Trisha by P01. P01 was observed to use touch and eye contact when supporting Cathy (during observation A) whilst appeared to withdraw slightly when supporting Trisha in labour (during observation B). P01 clarified at interview how she did not feel that the use of touch was appropriate for all women because she did not *'know whether some touch is an annoyance to somebody and actually impeding in their personal space'*.

P01 explained how her decision to use touch developed within her relationships with women, as she would implicitly seek permission from women before using touch, providing an example of how tying back Cathy's hair during her labour to increase her comfort subsequently informed her tactile response to Cathy as she approached transition and the second-stage, *'so by tying her hair back that was my first step with touch for [Cathy] and that's how I felt I was able to put my hand out and she squeezed my hand because we had already between us we had an understanding that it was ok that I was allowed to do that'*(P01, interview). By contrast P01 did not have this opportunity with Trisha which resulted in P01 choosing *'to withdraw slightly and support [Trisha] in the way that she [Trisha] was going forward rather than trying to ... pull her back to go forward I actually went with her in her way and the way that she was choosing to cope with it'* (P01, Interview). This bears similarities to P02's explanation of how she *'made way'* for Jo (who also arrived in advanced labour) to provide her with the space to labour in her own way (section 6.3.3.1).

6.3.4.2 Personal Knowledge of the Woman

Participants used personal knowledge gained from their interactions with women to inform their decision-making. P01 was observed to advise Cathy that she had reached transition⁴⁶ and explained at interview how this judgement was based on her personal knowledge of Cathy alongside her assessment of behavioural and physical cues. These were described by P01 as *'changes in breathing'* and *'the uterine contractions reduce slightly'* along with changes she observed in Cathy's demeanour from feeling *'in control'*

⁴⁶ Transition refers to the distinctive physiological changes that occur sometime during full dilatation of the cervix and the commencement of expulsive contractions.

to when she observed that Cathy started *'to get scared that there is not an end and it's unachievable and the sense that ...she can't do it'* (P01, Interview). P01 had taken what she perceived to be the 'first steps' in building a relationship with Cathy and felt a personal connection with her which subsequently informed her response, *'I felt that she [Cathy] was going through a transition and I needed her to focus on me and I got her to look me in the eye, and I put my hand out and she squeezed my hand. And I really felt a connection with her, and I was able to talk to her and talk her through that part of what she was experiencing'*. P01 explained how she tried to empower Cathy by helping her remain in control before she reached the point where she lost control (due to the overwhelming nature of the second-stage), *'and so prior to her saying those words I try to bring her back more ... I can give her techniques to cope with what is left'* (P01, interview). By contrast, when P01 took over Trisha's care, she perceived that Trisha had already reached this point and was coping on her own which informed her decision to *'withdraw slightly'* and support Trisha in the *'the way that she was choosing to cope with it'* (P01, Interview).

6.3.4.3 Control and Advocacy

Within the context of the AMU all participants were observed to engender a sense of control and confidence in women's personal abilities to cope with labour and the second-stage. When explored at interview this was a conscious decision that participants made, with the aim of increasing women's confidence, helping women to feel in control and reduce fear. It was hypothesised that within the subsections of the AMU participants demonstrated the skill of emotional awareness, meaning that they were mindful of the imprint they could potentially have on the emotional experiences of the women in their care and their subsequent ability to cope and feel in control. This awareness influenced how participants responded to women and was reflected in their careful choice of words to avoid creating disappointment or panic in the woman. Participants were perceived to use their emotional intelligence as they endeavoured to impart information in a way that they felt would not undermine the woman's confidence in her abilities. Participants were observed to discuss crowning⁴⁷ with women within the AMU, rationalising that providing this information in advance may help women to remain in control at a point where their experience would be at its most intense. This was described as *'planting seeds'* (P02 and P03, interview) and explained by P03 at interview, *'when that stings coming, they're not*

⁴⁷ Crowning refers to when the widest diameter of the fetal head is distending the maternal perineum prior to birth.

going to listen to anybody... I just explain you know we can't slow the baby's head down so when it's sort of nearly at the widest part try and breathe it out' (P03, interview).

Participants rationalised how this may empower women to remain in control during birth because *'if you've spoken to them before you just reiterate it and say this is the bit now where you need to listen in and the majority will, even though they're screaming come back when you say you now have to listen and breathe the baby.'* (P03 interview)

6.3.5 Theme Summary

The theme 'having holistic knowledge of the labour process' relates to how participants gathered, processed and applied information to inform their decision-making. This was a complex and multi-faceted process that relied on the collection, aggregation and interpretation of physical and behavioural cues collected through observational, interpretational and interpersonal skills. Participants used fast thinking informed by their experiential knowledge drawn from clinical experience to make quick judgements which they rationalised through their interpretation of external cues selected from their close observation of physiological and behavioural signs as well as describing a more intuitive knowledge or 'having a hunch' when they had a feeling that they were unable to explicitly rationalise. In times of uncertainty participants took explicit steps to logically think through and rationalise their thought processes, referring to guidelines and seeking advice from colleagues when unsure. Participants were aware of how they could influence and potentially undermine women's emotional experience of coping and remaining in control during labour. All participants were confident in recognising normal birth processes which gave them the confidence to await events. Being flexible in their judgement when making decisions was considered important and participants were aware that their interpretation of cues could be misleading and thus remained alert to alternative explanations. However, confidence and competence were recognised as key to enabling this flexibility.

6.4 Theme Two: 'Adapting to External Influences'

6.4.1 Introduction to the theme

The theme 'Adapting to external influences' was developed from the categories 'external influences on care provision,' 'Influence of the birth environment on care provision' and 'working in partnership' (Figure 7: Summary of the Development of Theme two). It reveals how other factors within the case influenced participants decision-making and presented challenges to participants. Whereas theme one explains the skills, knowledge information sources and other factors used by participants to inform their decision-making, theme two describes how subsections and groups within the case influenced participants' judgement and decision-making.

6.4.2 External Influences on Care Provision

Participants acknowledged that the influence of colleagues could present challenges to decision-making and this was observed when the context of care changed and P04 moved with Amy from the AMU to the OU. Within context A, P01 described how staffing issues could influence her ability to develop relationships with the women in her care. Challenges were also encountered when participants worked with colleagues who shared a different practice ethos as seen in context A with P01 and the 2nd-midwife (described within section 6.4.2.3).

6.4.2.1 Resources

The AMUs in both case sites were typically staffed with two midwives and a Maternity Support Worker (MSW) per 12.5-hour shift. At the beginning of P01's observation period, the second midwife rostered to work on the AMU was sent to work on the OU leaving P01 and the MSW to provide care for four postnatal women and their babies, Cathy, and complete tasks left over from the night shift. P01 confirmed this to be a regular occurrence and when this happened a midwife from the ward⁴⁸ would attend as '2nd-midwife'⁴⁹ at birth. P01 described how a lack of staff could make it '*difficult*' to form relationships with women

⁴⁸ This was on the same floor, across the corridor from the AMU.

⁴⁹ Trust guidelines state that a 2nd-midwife should be available to attend the birth of a baby to provide extra assistance if needed.

due to having to listen out for call bells and the telephone. Whilst this was not observed during Cathy's birth, P01 was observed to exit and enter the room several times during Trisha's labour to check on Cathy and the remaining postnatal women. P01 appeared tired as her shift progressed and was unable to take a break until after Trisha's birth. This may have influenced P01's judgement as she appeared less engaged with Trisha when compared with Cathy (section 2.4.1), commenting that she had felt '*shattered*' and *slightly faint*' after Trisha's birth⁵⁰ (P01, fieldnotes) which may have impacted upon her judgement although this was not explored at interview.

6.4.2.2 Influence of colleagues

The impact of colleagues upon participants decision-making was observed within the observations of P01 and P04 and described by all participants at interview. Participants described how they would often talk things through with colleagues if they had any uncertainties on the AMU and a distinction was made between perceived collaboration in decision-making with colleagues on the AMU and surveillance by colleagues on the OU, for example, '*[referring to OU] you've always got to report to somebody, you've always got to invite somebody else into the room*' (Interview, P02). Tension in the relationship between P01 and the 2nd-midwife who worked on the postnatal ward was also observed and described within the next section.

6.4.2.3 Second-midwife

The role of the 2nd-midwife was described by P01 as needing '*to be there as the baby was being born.*' P01 had made the decision to wait until Cathy's birth was imminent before calling the 2nd-midwife (from the ward) whilst ensuring that she was alert for her call beforehand. P01 asked the 2nd-midwife to wait outside the room during Cathy's birth explaining at interview that provided she knew that the 2nd-midwife was '*sitting outside*' she did not feel it necessary for her to enter and '*disrupt the natural flow of energy in the room.*' In view of this P01 explained that she usually chose to wait until the woman was

⁵⁰ Following Trisha's birth P01 was relieved for a break by a ward midwife.

*'so focused on what she's doing ... and then I would call the 2nd-midwife in so [the woman] is not aware that she is even present.'*⁵¹

Later that shift the same midwife was called again to attend Trisha's birth. P01 alerted the MSW and called for the 2nd-midwife in the same way as for Cathy's birth. At the time Trisha was *'bearing down with contractions and moaning'* (fieldnotes, P01). Trisha was observed to be using entonox and P01 was *'observing Trisha's perineum with a mirror in the pool and providing encouragement.'* I observed a tension when the 2nd-midwife entered the room, recorded as *'I have noticed that there is a change of dynamic when the 2nd-midwife is in the room'* (fieldnotes, P01). Rather than wait within the periphery of the room as before, the 2nd-midwife immediately approached Trisha, taking over from P01, and *'removed [Trisha's] entonox from her and started to encourage directed pushing... Baby is born under water'* (fieldnotes, P01). The use of directed pushing was different to how Trisha had previously been pushing⁵² and observed on only one further occasion during the observation periods⁵³. I reflected on how it seemed unnecessary and *'at odds with the previous controlled calm within the room'* (reflective diary, 11.09.16)

At interview P01 clarified how she perceived that the 2nd-midwife came into Trisha's birth room *'because she'd met [Trisha] already,'* rationalising the 2nd-midwife's behaviour through their prior relationship, stating *'the second time she came in because she'd met [Trisha] already. She'd done the initial assessment and she'd already done the vaginal examination on her so I think that's what gave her the confidence to come in and stay whereas the first time she was happy erm I think that she took the cue from me that it was disruptive her being there for the whole of the length of the second-stage'* (P01, Interview). I hypothesised that P01 had made the decision for the 2nd-midwife to wait outside Cathy's birthing room to avoid disturbing Cathy's birth, possibly affecting the control that P01 perceived Cathy to have at that point, which aligns with P01's earlier dilemma about

⁵¹ At Cathy's birth the 2nd-midwife entered the room 2 minutes before Cathy's birth and remained in the periphery of the room and did not involve herself with Cathy's care, exiting the room following the birth.

⁵² Trisha had been spontaneously bearing down with contractions.

⁵³ After Amy was transferred to the OU and received epidural anaesthesia for pain relief.

whether asking Cathy to push might cause her to lose control. The introduction of another midwife at Cathy's birth may have caused her to panic and P01 was aware that the 2nd-midwife had a '*different ethos [to herself]*' (P01, Interview).

Whilst P01 did not explicitly criticise the 2nd-midwife, she commented how as a 2nd-midwife she would '*behave differently herself*' because she did not feel the need to '*impede on the energy*' within the room. It was construed that P01 viewed the 2nd-midwife's presence as disruptive although she rationalised her decision to not intervene at Trisha's birth stating that, '*as a midwife you have to allow them[other colleagues] to say what it is they've said and then take the power back without being rude or allowing the client to be aware of the different styles of practice.*' When this was explored further P01 reiterated that the 2nd-midwife was not required to do anything and after she had '*done what she felt she needed to I reassured her that I was ok actually*'. Later P01 had described at interview how '*she trusted every member of the AMU team*' and P01's comments about the 2nd-midwife may have been reflective of broader differences in the ethos of staff outside of the constructs of the case.

6.4.2.4 Midwife-in-charge

Following Amy's transfer to the OU, the midwife-in-charge (MIC) of OU was observed to enter the birth-room several times to check drugs, the CTG and Amy's progress. An element of surveillance was construed from this as P04's actions and decisions were observed to be actively checked, for example, '*[Into room] MIC 'we started synto⁵⁴ did we?' P04 'yes I did write it on the board.'* MIC reviews CTG trace '*baseline going up a bit. Keep an eye on it*' (fieldnotes, P04). The MIC explicated her intention to return to the room again when she turned to the couple following this and stated, '*see you in a bit, well done.*' MIC out of room.'

This surveillance influenced P04's actions as she frequently left the room to update the MIC and obstetrician. At interview P04 explained how the constant need to update the MIC and obstetrician impacted upon her decision-making, '*you have to report to the*

⁵⁴ Syntocinon is a synthetic version of oxytocin that can be administered intravenously during labour to accelerate uterine contractions.

doctors you have people constantly coming in and looking at CTGs and asking you what's going on' which she perceived to reduce her autonomy when making decisions. P04 contrasted this with working on the AMU , where you *'only have your colleague you'll occasionally update if you need to and ask an opinion but you don't feel like you have to report and update them so you are autonomous down here [the AMU] and you can make a decision* (P04, Interview). This view was shared by other participants who described how the need to keep updating colleagues on OU impacted upon their autonomy in decision-making (section 6.4.2.2).

6.4.2.5 Obstetrician

Following Amy's transfer to the OU the obstetrician took the lead with decision-making undertaking the initial vaginal examination following Amy's transfer to the OU whilst articulating a plan of care for P04 and Amy to follow. Within the OU P04 appeared to complete tasks and undertake observations from the perspective of informing the obstetrician.

6.4.3 Influence of the Birth Environment on Care Provision

The creation of a calm birthing environment was a priority for participants upon the AMU and all participants described how they would endeavour to maintain this when transferring a woman to the OU. However, this was not observed in practice. Despite having endeavoured to maintain a calm birthing environment on the AMU, P04's practice and decision-making appeared to be influenced by the change in environment when she moved to the OU with Amy. Once on the OU, P04's primary focus appeared to be on the completion of the many tasks that required her attention. As a result, P04's response to Amy and holistic approach to labour changed as P04 appeared anxious to conform to guidelines, undertake the technical tasks required and report back to the MIC and registrar.

6.4.3.1 Birth Environment

Within the constructs of this case, only P04 was observed working in both the AMU and OU⁵⁵, however all participants spoke about the difficulties of practicing autonomously and making their own decisions upon the OU. The birthing rooms within both AMUs was viewed as a private space for the woman and her partner, and all participants took proactive measures to maintain a calm ambience and minimise potential disruption for women⁵⁶. Examples include P04 *'asking colleagues to quieten down when loud chatter and laughter was heard in the corridor outside the room'* (P04, fieldnotes) and P03 choosing to use her own 'style' of delivery pack because she felt that *'noise is disruptive'* and justified her decision by explaining *'so we're in a calm environment low lights and I open that door bang ... and then there's a great big massive delivery pack that's ripped open and that completely disturbs the room, everyone's like what's going on! You can just collect a few bits together in a pot or whatever, (P03, Interview)*. These observations align with other actions participants undertook to minimise disruption for women as helping women maintain a sense of control appeared to be a key focus in their decision-making on the AMU.

Participants also described at interview how they would try and adapt the birthing environment to lessen disruption on the OU and it was observed following Amy's transfer to OU, how P04 initially endeavoured to incorporate elements of her earlier AMU practice into the OU setting by dimming the lights and encouraging Amy to change her position. The change in the environment however was palpable in contrast following transfer to OU as described in the following extract, *'CTG in progress and fetal heart (FH) loud in room. Main impression is noisiness in room in comparison to AMU. Anaesthetist and Obstetric registrar, MIC and another midwife to check epidural in and out of the room ..., doors and bins opening, and closing are loud'* (P04, fieldnotes).

⁵⁵ The birth environment is summarised in appendix c.3 table 34.

⁵⁶ Which aligns with the emotional awareness described in section 6.3.4.3

Following transfer Amy's contractions were palpated by the obstetric registrar who instructed P04 to start syntocinon⁵⁷ once the epidural was effective, verbalising a plan for Amy to begin pushing one hour following this⁵⁸. Both P04 and Amy were observed to appear absent from this decision-making process and P04's focus changed from being woman-centred to task centred as she appeared busy setting up equipment, monitoring the CTG and epidural. P04 described at interview how the environment influenced her decision-making, *'you move down onto labour ward and a lot of your decision-making is made by CTGs and doctors coming and saying things to you and examining them.'* P04 described how she would endeavour to make the environment less clinical but found it difficult because the environment was now so different, *'so I try and take elements from the AMU ... with positions and trying to keep it less clinical but you can't help practicing slightly differently down there because it's now more clinical than up here [the AMU]'* (P04, Interview). P02 suggested that she would be *'a different midwife'* if she worked on OU, comparing it with her earlier experiences working on OU where *'it was easy to get swept up'* with intervention, for example, *'instead of giving a lady a jug of water or something, I will just put up some fluids cos I can'* and *'we're massively on them saying I'm just going to do this, I'm just going to do that, there's no discussion'* (P02, interview). This is suggestive of the indiscriminative use of intervention being accepted practice within the culture of the OU.

6.4.3.2 Time Restrictions

Whilst participants were observed to practice flexibly on the AMU, referring to guidelines to rationalise undertaking a vaginal examination or when uncertain, P04 was observed to undertake practices that she viewed as degrading to women in order to align with practice expectations on the OU. At one-point P04 was observed inserting her fingers into Amy's vagina whilst Amy pushed stating *'I'm just going to feel where this head is.'* It was hypothesised that this was to inform P04's judgement about how effectively Amy was pushing as P04 instructed *"Now go for it, big push, pushing my fingers away, you're definitely pushing in the right place, baby's come down loads"* (P04, fieldnotes). P04 explained at interview how she didn't like doing this *'I think its degrading...because it's not*

⁵⁷ A synthetic version of the hormone oxytocin used during labour to augment contractions.

⁵⁸ The obstetrician also performed a vaginal examination and assessed Amy's cervix as fully dilated with the fetal head one centimetre above the ischial spines (of Amy's pelvis).

nice for her[Amy], rationalising that whilst it was *'not something that I would normally do ...lots of midwives do [it]'* suggesting that it was accepted practice on the OU. P04 explained that Amy had an epidural (and so no sensation to push) and referred to local guidelines and time restrictions to account for her actions, stating that she would need to undertake another further vaginal examination in an hour. In view of this P04 rationalised, *'I just wanted to assess how much lower the head had come and whether Amy was actually pushing in the right place and how much descent am I feeling.'* This was to enable P04 to make a judgement about *'how likely is it that we're going to achieve this vaginal birth if after an hour it hasn't come any lower'* which would prompt her to ask the obstetrician to intervene as *'it's not fair to keep pushing on her pelvic floor knowing that this baby is not going to come this way'* (P04, Interview).

Whilst the concept of risk was not a dominant theme within this case, Amy's move to OU, epidural analgesia and augmentation with syntocinon meant there were now increased risks associated with her labour as the physiological process had changed⁵⁹. Amy became pyrexial at one point, a further risk factor indicating potential infection as Amy's membranes were ruptured for over 24 hours. During active 2nd-stage, P04 left the room several times, checking drugs and collecting equipment whilst Amy was pushing as the completion of tasks took priority over her personal interactions with Amy. At times Amy looked to P04 for guidance stating, *'we've got another one [contraction]'* to which P04 responded *'ok go for it then'* (P04, observation) whilst her attention was directed away from Amy on the completion of tasks. This differed from the close proximity and emotional support previously observed on the AMU. Whereas P04's care on the AMU was observed to be woman-centred, it was now task-centred. P04 described the impact of the OU on her practice as *'insidious'* and rationalised how *'you are influenced because you now are surrounded by technology whereas on the MLU its low risk and all you have is your sonicaid'*⁶⁰.

⁵⁹ For example, the presence of epidural anaesthesia inhibited the Ferguson reflex (caused by stimulation of oxytocic receptors in the pelvic floor by the presenting part and causing an urge to push) and presence of syntocinon could cause possible uterine hyperstimulation and associated FH changes.

⁶⁰ A sonicaid is a portable Doppler ultrasound that midwives use to listen to fetal heart sounds.

6.4.4 Working in Partnership

Partnership-working within the second-stage can be difficult as there is not always time for information-giving and discussion, and women may be so focused on the physiological demands of labour that they are unable to fully consider their options. Within this case, midwives were perceived as working in partnership with women when they were observed to engage women during the provision of labour care, providing information, seeking clarification and endeavouring to adapt their care according to woman's preferences and responses. P03 described how she would always listen to women as *'if they say something's not right , somethings not right'* (P03, interview), and participants were observed to be receptive to women, asking *'what is your body telling you to do?'* (P03, fieldnotes) when providing support during advanced labour. The birth environment affected the extent to which participants were observed to work in partnership with women. Whilst P04 was able to work in a way that was woman-centred on the AMU, having built a relationship with Amy, once on the OU her responses to Amy were mainly determined by the interventions required and became less personalised.

Following her transfer to the OU Amy 's knowledge and opinions were no longer sought. This contrasted with care provided by P04 immediately prior to her transfer on the AMU where she was observed to work in partnership with Amy as she explored the nature of her pain. Amy had become increasingly distressed on the AMU, stating that she couldn't *'take much more ...I'm exhausted...I really need an epidural'* (P04, fieldnotes). I observed how P04 employed *'quiet discussion'*, whilst *'in close proximity, using eye contact, reassuring and listening to Amy'*. Information was provided to inform Amy's decision-making as P04 outlined the advantages and disadvantages of epidural analgesia, for example, *'will slow things down...increase ventouse and forceps birth risk'* and I noted how *'Amy had time for decision-making'* (P04, fieldnotes) on the AMU before she articulated her decision to have an epidural.

6.4.4.1 Giving Instructions

Following transfer to the OU P04 appeared distracted, information giving was instructional and decisions regarding Amy's care were now led by the obstetrician. P04 appeared to be anticipating the next stage in a process guided by obstetric time frames and accepted OU practices and instructing rather than engaging Amy in her care choices. Examples included elements of care introduced on the OU that contrasted with care practices previously observed within the AMU. Amy had lost the sensation to push because of the effect of the

epidural⁶¹ and was instructed by P04 to push using the Valsalva⁶² technique, for example, *'take a big breath in and push long and hard into your bottom. Come on, come on, come on'* (fieldnotes, P04). Amy was observed to be a passive recipient in her care and consent was implicit rather than explicitly sought as evident in the following extract, *'P04 out of room to get ranitidine, states 'neutralises stomach acid just in case we end up going to theatre.'* Then focuses on CTG and notes, *has her back to [Amy]*' (fieldnotes, P04). This was very different to the *'planting seeds'* described by previous participants where they discussed possible options in advance to help women remain in control (section 6.3.4.3) and there appeared to be an underlying assumption regarding Amy's implicit consent to further intervention once on the OU.

6.4.4.2 Autonomy

Autonomy is a complex concept, particularly when applied to midwifery (Marshall, 2005) and is associated with the freedom to make discretionary and binding decisions that are consistent within defined parameters of practice along with the freedom to act on the decisions made (Lewis and Batley, 1982). All participants spoke about how they associated working on the AMU with increased autonomy in their decision-making, as described at interview by P02, *'because you're quite autonomous up here and I don't come out and tell anyone what my ladies are doing ...you know I'm making those decisions by myself'*. Participants were able to offer more personalised responsive care on the AMU because they were not under the same pressure to report to the MIC and update the board, *'We're ... autonomous practitioners here [on AMU] erm on labour ward you've got somebody who's got a board with 12 women and they want to know what's going on down there (P03, Interview).'*

Following transfer to the OU P04's ability to make autonomous decisions appeared reduced and at interview P04 explained how factors such as the CTG influenced her decision-making, rationalising that it was difficult to ignore decelerations that appeared

⁶¹ The bupivacaine contained within the epidural low-dose mixture may affect the stimulation of nerve receptors in the pelvic floor by the fetal presenting part (Ferguson Reflex) resulting in the woman not experiencing an urge to push.

⁶² Pushing against a closed glottis and associated with fetal heart rate changes (see appendix A.2.2).

normal on a CTG within the OU because there was an expectation that they should be acted upon, even when normal. In contrast the use of intermittent auscultation to monitor the FH on the AMU meant that normal decelerations were not picked up, whereas on a CTG all decelerations were printed out, causing OU staff to get '*very jumpy*' when viewing decelerations which impacted upon P04's decision-making as '*your autonomy is almost to some degree removed by the CTG as well because it's on there and it's showing you things affecting peoples decisions on how quickly they're going to act*' (Interview, P04). These findings clearly demonstrate the impact that institutional factors such as the birth environment, surveillance and technology appear to have on midwives perceptions of their autonomy and subsequent decision-making.

6.4.5 Summary of Theme Two

The theme 'Adapting to External Influences' describes how external factors such as the birth environment and interactions with colleagues can influence midwifery care provision and decision-making. Care was taken to minimise disruption to women within the AMU and participants strove to maintain a calm birthing environment. Whilst all participants spoke about how they would endeavour to adopt similar care practices when transferring their care to OU, they acknowledged this was difficult, and the differences observed in care provision was substantial when P04 transferred care of Amy to the OU where both Amy and P04 were observed to become passive agents in decision-making. Participants perceived that their autonomy was influenced by the birth environment and that their ability to make decisions autonomously was enhanced when working on the AMU which appeared congruent with their personal ethos of birth.

6.5 Chapter Summary

This chapter has presented the findings from this studied and explicated the new knowledge derived from the findings. The next chapter will discuss the wider evidence within which these findings and the generation of new knowledge is positioned.

Chapter Seven – Discussion of Findings

7.1 Introduction to the Chapter

This chapter presents a discussion of the study findings. Findings are positioned within the theoretical debates around midwifery decision-making and the wider evidence base and policy to provide an answer to the research question: *What are the skills, knowledge, information sources and other factors that may inform and influence midwives decision-making in the second-stage of labour?*

The key objectives of the study were to:

- identify the skills and knowledge used by midwives to inform their practice in the second-stage of labour
- critically analyse the factors that influence the practice and decisions that midwives make in the second-stage of labour
- critically examine how midwives have justified and accounted for the decisions that they make during the second-stage of labour.
- scrutinise the context and process of midwives decision making

A summary of the key findings of this QCS are presented in figure 9 and will be incorporated into the following sections which will draw on concepts from theories such as: The Hypothetico-deductive model of reasoning, Pattern matching, Experiential knowledge, Fast and Slow thinking to critically analyse the factors that influence the practice and decisions that midwives make in the second-stage of labour. This discussion will be structured according to the objectives of this study to clearly demonstrate how the findings have answered the study objectives.

Figure 9: Summary of the knowledge, skills, information sources and other factors that informed decision-making

Skills	Knowledge	Information Sources and Other Factors
<ul style="list-style-type: none"> • Observational • Interpretational • Interpersonal • Reflective 	<ul style="list-style-type: none"> • Experiential • Physiological Process • Derived from interactions with women 	<ul style="list-style-type: none"> • Perception of surveillance • Perception of Autonomy • Birth Environment • Introduction of technology • Birth Ethos • Guidelines

7.2 Overview of the skills and knowledge⁶³ midwives use to inform their decision-making

I propose that midwives employed both fast and slow thinking when making decisions during the second-stage as demonstrated within the findings of this case which show how midwives used their observational skills to make rapid judgements informed by their initial interpretations that were based on the behavioural and physiological cues exhibited by women. These cues, derived through skilled observation, were then aggregated to support or refute the initial hypotheses formulated by midwives, for example, of how well women were coping or whether they were approaching the second-stage of labour.

⁶³ Skills have been defined as the ability to use one's knowledge effectively and readily (Merriam-Webster, 2019) and knowledge can manifest as an awareness, understanding, or information that has been obtained by experience or study, and that is either in a person's mind or possessed by people generally (Cambridge Dictionary, 2019).

The rapid judgements made by midwives when first encountering women during labour are akin to pattern-matching, a concept that describes the process of how midwives quickly make judgements based on a few critical pieces of information based on their ability to recognise subtle likenesses to previous experiences and relate these to the current situation (Dreyfus and Dreyfus, 1986, 2004; Mok and Stephens, 2005). This is comparable with the automatic, almost effortless quick thinking described in the two-systems approach proposed by Kahneman (2011) which demonstrates how both fast and slow thinking may influence judgement⁶⁴. Whilst this mode of thinking has been described as a non-rational and thus sub-optimal form of decision-making⁶⁵ (Jefford and Fahy, 2015; Kahneman, 2011), I propose that the findings from this case reveal that the quick thinking applied by midwives to inform their initial decision-making was a skilled activity that was informed by experiential knowledge and utilised their observational and interpretational skills. Such skills were acquired through having extensive experience within intrapartum care and honed through the opportunities taken to reflect upon and learn from these experiences, as described by midwives within this case. This supports findings within the wider decision-making literature which suggest that automatic thinking may indicate expertise when used by experienced clinicians within an environment they are accustomed to and where opportunities have been taken to evaluate the effectiveness of the decisions made (Cioffi and Markham, 1997; Kahneman and Klein, 2009; Kahneman, 2011; Young, 2012; Klein, 2015).

Experiential, or tacit knowledge, described as knowledge derived from clinical experience (Polanyi, 1969; Heiberg, 2008; Polanyi and Sen, 2009) features prominently within the findings of this case and the wider midwifery decision-making literature. Comparing clinical situations to previously encountered similar situations has been described as beneficial to the decision-making of students and newly qualified midwives (Young, 2012); experienced midwives (Daemers et al, 2017); a key element of midwives decision to suture after childbirth (Cioffi et al, 2010); refer to obstetric care (Patterson et al, 2015; Weltens et al, 2019) and manage case complexity (Cioffi and Markham, 1997). The

⁶⁴ With system one incorporating the automatic processes that underlie fast thinking and system two incorporating the conscious allocation of attention to mental activities requiring more effort (Kahneman, 2011).

⁶⁵ Because of the influence of heuristics or cognitive shortcuts – discussed further in section 7.4.

findings of this case show how midwives applied and integrated their previous experience, knowledge of physiological labour and information gained from clinical assessment⁶⁶ with their observational and interpretational skills to then support a slower more focused assessment of cues. Within the AMU environment midwives appeared to demonstrate confidence and expertise in using this approach which meant that they did not routinely seek to confirm their interpretations through more invasive methods which might be intrusive to women (for example, vaginal examinations).

The findings of this case showed that midwives used their skill-set, comprising of observational and interpretational skills combined with information gained from clinical assessment, to assess labour holistically, paying attention to the physiological and behavioural signs (external cues) of the progression of labour rather than focusing on the measurement of distinct stages through cervical assessment⁶⁷. The wider literature is supportive of this approach although undertaking routine vaginal examinations to assess labour progress remains widely accepted in clinical practice (NICE, 2014), despite having poor interrater reliability and lacking consistency and accuracy amongst clinicians (Huhn and Brost, 2004). Studies have shown that women often receive more vaginal examinations than the national criteria currently recommends (Shepherd and Cheyne, 2013; Borders et al, 2012) and a Cochrane review found no evidence to support their routine use to assess labour progress (Downe et al, 2013) whilst potential adverse effects associated with their use have been found ⁶⁸.

I suggest that the findings from this study support the development of a practice culture where the use of external cues to assess labour progress is valued. Physiologically there is no abrupt transition between the stages of labour (Coad and Dunstall, 2011) and

⁶⁶ Through the undertaking of maternal vital signs, palpating contractions and assessment of fetal wellbeing through observation of liquor colour and fetal heart assessment.

⁶⁷ Labour progress measured by cervical dilatation is founded on the work of Friedman (1954) and developed in the ensuing decades (Hendricks et al, 1970; Philpott and Castle, 1972; Albers, 1999; Zhang, 2002).

⁶⁸ This includes risk of infection, maternal distress (Clement, 1994; Ying Lai and Levy, 2002; Teskereci et al, 2019) and significant association with early onset neonatal sepsis associated with the procedure (Christopher et al, 2019).

current descriptors of labour as stages and phases based on cervical measurements may be reinforced by organisational and professional requirements (Cheyne et al, 2006; Dixon et al. 2013) that are consistent with a biomedical understanding of birth⁶⁹ and its assumption of pathology and measurement of risk (Olza et al, 2018; Reed et al, 2016a). Within the wider literature the original discourse pertaining to the stages and measurement of labour progress has been challenged⁷⁰ as studies have suggested considerable variance in individual labour progress (Zhang et al, 2010). A large systematic review (n= 99 971) found considerable variation in the distribution of cervical dilatation profiles of 'low-risk' women during spontaneous labour with normal perinatal outcomes adding further support for a move to a more holistic assessment of labour progress (Oladapo et al, 2017).

I propose that the findings of this study lend support to the debate that the routine undertaking of vaginal examinations and application of strict time limits based on cervical dilatation to assess labour progress is fundamentally flawed as it is unknown when, for example, full dilatation actually occurred. Slow progress in labour is the most common indication for primary caesarean section and oxytocin infusion during labour (WHO, 2018) and it is more pragmatic to observe and assess external cues, relating these to the underpinning physiology whilst continuing to gather objective measurements of maternal and fetal wellbeing and undertaking intrusive vaginal examinations only if further verification is required⁷¹.

The findings of this case demonstrate how spending time in close proximity and being present with women is a key factor that enhances the observational and interpretational skills that midwives use to inform their decision-making and within this case, midwives appeared to have refined their skills over many years of observing women in labour. Working in intrapartum environments outside of OU is facilitative of this process of skill acquisition because, away from the perceived surveillance of the OU (section 7.3),

⁶⁹ Described within section 2.2 and 2.5.

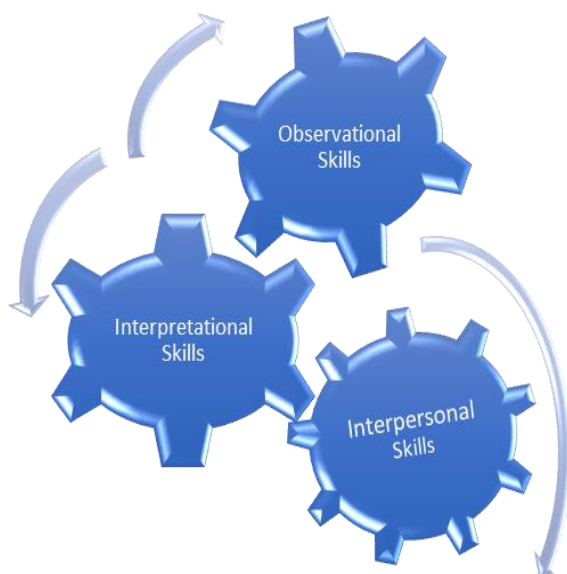
⁷⁰ For example, Walsh (2006); Winter and Cameron (2006); Downe et al (2013).

⁷¹ Vaginal examinations can also provide information about cervical effacement, application of the cervix to the presenting part, station of the fetus in relation to the maternal ischial spines and position of the fetus.

midwives have opportunities to become closely acquainted with women's physiological and behavioural responses to labour. This serves to promote midwives confidence and competence in the application of this skill-set so that confirmation of their interpretations through vaginal examinations, is undertaken only in times of uncertainty⁷².

Midwives observational and interpretational skills were construed as being closely intertwined with their interpersonal skills (Figure 10), a skill-set that incorporated being receptive and responsive to women, using verbal and non-verbal skills, listening and being attentive to women in a way that is reciprocal and demonstrates emotional intelligence. The findings of this case showed how this skill-set was also enhanced by midwives being present with women, which enabled feedback to be received immediately through observation and interpreted so that their care responses could be adapted accordingly. These skills were supported by the midwife's perception of being able to make decisions autonomously and influenced by the context of care and birth environment (section 7.3).

Figure 10: Integration of the core skill-set used by midwives on the AMU



⁷² For example, if there were concerns about maternal and fetal wellbeing.

I propose that the findings of this case suggest that emotional intelligence was a key interpersonal skill that midwives used to inform their judgements and decisions when responding to women in labour. Whilst there is wider evidence that clinicians consider, analyse and use emotional information when making decisions in the nursing and medical literature (Bucknell, 2003; Akerjordet and Severinsson, 2004; Kooker et al, 2007) the role of emotions within the midwifery decision-making literature remains relatively unexplored⁷³. Emotional intelligence concerns how we use our perceptions to manage the emotions of ourselves and others whilst using this information to guide our thinking and actions (Salovey and Mayer, 1990; Goleman, 1998; 2004). Described as a subset of social intelligence and associated with intuitive knowledge (Smith et al, 2004; Begley, 2006; Chaffey et al, 2012), emotional intelligence is positively correlated with competence (Heydari et al, 2016) and a significant driver in the provision of safe, responsive and compassionate care that is linked explicitly with effective leadership in the wider healthcare arena (NHS England, 2014b; Heyhoe et al, 2016; Carrager and Gormley, 2016).

Understanding how midwives use their emotional intelligence as a skill to inform their decision-making is particularly important as the emotional workload of midwifery has gathered increasing attention during the last fifteen years (Hunter 2004; Hunter 2005; Hunter and Deery, 2005; Hunter 2006; Hunter and Warren, 2014; Crowther et al, 2016). Midwives have reported experiencing considerable stress within the workplace, leading to wider recommendations around the concept of resilience as a mechanism to improve midwives emotional wellbeing and subsequent interactions with women (Hunter and Warren, 2013; Hunter and Warren, 2014)⁷⁴. The use of QCS, observation and interviews enabled the unique relationships that midwives develop with women during advanced labour and the second-stage to be illuminated within this case. Such relationships informed midwives decision-making around how they engaged with and supported women during labour and appeared to be conducive to enabling women to feel in control and able

⁷³ Findings within palliative care settings particularly have showed that decision-making was undertaken by nurses through holistic assessment that was informed by an underpinning emotional awareness of others (Arevalo et al, 2013; Gallagher et al, 2015; Kim et al, 2016).

⁷⁴ Findings of a large UK survey suggest that midwives may experience post-traumatic stress symptomatology at clinical levels (Sheen et al, 2015; Sheen et al, 2016) with 45% of midwives reporting that they had felt unwell as a result of workplace stress in the last twelve months (NHS Staff Survey, 2018).

to focus inwards on the demands of labour. It is hypothesised from the findings of this case that midwives used their emotional intelligence in a way that incorporated the principles of reciprocity and containment when responding to women within the second-stage, to create an environment that was supportive of women and safeguarded their perceptions of control⁷⁵ (section 5.7.22).

The concepts of containment and reciprocity are incorporated as part of a particular skill-set required for Restorative Clinical Supervision (RCS) which forms the restorative arm of the new A-Equip model introduced to replace statutory midwifery supervision in March 2017(NHS England, 2017). Building upon the principles outlined within the Solihull theoretical model of parenting (Petit and Stephens, 2015), RCS aims to provide midwives with a safe space for reflection upon clinical practice with a skilled facilitator and encompasses the theories of containment, reciprocity and behaviour management that were originally intended to improve parents emotional relationships with their child⁷⁶. When applied to the findings of this case these concepts illustrate ways that midwives chose to respond to women during labour to facilitate the creation of a safe space for women to retreat into and undertake the emotional and physiological work of labour. This is important during the second-stage as women may not be able to engage in rational decision-making in the same way that they would usually do.

I propose that whilst the key skills of observation, interpretation, and interpersonal skills involving emotional intelligence, containment and reciprocity were used by midwives within the AMU subsection of the case, they were not apparent within the findings of this study when the context of care changed and midwifery care moved to the OU. This suggests that these particular skill-sets are influenced by context and place of birth. The next section will further analyse the factors that influence midwives decision-making during the second-stage.

⁷⁵ Control is a concept that the literature suggests is valued highly by women during childbirth (Karlsdottir et al, 2018; Nieuwenhuijze and Low ,2013) and a strategic driver for care (section 2.6).

⁷⁶ Containment refers to receiving and understanding the emotional communication of another without being overwhelmed by it and reciprocity, a sophisticated responsive interaction that improves relationship building.

7.3 Analysis of the factors that influence the practice and decisions that midwives make

The findings from this case show how the skill-set used predominantly within the AMU to inform decision-making⁷⁷ did not appear to transfer to the OU where the focus of care shifted onto the completion of tasks and collection of objective, measurable information to update the MIC and obstetrician. This may explain the tension that appeared to exist between midwives perceptions of being able to make autonomous decisions within the AMU whilst needing to report to someone on the OU and described also within other studies (Sosa et al, 2018; Davis and Homer, 2016). The findings from this case show that communication with colleagues upon the OU was perceived to be related to surveillance and supportive of the wider literature where midwives have described the *'feeling that someone is always watching over your shoulder'* on the OU (Davis and Homer, 2016: 413). This has had the potential to undermine midwives' confidence (Bedwell et al, 2015) and impact upon their subsequent decision-making. The use of a white board on the OU was referred to within this case as midwives described having to constantly update this via the MIC and obstetrician. Other midwifery studies have referred to the white board as a primary method of surveillance used to discipline doctors and midwives in a way that was reminiscent of Foucault's Panopticon⁷⁸ (Russell, 2018; Newnham et al, 2017) and the exertion of disciplinary power through the *'encouragement of self-surveillance and self-regulation of their behaviour based on a set of implicit norms'* (Newnham et al, 2017:4).

The findings of this case illustrate how the absence of such surveillance on AMU may facilitate midwives perceptions of their ability to use their judgement to make autonomous decisions as they were *'outside the gaze'*, a term coined by Walsh, (2006: 1336) and reflective of other studies which describe the MU environment as a protected space where midwives have the opportunity to make decisions and use skills they considered to be meaningful and which resonated with their ethos of birth (Lukasse and Pajalicef; 2016; McCourt et al, 2016) . Within the wider literature midwives have also described being able to practice with more autonomy on MUs in comparison with OUs (Hofmeyer et al, 2014; Hermus et al, 2015; McCourt et al, 2016; Monk et al, 2013; Walsh,2006) which is

⁷⁷ Comprising of observational, interpretational and interpersonal skills.

⁷⁸ Described as a symbolic description of the way in which people are encouraged to conform through indirect observation and a form of disciplinary power (Foucault, 1991, cited by Newnham et al, 2017).

supportive of the findings of this study, however the findings of this case also reveal how midwives working on the AMU would avoid performing vaginal examinations as a way of evading the application of rigid timelines, similar to other studies (Newnham et al, 2017) suggesting that despite their increased perceptions of autonomy, midwives were still aware of a wider institutional need to rationalise their care decisions in line with accepted guidelines and practices.

Further evidence of the influence of birth-place on midwifery-care and decision-making was demonstrated within the findings of this study when care that was deemed unacceptable within an AMU context⁷⁹ was rationalised as being part of the wider culture when undertaken upon the OU. This is supportive of the findings of earlier studies which show how institutional factors and workplace culture can influence midwives decision-making (Lankshear et al, 2005; Cheyne et al, 2006; Scammell and Alaszewski, 2012; Healy et al, 2016; Daemers et al, 2017; O Connell and Downe, 2009; Scammel and Stewart, 2014) as midwives modify their behaviour to fit in within the workplace culture (Davis and Homer, 2016).

Organisational culture represents a collective set of expectations, definitions, memories and informal rules that characterise expected behaviour and events (Behruzi et al, 2013) and has been attributed to the continued medicalisation of childbirth (Altaweli et al, 2019; Edwards, 2004; Newnham et al, 2017). The impact of OU culture upon midwifery practice has been widely researched (Annandale, 1988; Newnham et al, 2017; Annandale, 1987; Rayment, 2011; Marshall et al, 2011; Machin and Scamell, 1997; Altaweli et al, 2019) and midwives have expressed feeling powerless to manage care using their own professional judgement upon OUs (Altaweli et al, 2019). Within the wider literature it has been suggested that midwives fear of litigation influences their decision-making (Rattray et al, 2011; Porter et al, 2007) as midwives experience anxieties about being called to account for omissions in their care (Sosa et al, 2012; Surtees,2010).Recent public scrutiny of

⁷⁹ Such as inserting the midwife's fingers into a woman's vagina without asking for consent to check the fetal station and effectiveness of her pushing.

midwifery care and measures taken to reduce harm caused by human error⁸⁰, may have a further limiting effect on midwives autonomy through the mechanisms of risk surveillance and midwives find themselves caught within a dichotomy between utilising their professional judgement whilst working within a culture that emphasises risk detection and surveillance⁸¹

I propose that the findings of this case demonstrate how the introduction of increased surveillance and technology on the OU influences midwives decision-making and appears to reduce their perceptions of their autonomy. Whilst technology within childbirth may be required⁸², a consequence of this appears to be the adoption of a task-orientated approach to care, which is based on institutional factors rather than those of the individual woman, a finding that is supported within the wider midwifery literature (Hunter, 2004; Davis-Floyd, 2018; Newnham et al, 2017). The impact of technology on midwives decision-making, such as the Cardiotocograph (CTG), has been demonstrated in other qualitative studies (Ratray et al, 2011; Porter et al, 2007; Davis and Homer, 2016) alongside the limited involvement of women in their care decisions within the OU environment (Lankshear et al, 2005; Ratray et al, 2011). There is a need to explore further how midwives can incorporate the skills used to facilitate autonomous decision-making outside of the OU within the OU environment as the findings of this case show that whilst midwives begin with the intention of doing this, following transfer, the dominant culture on OU is pervasive and influences care practice and midwives decision-making.

Having the opportunity to be fully present with women appears to be conducive to midwives responding in ways that are reciprocal and attentive to women within the AMU as well as facilitating the observational and interpretational skills used by midwives to inform their decision-making. This notion of presence has been identified as a key factor in the development of supportive responsive relationships with women within the wider

⁸⁰ See section 2.4 which demonstrates the impact of published reviews (e.g. Kirkup report, 2015) policy drivers, and subsequent scrutiny on midwifery practice.

⁸¹ Discussed further within section 2.4. Section 3.7.4.2. also sets this out as a theme within the literature review undertaken to inform this study.

⁸² Such as within this case, to monitor maternal and fetal wellbeing, with the introduction of an epidural, syntocinon, pyrexia and prolonged rupture of membranes.

midwifery literature (Sosa et al, 2012; Dahlberg and Aune, 2013; Aune, 2014) and defined as a manifestation of midwives being with women within practice that is characterised by the support of the woman's emotional, physical, spiritual and psychological needs (Thorstensson et al, 2012; Davis and Homer 2016; Bradfield et al, 2018).

Attentiveness is a key element of this (Dahlberg and Aune, 2013) and helps exemplify how the concept of 'presence' within MU settings may differ from standard one-to-one care provided in OU settings where midwives may demonstrate the phenomenon of absent presence, that is, remaining physically present in the room but without the provision of the emotional support characteristic of midwifery presence (Berg et al, 1996; Green and Harris, 2003; Hildingsson, 2015). This is exemplified within the findings of this case where midwifery behaviour was observed to change from being present and attentive (on the AMU) to demonstrating the absent presence described above on the OU as the competing demands of technology and surveillance appears to distance midwives from women. Thus the skill-sets previously used to inform holistic decision-making on the AMU become, to some extent, redundant in favour of a more task-orientated approach to care that aligns with a more reductionist medical model of care where physiological processes, women's knowledge and the relational aspects of care appear to be superseded by technology and the assessment of risk. These findings are supported by this study's literature review (section 3.7.4.1) and within the wider midwifery literature (Hunter, 2004; Edwards, 2010; Thorstensson et al, 2012).

7.4 Examination of how midwives have justified and accounted for the decisions that they make.

Findings from this case show how midwives adopted both the fast and slow thinking proposed by Kahneman (2011) to inform their decision-making. Fast thinking was used to provide an immediate judgement or impression that incorporated skilled pattern-matching (section 7.2). This appeared to be a conscious process that midwives were able to articulate and then support with a slower thinking using the principles outlined within the Hypothetico-deductive model to rationalise and justify their decision-making. Hypothetico-deductive reasoning is based on information-processing theory (Newell and Simon, 1972; Jefford et al, 2011) which describes how the brain receives, stores and processes incoming information from the environment (Elstein and Bordage, 1988; Bordage, 1999; Elstein, 1978; Mok and Stevens, 2005). Such models are rooted in rational and logical analysis of the situation where knowledge and judgement are made explicit. For this

reason, they have been described as contributing to optimal decision-making by midwives (Jefford and Fahy, 2015) because the explicit stages within the model promote transparency enabling the stages to be taught and tested permitting the checking of knowledge and reasoning (Standing, 2010; Jefford, 2012).

The findings of this case show that, consistent with the Hypothetico-deductive approach, different aspects of information were integrated by midwives, to arrive at an overall judgement or hypotheses within the subsections of the AMU that formed the basis or rationale for their subsequent decisions (Dowding and Thompson, 2004; Maule, 2001; Thompson and Dowding, 2002). These judgements were further clarified through the assessment of alternative explanations as described within this case when midwives sought alternative explanation for physiological⁸³ and behavioural signs⁸⁴.

The application of the principles of the Hypothetico-deductive approach within the wider midwifery decision-making literature has been demonstrated (Cioffi and Markham, 1997; Cheyne et al, 2006; Jefford and Fahy, 2015; Chodzaza et al, 2018) with the use of observational and behavioural cues described by midwives as more '*covert ways of knowing and doing*' (Chodzaza et al, 2018: 60). I suggest that the findings of this case show how, within the AMU context, it was deemed accepted practice for midwives to use external physiological and behavioural cues to both inform and rationalise their decisions about labour progress, and these findings lend support to the findings of other qualitative studies that have analysed midwifery practice in different care-settings (Reed et al 2016b; Davis and Homer, 2016). Thus, whilst the cues used by midwives may be considered subjective and of less value within a biomedical model of birth, when integrated and applied in a systematic rational way using the principles of the Hypothetico-deductive approach they demonstrate a robust way of presenting and rationalising care-decisions about the progress of labour and onset of the second-stage.

⁸³ For example, the external perineal signs associated with a full rectum might be similar to the physiology of active descent of the fetus in the second-stage.

⁸⁴ For example, when choosing how to support women in labour.

The findings from this case demonstrate that midwives accessed two types of experiential knowledge to inform their decision-making and a distinction was made between the use of skilled pattern-matching that midwives were able to consciously rationalise and a form of knowledge⁸⁵ that midwives were unable to rationalise but which also prompted them to use slower more systematic thinking to justify their thought processes. Intuition has been defined as '*to know something without knowing how you know*' (Kahneman, 2011:235); '*understanding without a rationale*' (Benner and Tanner, 1987:23); or '*the decision to act on a sudden awareness of knowledge that is related to previous experience, perceived as a whole and difficult to articulate*' (Rew, 2000:95). Benner (1984) has described pattern-matching as being part of intuitive practice however suggests that intuition occurs at an unconscious level whilst pattern-recognition occurs consciously. Both methods have been described as non-analytical methods of clinical reasoning that are susceptible to the use of heuristics and as such subject to error (Jefford and Fahy, 2015).

Heuristics are described as cognitive shortcuts, susceptible to bias, which help simplify information required for complex situations (Kahneman, 2011; Muoni, 2012). Suboptimal decision-making may occur when inappropriate or inaccurate information is used to inform the process of pattern-matching or importance is placed on particular information at the expense of other more relevant information (Dowding and Thompsen, 2004) depending on the midwife's experience or perspective. Reliance on intuition or pattern-matching alone can result in what Kahneman (2011) has termed the base-rate neglect which describes when a midwife might mistakenly judge the perceived likelihood of something occurring, such as the onset of the second-stage, or progress in labour, by being too focused on anticipating a normal birth, whilst failing to consider alternative options, for example when interpreting external cues in the second stage.

I propose that the findings of this case show that midwives demonstrated flexibility within their thought processes, incorporating an awareness and ability to reflect on the possibility

⁸⁵ Described as intuition, having an inkling or a hunch.

of alternative explanations or bias to inform their judgement⁸⁶. I suggest that this is reflective of the midwives experience and expert practice within this case. Flexibility has been identified as a component of expert midwifery practice which increases alongside the development of situational and contextual awareness (Dreyfus and Dreyfus, 1980; Benner;1984; Downe et al, 2007; Downe and Simpson, 2011; Simpson and Downe, 2011). Studies have described midwives ability to work flexibly with uncertainty as an important construct in supporting normal labour (Chodzaza et al, 2018; Page and Mander, 2014). I propose that the findings of this case showed how midwives demonstrated expertise within their decision-making through their ability to practice flexibly and make subtle, refined decisions, using their observational, interpretational and interpersonal skills which were applied to their experiential knowledge, knowledge derived from their interactions with women and their understanding of the physiological process of labour⁸⁷. Such skills were enhanced by the confidence midwives perceived they had to practice flexibly within the AMU which enabled them to be responsive to what they considered to be the most salient aspects of each situation, which is a prominent features of expertise within the wider literature (Benner, 1984; Dreyfus, 2004; Simpson and Downe, 2011).

7.5 The context and process of midwives decision making

The process of midwives decision-making as demonstrated from the findings of this case has been analysed in the sections above. To summarise, the skills and knowledge demonstrated by midwives and presented within the findings of this case were closely integrated and supported the provision of holistic care as one skill-set informed the other and were used iteratively by midwives to inform their decisions. Midwives used their observational and interpretational skills to acquire immediate information which informed their judgement about labour progress and women's responses to labour. Experiential knowledge was used to inform these judgements that were initially made rapidly and akin to the use of pattern-matching. In this way midwives demonstrated quick thinking which they supported through a slower, more rational method of cue acquisition and interpretation. Midwives decision-making was also informed by a less rational intuitive

⁸⁶ It is postulated that this may be similar to the findings of Chodzaza et al's (2018) study which explored the decision-making of midwives during the first-stage of labour and revealed how experienced midwives were willing to embrace the uncertainty of labour.

⁸⁷ Downe et al (2007) have referred to the concept of reflexive competence which encompasses the experts ability to make quick decisions that are not dependent on guidelines or standard protocols.

knowledge that they were unable to articulate but which prompted more rational thought and the collection of specific cues to find an explanation for this knowing. I propose that midwives expertise was demonstrated through their experience, ability to reflect and learn from their experience and acknowledgement of the requirements for flexibility within their thought processes.

Findings from this case showed that midwives worked within an environment that was congruent with their personal ethos of birth upon the AMU which appeared to foster their perceptions of autonomy when making decisions. The perception of being able to exercise autonomy in one's practice and work in a way that is congruent with one's birth philosophy may provide a protective effect against work-related stress and promote resilience (Hunter and Warren, 2014). Working within an environment or with colleagues whose birth ethos conflicts with their own is a cause of significant stress and dissonance for midwives demonstrated within the wider literature (Aune et al, 2014; Ball, 2002; Hunter, 2005; Hunter, 2004; Russell, 2007; Sheridan, 2010) and reflective of the findings of this case. Other studies have also revealed how midwives demonstrate territorial behaviours (Sosa et al, 2018) and described feeling tense and anxious when transferring women from an MU to an OU, reporting that their decisions to transfer were questioned (Bedwell et al, 2015 ;McCourt et al, 2014) and practice scrutinised (Kuliukas et al, 2017,2016; Sosa et al, 2018).

I propose that the findings from this case suggest that when working within the AMU, midwives appeared to encompass elements into their care practice that aligned with their internal sense of coherence⁸⁸, described by Antonovsky (1996) as being able to '*make sense cognitively, instrumentally and emotionally*' (Antonovsky, 1996:15). These concepts have been examined within the midwifery literature and described as promoting a more holistic perspective of childbirth and a move away from the traditional biomedical view of birth to a more holistic model (Gebriné et al, 2019; Magistretti et al, 2016; Downe, 2010). Whilst the AMU appeared to be conducive to midwives working in this way, tensions occurred following transfer to the OU. The presence of emotional discomfort and conflict has been shown to compromise decision-making causing individuals to reframe difficult

⁸⁸ Applied within Antonovsky's concept of salutogenesis (Antonovsky, 1996).

problems through coherence shifting to regulate and manage their emotional discomfort (Garfinkel et al, 2016; Carpenter et al, 2016). This is reflective of the wider literature which demonstrates the discord described by midwives when practicing within an environment that did not align with their birth ethos and may explain why midwives adapt their behaviour to fit in with the birth environment.

7.6 Summary of the case findings and contribution to the existing knowledge base

The significance of this study is the new knowledge, understanding and insights it provides into midwives decision-making during the second-stage of labour. This study is unique because it is the first published study that has used QCS to examine midwifery decision-making and the first published study to explore midwifery practice in the second-stage with the intention of explicating and understanding the knowledge, skills, information sources and other factors that are used by midwives to inform and influence their decision-making. The chosen methodology of QCS facilitated the critical analysis of practice and the use of observation and interviews enabled the issue questions to be fully explored in order to apply inductive and deductive reasoning to answer the objectives of this study. Table 22 summarises the key conclusions from this case, their contribution to the existing knowledge base and potential impact upon midwifery practice.

Table 22: Key conclusions from this case

Key Findings	Contribution to Knowledge and Practice
<p>Midwives used fast thinking and pattern-matching to make quick decisions during the second-stage.</p>	<p>The findings provide new knowledge which demonstrate how the use of pattern-matching was a skilled activity used to inform decisions during the second-stage. This supports existing midwifery literature suggesting that midwives use pattern-matching to inform their decision-making. Midwives require opportunities to reflect upon and develop the experiential knowledge that they access to make quick decisions during labour to help build their competence and confidence and incorporate flexibility into their decision-making.</p>
<p>Midwives observed and interpreted external physiological and behavioural cues which they applied to their experiential knowledge, knowledge of physiological labour processes and knowledge derived from women to inform and rationalise their decisions about labour progress and the onset of the second-stage within the AMU⁸⁹.</p>	<p>This provides new knowledge about how midwives make decisions during the second-stage and builds upon existing literature that challenges the routine use of vaginal examinations to assess labour progress. The findings are supportive of a practice culture where the use of external cues to inform decisions about labour progress is valued. Midwives require opportunities to develop these skills and consider alternative ways of assessing progress in labour rather than routine vaginal examinations. Having prolonged experience within an intrapartum area outside of the OU and the opportunity to reflect and learn from experience appeared to be important in developing confidence and competence with these skill-sets.</p>

⁸⁹ As well as information gained from clinical assessments made through palpating contractions, undertaking maternal vital signs, auscultating the fetal heart and observing liquor colour.

Key Findings	Contribution to Knowledge and Practice
<p>Judgements made by midwives were rationalised using a slower thinking that applied the principles outlined within the Hypothetico-deductive approach.</p>	<p>Builds upon existing literature which shows how midwives apply these principles to inform decision-making.</p>
<p>The observational and interpretational skills used by midwives on the AMU were integrated with and enhanced by midwives interpersonal skills.</p>	<p>This is new knowledge developed from this study which demonstrates how this skill-set informs decision-making during the second-stage. Being present with women was a key factor that enhanced these skill-sets and is supportive of the introduction of midwife-led-continuity-of care model and the Better Births agenda (section 2.6)</p>
<p>Midwives used emotional intelligence to inform their decisions to support women and incorporated the principles of containment and reciprocity into their care on the AMU.</p>	<p>This is new knowledge which demonstrates that emotional intelligence is an important component of decision-making within the second-stage and illustrates ways that midwives chose to respond to and engage women during labour to facilitate the creation of a safe space for women. This is an important concept to consider during the second-stage as women may not be able to engage in rationale decision-making in the same way that they would usually do. Midwives require opportunities to consider how they can develop and apply emotional intelligence when making decisions during the second-stage to ensure that they provide appropriate support to women.</p>
<p>The skill-sets used on the AMU did not transfer to the OU setting where the focus of care shifted onto the completion of tasks.</p>	<p>Provides new knowledge about midwives decision-making within the second-stage and supportive of the broader literature that considers midwifery practice in different care settings.</p>

Key Findings	Contribution to Knowledge and Practice
<p>Midwives perceptions of surveillance and the introduction of technology on the OU influences midwives decision-making and reduced midwives perceptions of being able to make autonomous decisions.</p>	<p>Provides new knowledge about midwives decision-making in the second-stage which is supported by the existing literature that considers the impact of surveillance and the OU environment on midwifery practice and decision-making.</p>
<p>Midwives perceived that they were able to make autonomous decisions on the AMU and appeared to encompass elements into their care practice that aligned with their internal sense of coherence⁹⁰.</p>	<p>This is new knowledge developed from this study but is supportive of the wider literature which examines how these elements are important concepts in promoting a more holistic perspective of childbirth.</p>
<p>Midwives accessed two types of experiential knowledge to inform their decision-making. A distinction was made between the use of skilled pattern-matching which midwives were able to rationalise and a form of knowledge that midwives were unable to rationalise but prompted them to use slower thinking⁹¹</p>	<p>This is new knowledge developed from this study and revealing of how midwives act rationally to justify and rationalise their thought processes when making decisions during the second-stage.</p>

⁹⁰ Described by Antonovsky (1996) as being able to make sense cognitively, instrumentally and emotionally and aligned with their holistic view of birth.

⁹¹ Adopting the principles of the Hypothetico-deductive model to justify their thought processes.

7.7 Chapter Summary

This chapter has positioned the study findings within the theoretical debates around midwifery decision-making and the wider evidence base and policy to provide an answer to the research question and objectives. The following chapter considers the strengths and limitations of the study findings and reflects on the challenges encountered during the completion of this work.

Chapter Eight – Conclusion

8.1 Introduction to Chapter

This concluding chapter considers the strengths and limitations of this study alongside an examination of the challenges faced during recruitment and the completion of this thesis. Recommendations for education, practice and research are made and a final reflective postscript provides an overall summary of this study and the value of its contribution to the wider knowledge base around midwives decision-making within the second-stage.

8.2 Study Strengths

The strengths of this study include the use of QCS which has enabled the provision of in-depth and intimate knowledge about midwives practice and decisions made during the second-stage through the presentation of detailed extracts of data within the findings to provide the 'thick description' advocated by Stake (1995) to stimulate reflection and optimise opportunities for readers to interpret the findings through naturalistic generalisation. The use of QCS has enabled the particularity of this case to be explored and a clear description provided of the skills, knowledge, information sources and other factors used by midwives to inform their decision-making during the second-stage. It has illuminated the importance of developing skills in emotional intelligence to facilitate interpersonal interactions and the provision of skilled supportive care that takes into account the emotional needs of women. Attention to issue questions has facilitated the conceptual organisation of data collection and analysis.

Further strengths of this study are the insider knowledge I was able to bring to the case as a midwife. I understood the language and terminology used within the case and used a reflexive approach by detailing my reflections, assumptions and naturally occurring conversation throughout data collection. Issues pertaining to reflexivity are discussed further in section 5.9. Care has been taken to minimise the potential for bias because of this insider knowledge which may lead to the forming of assumptions.

Steps have been incorporated throughout the study to enhance the rigour of the process and trustworthiness of the findings and are presented within section 5.8. The case is clearly defined and an explicit rationale for methodological decisions has been provided. A detailed overview of data analysis and the use of analytic memos further increase the

dependability of this study by demonstrating the cognitive processes underpinning the decisions I have made and providing an audit trail of analysis. The inclusion of observation and interview data facilitated data interpretation and increased the credibility of these findings as I have sought to clarify my assumptions and apply meaning to the data. Detailed feedback was provided by my supervisors who acted as critical outsiders at every stage of the research process to review transcripts and coding development and check that my reasoning was overt, and coherence and consistency achieved.

Consideration has been given to the transferability of this study's findings to provide opportunities for the transfer of knowledge from the researcher to reader (Lincoln and Guba, 1985). Through incorporating thick description, it is anticipated that the reader will be able to consider the applicability of the data to other clinical contexts as they reflect on the findings in relation to their clinical experience. In this way readers can reconstruct their knowledge in ways that make it more likely to be useful as new experiences merge with the old as the reader brings their conceptual frameworks to the case in order to look for commonalities (Stake, 2005). Through this I have been able to shine a light on midwives decision-making during the second-stage and how the context of care can influence their decision-making

8.3. Study Limitations

The in-depth, detailed and particular qualities of QCS which have permitted a close, holistic and intimate examination of this case whilst being regarded as strengths of QCS can also be viewed as a weakness (Tight, 2017). Both Stake (1995; 2005) and Thomas (2016) have refuted this and explained that the whole point of QCS is not to generalise from the findings as it is the case itself that is being examined without any expectation that it represents a wider population. Stake (1995) has emphasised that the researcher should instead assist the reader with making naturalistic generalisations by providing opportunity for vicarious experiences through personal accounts that describe a story, chronological presentation and personalistic description. Thomas (2016) has also suggested that such concerns about QCS are neutralised when one considers how tentative any generalisation might be in social research and suggests instead that the quality of QCS rests on the thoroughness with which its context is described, the care that is taken with analysis and the arguments deployed when making conclusions. Whilst great care and thought was taken throughout the research process, I have reflected on the following limitations of this study:

- Whilst respondent validation was incorporated within this study, only one participant chose to read and comment on my observation fieldnotes and no feedback was received from participants after they were sent interview transcripts to check that their actions and words had been sufficiently represented. Whilst this could be interpreted as confirmation that participants agreed with how their voices were represented, it may also mean that they simply had not read the transcripts. Stake (2005) has explained how transcription notes might appear confusing or meaningless to the untrained eye and recommends providing a condensed overview of the salient points to participants for member checking which, had I chosen to do this, may have improved the response rate in this study.
- Triangulation was used as data was collected from observation and interviews to increase this study's credibility and enable the case to be viewed from different perspectives. Whilst textual data was used to inform this study's discussion, my findings may have been enhanced through the collection of textual data and analysis of Trust guidelines and unit philosophies.
- Each observation began when the participant took over the woman's care in order to minimise the Hawthorne effect as it provided time for the participant to get used to my presence although I cannot say for certain whether my presence influenced participants' behaviour. Midwives are used to being observed through working with students however the difficulties that I experienced with recruitment to this study suggests that midwives are wary of external scrutiny which may have influenced their practice and decision-making.
- I was unable to obtain as many hours observation as I had planned to due to difficulties encountered with recruitment, planning observational periods, quiet periods on the AMU, one woman not reaching the second-stage by the end of the participants shift and the AMU being closed (case site A) during planned observation periods. Issues pertaining to recruitment and planning are discussed in section 8.4.
- Scheduling interviews following observation periods was difficult on two occasions and introduced the possibility of recall bias with two participants where time from the episode of care to interview may influence data accuracy. This would need to be considered in the planning should such a study be repeated. Participant 02 was interviewed on the same day as the observation and participant 01 three days after the observation period. Participants 03 and 04 were interviewed 23 and 29 days after the observation period respectively. This was because participant 03 went on

holiday following her observation and earlier interview dates were planned with participant 04 but cancelled due to her clinical workload on the day. Whereas participant 03 recalled events easily and in detail from memory, participant 04 required me to talk through the observation details recorded in the fieldnotes to enhance her recollection of events. Following this she was able to recall specific details from the observation which included interactions with members of the team, the woman's demeanour, baby's name and other specific aspects of her care.

- Whilst I consider my role as an insider a strength of this study, it may also be a limitation as my in-depth knowledge of midwifery caused me to anticipate the participant's next steps and second guess their cognitive processes. Whilst several strategies were employed to alert me to possible assumptions (see section 5.8 and 5.9), the findings remain my interpretations of the observations and interviews. I have included large amounts of data to enable the reader to judge for themselves the confirmability of my findings.
- There was scope to probe further the impact of reduced resources on midwives relationships with women and subsequent impact on decision-making.

8.4 Challenges Encountered

8.4.1 Recruitment Challenges: Case-site A

Establishing contact and permission from midwifery managers and accessing clinical meetings was challenging due to last-minute cancellations because of clinical workload. It was difficult engaging with midwives during clinical handover meetings and one senior clinical midwife appeared to negatively influence midwives response to the study.

Whereas I had previously sought permission from '*formal*' gatekeepers in the form of management and the Head of Midwifery I had not given thought to the identification of '*informal gatekeepers*' who can impact upon access to the field both '*positively* and '*negatively*' (Brewer, 2000:83). It would have been helpful to have undertaken an analysis of the various stakeholders or informal gatekeepers to facilitate the management and engagement of stakeholders during the recruitment process. It was revealed by one participant that midwives at case-site A were anxious about the study which they perceived to be another means of surveillance with possible punitive consequences. Hammersley and Atkinson (2007) have highlighted how negotiating access can generate important insights into the social organisation of the field setting and requires the intrapersonal and interpersonal skills and strategies that we use to negotiate everyday life.

In hindsight I have reflected that I should have given more thought to the sensitive issues that existed within practice at case-site A when designing my participant information sheets and before approaching midwives (Brewer, 2000). Hospital A had recently had its 'special measures' status removed by the Care Quality Commission (CQC, 2016b) due to being acquired by another Hospital B (case-site B) and the midwives had been through a period of intense scrutiny and uncertainty with many senior midwives having to reapply for their posts. A general low morale had been reported by midwives working there and the CQC (2014a:13) had highlighted concerns regarding an '*overall prevailing culture of bullying and lack of joined-up working across the multidisciplinary team*'. On reflection I acknowledge that it would have been beneficial to have invested more emotional intelligence into the recruitment process by considering how the study could be perceived by midwives when their anxieties were high.

8.4.2 Other Issues

Balancing recruitment activities and data collection with each participant's availability, clinical shift times, my full-time work as a midwife lecturer and having a young family presented challenges. The long distance between my place of work, home and case sites⁹² also meant that it wasn't feasible to be 'on standby' for when a participant was caring for a woman in labour.

8.5 Recommendations for Education, Practice and Policy

The recommendations for clinical practice, education, policy and research are set out below:

Based on the findings of this study and the wider literature within which these findings are embedded, I recommend the implementation of strategies to introduce a change in practice culture that values and is supportive of the aggregation of external cues and provides opportunities for midwives to develop their observational and interpretational skills when making decisions about labour progress. The findings of this study and wider literature suggest that being actively present with women is facilitative of the development of this skill-set and a culture shift is required on OU where midwives are able to remain

⁹² 110 miles round trip from home to case-site A and B.

with women within the birthing room and thus have opportunities to observe the physiological process of labour, receive feedback from their observational and interpretational skills and develop their interpersonal skills.

I propose that the findings of this study support the wider literature that challenges the use of vaginal examinations to demarcate labour progress and recommend that vaginal examinations are undertaken to provide further information about descent, positioning and dilatation in times of uncertainty rather than on a routine basis. Discussions at multi-professional forums about introducing a more holistic assessment of labour progress as routine practice upon OUs would help facilitate a cultural change regarding this which could also be reflected in Trust guidelines. Students also require the opportunity to gain the knowledge and skills articulated within this study through exposure to physiological labour and practice within environments such as AMU with experienced mentors. This includes undertaking a holistic assessment of women that includes behavioural changes and visualisation of physical signs including identification of the purple line, which has high sensitivity and specificity as a predictive tool⁹³ to assess labour progress during the second-stage (Masoumeh et al, 2014)⁹⁴.

The findings of this study support the provision of frequent opportunities in practice for midwives to reflect on their decision-making and consider how they apply their experiences to inform the initial quick thinking that aligns with pattern-matching. Through having opportunity to reflect upon these experiences midwives will be able to further develop the skills they use to inform their decision-making. It is recommended that Approved Education Institutes (AEIs) ensure the provision of frequent opportunities for students to reflect upon the challenges they encounter in clinical decision-making. Enabling learners to recognise when they might be 'stuck' in one mode of thinking, for example, with regards to normal birth or focusing on technology and anticipation of risk to encourage critical reflection and flexibility. The facilitation of structured sessions whereby

⁹³ Masoumeh et al (2014) found high sensitivity and specificity with its use as a predictive tool to assess labour progress with an 87.6% sensitivity, 52.4% specificity and 96.5% positive predictive value (and 22% negative predictive value) for the second-stage.

⁹⁴ The NMC Standards for Midwifery education (NMC, 2019a) included such physical signs within their draft version, although these have been removed in the most recently available edition (NMC, 2019b).

learners explore their ideology of birth and examine how this might influence their interactions with women and subsequent care and decision-making may be helpful in enabling this.

I recommend that heads of services ensure that midwives have opportunities to engage with RCS within practice to help reflect upon their clinical decision-making. Through understanding the concepts of containment and reciprocity, midwives should be encouraged to consider how these skills could be applied within the intrapartum setting to support the emotional needs of women and foster the emotional intelligence required for effective decision-making within advanced labour and the second-stage. The opportunity for midwives and students to engage with these principles through RCS may contribute to a culture of compassionate care, encouraging attentiveness and empathy and ensuring midwives use emotional intelligence to inform their decision-making enhancing inclusivity and compassion for women⁹⁵. This fits into the wider agenda of improving clinicians capacity for compassionate care through compassionate leadership and the implementation of strategies to improve the emotional wellbeing of midwives (Hunter and Warren, 2014; Commissioning Board Chief Nursing Officer and DH Chief Nursing Adviser, 2012; NHS England, 2014b).

Based on the findings of this study, practicing within an environment where practitioners can obtain immediate feedback from their actions through the use of interpersonal skills and, for example, forging reciprocal relationships with women as seen in this case, may serve as a facilitator for the development of the skilled experiential holistic knowledge that informs complex pattern-matching as it provides opportunities for students and midwives to view the consequences of their decision, thus evaluating its effectiveness. I recommend that all students and midwives gain exposure to models of care that enhance midwifery autonomy and a holistic approach to decision-making. Through having the opportunity to be present with women throughout labour on a continual basis students will have the

⁹⁵ Compassion can be understood as having four components: attending, understanding, empathising and helping (Atkins and Parker 2012), in order to cultivate compassionate relationships with women it is important we learn to pay full attention during our interactions (West et al, 2017; Goleman,1998).

opportunity to be attentive, develop their holistic knowledge of labour, and interpretation of cues to gain confidence in supporting women in labour.

AEIs should ensure opportunities to develop and build upon the development and refinement of the skills of emotional intelligence within their curricula and opportunities for their assessment in practice incorporated within practice assessment documents. A wide range of interactive strategies could be used to help develop and refine these skills that incorporate the arts, literature, role-play, simulation and storytelling to engage and provide students and midwives with opportunities to reflect upon the emotional element of their decision-making⁹⁶.

8.6 Recommendations for Research

Whilst this study explored midwives decision-making during the second-stage and emphasised the important role of emotional intelligence and the relational aspects of care, the voices of women were not explicit within the findings of this study and further research that explores the perceptions of women's involvement with decision-making during the second-stage would be valuable.

There is a need to explore further how midwives can incorporate the skills used to facilitate autonomous decision-making outside of the OU within the OU environment as the findings of this case show that whilst midwives begin with the intention of doing this, following transfer to the OU the dominant culture on OU is pervasive and influences care practice and midwives decision-making.

Given the increasingly complex population of childbearing women and implementation of technology on OU the findings of this study suggest that there is a need to review how midwifery care is delivered on OUs to enable midwives to remain present with women rather than demonstrate the absent presence outlined within the findings of this study and wider literature. Consideration could be given to whether technical support for midwives is required to enable them to engage in the relational aspects of decision-making.

⁹⁶ The consideration of including role play, literature, poetry, theatre and drama within a supportive environment has already been suggested (Begley, 2006; Hunter, 2009) and has proved successful with nursing students (Begley et al, 2010) as a means for developing emotional intelligence.

8.7 Concluding Comments

This thesis is the culmination of a long journey and significant accumulation of work that has sought to explore midwifery practice during the second-stage to understand how midwives make decisions at this time. The use of QCS methodology has been instrumental in enabling a light to be shone on an area of practice that very little is known about, but which is hugely important as the consequences are far-reaching and occur at a pivotal and intimate moment in a woman's life. Through the use of QCS, careful construction of issue questions, collection of observational and interview data and thematic analysis I have presented this study's findings. I have applied inductive analysis to discuss the findings and deductive thinking to embed the findings within the wider literature in order to answer the research question and advance areas of thinking around midwives decision-making within the second-stage.

The findings of this study have demonstrated how midwives applied and integrated their observational, interpretational and interpersonal skills in a way that was holistic and responsive to women to engage in decision-making during the second-stage upon the AMU. It is proposed that within the AMU midwives used emotional intelligence within their decision-making and the concepts of containment and reciprocity were employed as clinical skills to facilitate decision-making and empower women at a time they were at their most vulnerable and not always able to engage in rational decision-making. Being able to practice within an environment that aligned with midwives ethos of care and enhanced midwives perceptions of autonomy appeared to be conducive to this and the AMU appeared to be facilitative of this skill-set.

The historical and social-political context for this study presented in chapter 2 is revealing of the enduring challenges midwives have faced in safeguarding their knowledge and skills as autonomous practitioners. The findings of the literature review set out within this thesis (chapter 3) shows overwhelmingly the impact that perceptions of risk, the medical model of care and fear of litigation have on midwifery decision-making and the influence of institutional factors was evident within the findings of this study when care was transferred from the AMU to the OU. Whilst there are challenges in the transfer of the skills outlined above to the OU environment, the broader strategy for maternity care outlined within the Better Births agenda (NHS England, 2016; 2017a) and Lancet Series in Midwifery (Renfrew et al, 2014; Homer et al, 2014) is supportive of the development of holistic models of working which place emphasis on the relational elements of care. The

Framework for QMNC (Renfrew et al, 2014) highlights the importance of implementing models of care that optimise women's biological processes and combining clinical knowledge and skills with interpersonal and cultural competencies within all birth settings. The findings of this study contribute to this existing knowledge-base, whilst providing new knowledge in relation to midwives decision-making in the second-stage.

Appendix A

A.1 Summary of the Mechanism of Birth

As the uterine contractions become more expulsive, the presenting part of the fetus (usually the fetal occiput) progresses forwards until it meets the resistance of the pelvic floor muscles only to recede again slightly following the contraction. This progression has been likened to taking two steps forward and one-step back (Coad and Dunstall, 2011) and the presenting part will begin advancing forward again with the next contraction. Once the presenting part meets the resistance of the maternal pelvic floor, it will rotate forwards (anterior internal rotation) to enable it to come under the maternal symphysis pubis and align itself with the widest diameters of the pelvic outlet. Crowning of the fetal head occurs when the widest part of the fetal head distends the maternal vulva and this is often associated with intense maternal pain due to the stretching of the perineum.

The fetal head then pivots under the symphysis pubis and is born by extension. Once the head is born it moves to realign itself with the internal position of the fetal shoulders, a manoeuvre known as restitution (Coad and Dunstall, 2011). Internally, the fetal shoulders descend further within the pelvis to contact the pelvic floor. The resistance of the pelvic floor enables the fetal shoulders to rotate anteriorly so that they align with the widest anterior posterior position of the maternal pelvic outlet. This results in the external rotation of the fetal head in conjunction with the shoulders. The anterior shoulder then escapes under the symphysis pubis and the baby's body is born by lateral flexion (Stables and Rankin, 2010).

A.2 Preliminary review of the literature around care practices in the second-stage of labour

A preliminary literature review was undertaken in the early developmental stage of this study. This was to review the literature around second-stage care practices to inform my thinking about the second-stage and the development of midwifery-led-care guidelines in practice.

A.2.1 Length of the Second-Stage

Both National and local guidance emphasise the need to define boundaries regarding optimal length of the second-stage to distinguish between normal progress and abnormal progress in labour (NICE, 2014; NHS Trust Clinical Guideline, 2015). The National Collaborating Centre for Women's and Child Health (NCCWCH) pooled the findings from several large descriptive studies to inform their recommendations for the length of the second-stage. These suggest that assuming risk assessment shows no deviation from normal parameters, the range of upper limits for the normal duration of the active second-stage are about 0.5–2.5 hours for nulliparous women without epidural, and 1–3 hours for nulliparous women with an epidural. For multiparous women the range of upper limits for the normal duration of the active second-stage are up to about one hour for women without epidural, and two hours for women with epidural (NCCWCH, 2014: 587). Caution has been encouraged when interpreting these findings due to the study data being potentially flawed as it was analysed using Standard Deviations which assume a normal distribution which is not the case when considering the duration of labour (NCCWCH, 2014: 587).

A number of large studies have examined the impact of prolonged second-stage upon maternal and neonatal outcomes (Saunders et al, 1992; Menticoglou et al, 1995; Kuo et al, 1996; Janni et al, 2002; Myles and Santolaya, 2003; Cheng et al, 2004; Cheng et al, 2007; Rouse et al, 2009; Allen et al, 2009). These are mainly retrospective cohort studies and consider data obtained from records dating from 1976 – 2009 and their findings are summarised within tables 23 and 24.

Table 23: Summary of the Significant Associations between Prolonged Second-Stage and Maternal Outcomes

Maternal Outcome	Supporting Research
Postpartum Haemorrhage (PPH)	Saunders et al, 1992; Janni et al, 2002; Myles and Santolaya, 2003; Cheng et al, 2004; Allen et al, 2009; Rouse et al, 2009
Infection	Saunders et al, 1992; Cheng et al, 2004; Myles and Santolaya, 2003; Janni et al, 2002; Allen et al, 2009; Rouse et al, 2009
Third or Fourth-Degree Perineal Lacerations	Cheng et al, 2004; Myles and Santolaya, 2003; Rouse et al, 2009

Table 24: Summary of the Significant Associations between Prolonged Second-Stage and Fetal Outcomes

Neonatal outcomes	Supporting Research
NO Significant Association between the following:	
5 minute Apgar scores, Umbilical Artery pH and Base Deficit	Kuo et al, 1996; Janni et al, 2002; Myles and Santolaya, 2003; Cheng et al, 2004, Rouse et al, 2009
Neonatal seizures	Menticoglou et al, 1995, Rouse et al, 2009
Ventilatory Support and Death	Menticoglou et al, 1995; Kuo et al, 1996, Myles and Santolaya, 2003, Rouse et al, 2009
Significant Association between the following after three hour second-stage:	
1 minute Apgar score	Janni et al, 2002
5 minute Apgar score less than 7, meconium stained amniotic fluid, admission to intensive care nursery, composite neonatal morbidity, and longer neonatal stay in the hospital.	Le Ray et al, 2009; Cheng et al, 2007
Low 5-minute Apgar score, birth depression, admission to the neonatal intensive care unit	Allen et al, 2009

In the second largest study conducted to date Saunders et al (1992) undertook a retrospective analysis of a regional obstetric database consisting of 17 maternity units in the North West Thames Health Region (n=25069) on data collected in 1988. The main outcome measures were maternal postpartum haemorrhage (PPH), postpartum infection, and neonatal morbidity, as judged by low Apgar scores or admission to the special care baby unit (SCBU). Logistic regression analysis showed evidence of an association between length of second-stage and a higher rate of PPH but there was no evidence of an association with postpartum infection. Duration of the second stage was not significantly

associated with neonatal outcomes measured by low Apgar score and admission to SCBU after adjustment for other factors (Saunders et al, 1992). The authors concluded that the duration of the second-stage has a positive independent association with early maternal morbidity however there was no relation noted between length of the second-stage and the defined neonatal outcomes. The authors concluded that with current management approaches and where there is no evidence of fetal compromise, second-stage labours of up to three hours duration did not seem to carry undue risk to the fetus (Saunders et al, 1992).

This is supported by two cross-sectional studies undertaken by Kuo et al (1996) in Taiwan (n=1915) and Menticoglou et al, (1995) in Canada (n=6041) who examined the duration of the second-stage and perinatal morbidity and mortality. The results showed no evidence of an association between a prolonged second-stage and neonatal and maternal intrapartum outcomes. A limitation of these studies and others that have examined the effect of the second-stage is their failure to control for any confounding factors. Myles and Santolaya (2003) undertook a United States (US) based large cross-sectional study (n = 7818) to compare prolonged second-stage (121+ minutes) with normal duration (1–120 minutes) on defined outcomes using data collected from 1996 to 1999. Two levels of prolonged second stage (121–240 minutes versus 241+ minutes) were compared and an association between longer second-stage (more than 120 minutes) and perineal trauma, episiotomy, chorioamnionitis, PPH, and instrumental birth was found. The highest rates of episiotomy, operative vaginal deliveries and perineal trauma were present in second-stages lasting 241+ minutes. The neonatal morbidity rates were similar for the three groups and no association with neonatal morbidity found with increasing duration of the second-stage. A significant association between prolonged labour (lasting more than two hours) and PPH, severe perineal trauma and postpartum fever was also found in a German cross-sectional study (n = 1200) undertaken by Janni et al (2002). An association between prolonged second-stage with a low Apgar score at 1 minute found although the analyses did not control for confounding factors.

Cheng et al (2004) undertook a large retrospective cross-sectional US based study (n=15,759) to investigate prolonged duration of the second-stage. Data collected from 1976 to 2001 was stratified into hourly intervals up to 240+ minutes. Logistic regression analysis were used to control for confounding variables and the authors found that there was a significant association between prolonged second-stage and chorioamnionitis,

third- or fourth-degree lacerations and instrumental vaginal birth. Prolonged second-stage was associated with a neonatal 5-minute Apgar score of <7 although it could be argued that this was a less reliable measurement as Apgar score measurement is subjective and may be subject to observer bias. The authors concluded that although second stage labours of up to three hours do not seem to carry undue risk to the fetus, women who remain in the second-stage for this length of time may suffer a higher rate of early morbidity (PPH and infection), though this effect is less marked in women who deliver spontaneously.

A retrospective cohort study undertaken by Cheng et al (2007) examined perinatal outcomes associated with the second stage in multiparous women and analysed data collected between 1991 and 2001 (n=). Second-stage duration was stratified into hourly intervals and perinatal outcomes analysed using multivariable logistic regression models. Women with a second-stage more than 3 hours had higher risks of operative vaginal deliveries, caesarean deliveries and maternal morbidity including third- or fourth-degree perineal lacerations, PPH and chorioamnionitis. A significant association was also found for prolonged second-stage above 3 hours and a neonatal 5-minute Apgar score less than 7, meconium stained amniotic fluid, admission to SCBU, composite neonatal morbidity and longer neonatal stay in the hospital. Cheng et al (2007) concluded that multiparous women with a second stage of 3 hours or greater are at increased risks for operative deliveries, peripartum morbidity, and undesirable neonatal outcomes and that their findings must be considered in the management of multiparous women with a second stage of labour beyond three hours. These findings are reflected in current guidance that recommends earlier intervention for multiparous women who do not meet expected progress requirements in the second-stage (NICE, 2014; NHS Trust Clinical Guideline, 2015).

Secondary analysis of data obtained from a large Randomised Controlled Trial (RCT) (Rouse et al, 2009) (n= 4126) found duration of the second-stage was associated with several adverse maternal outcomes in unadjusted analysis including chorioamnionitis, endometritis, third or fourth degree perineal laceration, uterine atony, and blood transfusion. However following adjustment for mode of delivery, the association with endometritis and blood transfusion was no longer significant and there was no significant association in neonatal morbidity. The authors concluded that extending the duration of the second stage of labour will enable some women to achieve vaginal delivery

successfully (Rouse et al, 2009). Consideration to the possible consequences of having a prolonged second-stage must be given to determine whether achieving vaginal birth can be justified (for example the higher rates of significant perineal trauma, infectious morbidity, and PPH associated with prolonged second-stage).

In the largest study to date, Allen et al (2009) published their findings from their retrospective population-based cohort study (n= 121,517) on data collected between 1988 and 2006. Individual maternal, perinatal, and composite outcomes were evaluated with increasing duration of the second stage. Logistic regression was used to estimate adjusted odds ratios and 95% confidence intervals for all outcomes and to account for confounding variables including maternal age, prelabour rupture of membranes, augmentation of labour, antibiotics in labour, regional analgesia, gestational age, birth weight, and year of birth. The authors found that increased duration of the second-stage (in particular, duration longer than three hours) in nulliparous women and longer than two hours in multiparous women increased the risk of both maternal and perinatal adverse outcomes. Within their study women with a prolonged second-stage were at increased risk for severe perineal lacerations, PPH, puerperal febrile morbidity, and composite maternal morbidity, while their infants were at increased risk for low five minute Apgar score, birth depression, admission to the neonatal intensive care unit, and composite perinatal morbidity. The method of delivery modified the effect of duration of second-stage among nulliparous women only.

Findings from these studies vary although there appears to be a significant association between increasing length of the second-stage and an increasing risk of maternal and neonatal adverse outcomes such as PPH, chorioamnionitis, severe perineal laceration and reduced Apgar score at 5 minutes. Whilst strengths of these studies include the large sample sizes, the statistical power to detect an increased risk of several complications in association with the duration of the second stage was low (Rouse et al, 2009). Further limitations include the lack of control for possible confounding factors (Kuo et al, 1996; Menticoglou et al, 1995; Janni et al, 2002; Myles and Santolaya, 2003). The retrospective design of many studies also increased the possibility of recall bias or misclassification bias (Saunders et al, 1992; Menticoglou et al, 1995; Janni et al, 2002; Myles and Santolaya, 2003; Cheng et al, 2004; Cheng et al, 2007; Allen et al, 2009).

Lack of standardisation regarding second-stage management limits the value of any causal implications that the data might have because the complications observed in association with second-stage duration may not be due per se to duration, or at least duration alone. There was a lack of standardisation regarding timings and when the second-stage commenced and if latent and active second-stage was identified. This is particularly pertinent for those women who received epidurals (Rouse et al, 2009) as providing time for the presenting part to descend prior to pushing may improve labour outcomes (Brancato et al, 2008)). The type of pushing employed by women and instructions provided by caregivers during the second stage is not explicit within the studies, and the wide time intervals for data collection mean that midwifery and obstetric practices may change during data collection thus affecting the validity of the findings.

Rouse et al, (2009) have emphasised the importance of considering the possible consequences to having a prolonged second-stage in an otherwise uncomplicated labour on an individual basis. The adverse sequelae attributed to a prolonged second-stage may be due to other causative factors, rather than the absolute duration of the second-stage itself. Thus midwives must balance the possible risks of prolonged second-stage against the risk of intervening too soon with instrumental delivery and ensure decisions are made in partnership with women where possible.

A.2.2 Spontaneous versus Directive Pushing in the Second-Stage

During the second-stage, the fetal presentation descends the birth canal causing compression in both the maternal bladder and rectum (Lemos et al, 2017). Stretch or dilation of the cervix and vagina are strong stimuli for oxytocin secretion, facilitated by neural pathways called the Ferguson reflex (Feher, 2017) which stimulate and strengthen uterine contractions. Towards the end of the second-stage, women without regional anaesthesia experience a strong urge to bear down, or 'push'. This combination of involuntary uterine contractions and maternal expulsive effort, through the abdominal and respiratory muscles, will help birth the fetus (Downe, 2009). Traditionally midwives have provided women verbal direction regarding how to push during the second-stage (Walsh, 2007) and the Valsalva's manoeuvre is commonly encouraged within clinical practice (Downe, 2009). This comprises of forcible exhalation against a closed glottis, which increases pressure within the thoracic cavity and impedes venous return of blood to the heart (Gorlin et al, 1957). It describes the process of pushing whilst breath holding (Downe, 2009) and is usually performed under direction from a midwife and/or obstetrician

and because of this is often referred to as directive pushing. The origins of this manoeuvre has been traced to the obstetrician Mauriceau's textbook of 1678 and its use, when combined with a semi recumbent bed posture, has been challenged and debated for decades (Caldeyro-Barcia et al, 1981; Petersen and Besuner, 1997; Perez-Botella and Downe, 2006; Cooke, 2010).

Directive pushing or the Valsalva manoeuvre contrasts with spontaneous pushing whereby women adopt a self-directed approach in their bearing-down efforts (Downe, 2009). Typically, this involves pushing with an open glottis and vocalisation or using an intermittent exhalation technique (Prins et al, 2011). It has been suggested that when pushing spontaneously, women do not take a deep breath and start expulsive effort with the commencement of the contraction (as with directive pushing), but instead use both open and closed glottis pushing (Thomson, 2006). This means that spontaneous pushing begins from a resting respiratory volume which does not increase intrathoracic pressure resulting in the subsequent changes to both respiratory and circulatory mechanisms seen with the Valsalva manoeuvre (Thomson, 1993).

The use of Valsalva manoeuvre has been associated with suboptimal fetal heart rate changes (Thomson 1993). These are attributed to the physiological responses described above as the fetus experiences a decrease in oxygen saturation that is not seen with spontaneous non-directive pushing (Simpson and James, 2005). Sustained use of the Valsalva manoeuvre may lead to altered maternal and fetal dynamics (Hanson, 2009) such as reduced blood pressure and blood flow through the placenta and abnormal fetal blood gases (Caldeyro-Barcia et al, 1981). In contemporary practice, directed pushing is commonplace, particularly within the OU setting and for women with epidurals whose physiological response to the descent and impending birth of the fetus has been impaired.

Prins et al (2011) conducted a systematic review and meta-analysis of RCTs to evaluate the benefits and harms associated with spontaneous and Valsalva pushing in the second-stage among women with uncomplicated pregnancies. The authors hypothesised that any adverse effects of Valsalva pushing would be demonstrated by increased rates of operative or instrumental deliveries for non-reassuring fetal heart rate. The primary prespecified outcome was operative or instrumental delivery. Other outcomes related to the mother included: length of labour, caesarean section, episiotomy, perineal and vaginal

trauma, PPH, bladder function, and maternal satisfaction. Infant outcomes included low Apgar score <7 after 5 minutes, umbilical arterial pH <7.2, need for intubation, admission to neonatal intensive care unit, serious neonatal morbidity or perinatal death not related to major congenital abnormalities. Three randomised controlled studies (n= 425 primiparous women) met the inclusion criteria. No statistical difference was identified in the number of instrumental or operative deliveries (n= 425), perineal repair or PPH. Length of labour was significantly shorter in women who used the Valsalva pushing technique (n= 425) with a significant reduction of 18.59 minutes in duration of the second-stage found in women who used the Valsalva pushing technique. Urodynamic factors measured three months postpartum were negatively affected by Valsalva pushing and measures of first urge to void and bladder capacity were decreased (n=128) suggesting that this technique may have harmful effects on pelvic-floor function. All other neonatal or maternal outcomes showed no significant difference.

Prins et al (2011) emphasised the uncertainties regarding the clinical relevance of a shorter second-stage because significant differences were not found in operative or instrumental deliveries or the fetal condition. The use of meta-analysis also has limitations that may affect the external validity of the study. Different parameters were used to measure the neonatal condition preventing the comparison of neonatal and maternal outcomes and the studies were too small (n = 425) to report on the important outcomes such as adverse neonatal outcomes in a low-risk population. The population in the review comprised of mainly Hispanic and Chinese women and so had limited generalisability to wider populations. Blinding of the intervention was not possible leading to a degree of measurement bias for some of the subjective outcome variables like Apgar score, duration of the second-stage and mean estimated blood loss. The authors also highlighted the variation that might exist within the pushing instructions that women received and variation in compliance to the assigned pushing method existed. The onset of the second-stage was defined differently between the studies (Prins et al, 2011), and there was a lack of information about birthing position in two studies which may have affected the validity of the findings. The authors concluded that their review findings did not support the routine use of Valsalva pushing in the second-stage for women who deliver without epidural analgesia (Prins et al, 2011)

Lemos et al, (2017) undertook a Cochrane review to evaluate the benefits and possible disadvantages of spontaneous and directed maternal pushing and breathing during the

second-stage on maternal and fetal outcomes. Twenty-one studies (n= 884 women) comparing spontaneous versus directed pushing, with or without epidural analgesia were included within the review. The results are shown in table 25.

Table 25: Advantages and Disadvantages on Maternal Pushing during the Second-Stage (Lemos et al, 2017)

Maternal outcomes: Directed versus spontaneous pushing coaching techniques	
Duration of second-stage	No clear differences (mean difference (MD) 10.26 minutes; 95% confidence interval (CI) -1.12 to 21.64 minutes, , n= 667)
Severe perineal lacerations	No clear differences (risk ratio (RR) 0.87; 95% CI 0.45 to 1.66, n= 320)
Episiotomy	No clear differences (average RR 1.05; 95% CI 0.60 to 1.85, n= 420)
Duration of pushing	No clear differences (MD -9.76 minutes, 95% CI -19.54 to 0.02; n= 169 women)
Rate of normal birth	No clear differences (RR 1.01, 95% CI 0.97 to 1.05 n= 688)
Neonatal outcomes: Directed versus spontaneous pushing coaching techniques	
Primary neonatal outcomes	No clear differences (RR 0.35; 95% CI 0.01 to 8.43, n= 320)
Admissions to SCBU	No clear differences (RR 1.08; 95% CI 0.30 to 3.79, n= 393)
No data were available on hypoxic ischaemic encephalopathy	

The authors concluded that no clear evidence was available to state whether spontaneous or directed pushing coaching methods were best and recommended that women should be encouraged to push and bear down according to their comfort and preference until further evidence became available (Lemos et al, 2017). The clinical relevance of these findings is uncertain, as samples were small, and blinding was not possible leading to

potential measurement bias for subjective outcomes. Variance was also likely in terms of differences in the pushing instructions that women received and women's compliance to the assigned pushing method. Lack of standardisation regarding second-stage management also limits the value of any causal implications that the data might have. Possible confounding variables such as birthing position and support in labour have been shown to have significant benefits for women and infants (Hodnett et al, 2011; Gupta et al, 2017), and adjustments were not made for these. The majority of included trials used data that was not normally distributed, contributing further to possibly unreliable findings (NCCWCH, 2014a).

National and professional guidance recommends that women are guided by their own urge to push during the second-stage (NCCWCH, 2014a; RCM, 2012b). There is limited evidence pertaining to women's experiences of bearing down in the second-stage although the role of the midwife has an important influence on women's confidence to follow their physiological urges to push (Anderson, 2010). Physiological processes supporting spontaneous pushing include descent and position of the presenting fetal part to evoke the Fergusons reflex (Lemos et al, 2017), which enhances maternal spontaneous pushing (Roberts, 2002). This reflex may be hindered in women with epidural anaesthesia and contribute to the increase in instrumental births associated with epidural anaesthesia (Anim-Somuah et al, 2011). Delaying pushing to enable descent of the presenting part onto the perineum is associated with an increase in spontaneous birth and reduction in instrumental birth in women with epidural analgesia (Brancato et al, 2008). Midwives need to assess the clinical situation on an individual basis and use their knowledge and expertise to support the needs of the woman at this time, encouraging women to follow their physiological urges where appropriate.

A.2.3 Maternal Position during the Second Stage

Maternal positioning in labour has been the subject of discussion for some time. Professional and consumer groups have campaigned to enable women to adopt different positions during labour where possible (Newburn and Singh, 2003; RCM, 2010). Upright and mobile positions enhance the physiological process of labour by facilitating the descent of the fetal head into the maternal pelvis through gravity thereby enabling the even application of the fetal head to the cervix and the stimulation of the Fergusons reflex (Coad and Dunstall, 2011). The resultant increase in oxytocin augments uterine

contractions as described previously to facilitate the progressive effacement and dilatation of the cervix and completion of the first-stage of labour (Caldeyro-Barcia 1981).

Pauline Scott and Jean Sutton (Scott and Sutton, 1996) developed the theory of 'optimal fetal positioning' to advise women about the different positions they could adopt to encourage their fetus into an anterior position for birth. An occipito-anterior position (OA) means that the fetal occiput is presenting anteriorly in the maternal pelvis. This encourages flexion of the fetal head and enables application of the smallest possible diameter (9.5cm) of the fetal head to the maternal cervix. Whilst there is limited evidence to support 'optimal fetal positioning' per se; upright positions during birth have been shown to reduce the risk of aortocaval compression and improve fetal cord blood gases whilst increasing the diameters of the pelvis through which the fetus must pass (Russell 1982; Gupta 1991). More recently, studies have examined the association between maternal sleeping position and adverse fetal outcomes (Heazell et al, 2017). Studies have demonstrated a significant association between maternal position and stillbirth and concluded that maternal position influences fetal heart rate variability, which reduces in maternal supine and semi-recumbent positions.

The semi-recumbent position gained popularity following the introduction of obstetric forceps as it provided easy access for medical-technical intervention (Lawrence et al, 2013). The predominance of beds within OUs encourages the adoption of this position (Thies-Lagergren et al, 2012) and midwives are influential in the birthing positions women choose to give birth in (de Jonge et al, 2008). Gupta et al (2017) undertook a Cochrane study (n=9015) to assess the possible benefits and risks of the use of different birth positions during the second-stage without epidural anaesthesia, on maternal, fetal, neonatal and caregiver outcomes. The findings are shown in table 26.

Table 26: Outcomes Associated with Women giving Birth in an Upright Position compared with Supine Position (Gupta et al, 2017)

Outcomes	Findings
Length of time women were pushing	This was reduced by around six minutes (MD -6.16 minutes, 95% CI -9.74 to -2.59 minutes; 19 trials; 5811 women; P = 0.0007; random-effects; I ² = 91%; <i>very low-quality evidence</i>)
Mode of birth	Fewer women had an assisted delivery, for example with forceps (RR 0.75, 95% CI 0.66 to 0.86; 21 trials; 6481 women; <i>moderate-quality evidence</i>) The number of women having a caesarean section did not differ (RR 1.22, 95% CI 0.81 to 1.81; 16 trials; 5439 women; <i>low-quality evidence</i>).
Perineal Trauma	Fewer women had an episiotomy (average RR 0.75, 95% CI 0.61 to 0.92; 17 trials; 6148 women; random-effects; I ² = 88%) although there was a tendency for more women to have second degree perineal tears (RR 1.20, 95% CI 1.00 to 1.44; 18 trials; 6715 women; I ² = 43%; <i>low-quality evidence</i>). There was no difference in number of women with serious perineal tears (RR 0.72, 95% CI 0.32 to 1.65; 6 trials; 1840 women; <i>very low-quality evidence</i>).
Blood loss	Women were more likely to have a blood loss of 500 mL or more (RR 1.48, 95% CI 1.10 to 1.98; 15 trials; 5615 women; I ² = 33%; <i>moderate-quality evidence</i>) in the upright position but this may be associated with more accurate ways of measuring the blood loss
Neonatal outcomes	Fewer babies had problems with fast or irregular heartbeats that indicate distress (RR 0.46, 95% CI 0.22 to 0.93; 2 trials; 617 women) when women gave birth in an upright position although the number of admissions to the neonatal unit was no different (RR 0.79, 95% CI 0.51 to 1.21; 4 trials; 2565 infants; <i>low-quality evidence</i>).

Gupta et al (2017) have advised caution when interpreting their results due to the varying methodological qualities of the included trials within their review. When trials with a high risk of bias were excluded using sensitivity analysis, the findings remained unchanged except for there was no longer a clear difference in duration of second stage of labour (MD -4.34, 95% CI -9.00 to 0.32; 21 trials; 2499 women; $I^2 = 85\%$) (Gupta et al, 2017:2). There was no information in the included trials about compliance with allocation, and women may have changed positions throughout the second-stage. The authors concluded that overall risk of bias in the included trials was variable as blinding of participants, practitioners and outcome assessors was either not performed or unclear in all trials (Gupta et al, 2017).

The increased blood loss found in upright positions may be associated with more accurate ways of measuring blood loss (Gupta et al, 2017) and the clinical significance of this is uncertain, and may be attributed to additional interventions such as the use of oxytocin for augmentation (Thies-Lagergren et al, 2012). Gupta et al (2017:26) have also suggested a risk of publication bias for blood loss due to funnel plot asymmetry. The importance of using objective laboratory measurements when examining the difference in blood loss rather than observation which is subject to differences in interpretation and as such a possible source of bias should be considered (De Jong et al, 2007) when comparing blood loss in labour.

National guidance recommends that women should be encouraged to adopt upright positions during labour and birth and discouraged from lying supine or semi-supine (NICE, 2014). The Care Quality Commission (CQC) survey of women's views (CQC, 2015b) revealed that fewer women gave birth in a bed in 2015 than in 2007. Despite this, the most common position for women to be in when they gave birth was lying down with their legs in lithotomy position (35%), which is a 3% increase from 2013. This may be due to the slight increase in instrumental birth recorded within the survey that would normally require this position (15%, compared with 13% of all births in 2013/14). When results were considered for those women who had a spontaneous birth, fewer women reported giving birth lying down, or lying supported by pillows (29%, down from 30% in 2013 and 38% in 2010). However, an increasing trend in women having a spontaneous birth in lithotomy position was observed (increase to 22% from 19% in 2013 and 17% in 2010). Lithotomy position is used for women requiring an instrumental birth and can expose women to a number of potential complications including perineal laceration involving the anal sphincter

(Albers et al, 1996; Gottvall et al, 2007; Hastings-Tolsma et al, 2007) whilst creating a sense of vulnerability in the woman (Seehusen et al, 2006). This trend is concerning although may be due to women giving birth in lithotomy after preparations were made for women to have an instrumental birth that were then not required (CQC, 2015b).

An anecdotal increasing trend in the use of the lithotomy position has been noted in practice as students have reported that women are commonly encouraged to adopt the lithotomy to facilitate normal birth. This is similar to findings from Bayes and White (2011) who undertook a retrospective case note audit of low-risk women birthing spontaneously at term in the lithotomy position in one specified month (n=31). Following review of the case notes the authors found that 18 provided a clear rationale for moving women into lithotomy as a preparatory step towards instrumental birth, although spontaneous birth occurred in the interim period. In 12 cases, no rationale for moving women into the lithotomy position for birth was documented and the authors speculated that the lithotomy position was encouraged by midwives in a 'well-meaning' attempt to 'beat the clock' (Bayes and White, 2011: 287) to optimise women's chances of having a normal birth in an environment where time constraints are imposed on labour. Such practices put women at a risk of harm despite the well-meaning intentions of the midwives and there is a lack of evidence about how midwives manage the second-stage to facilitate normal birth.

Midwives need to work in partnership with women to ensure that positioning can be personalised to women's needs, comfort, and preferences while considering the clinical circumstances at the time (Nieuwenhuijze et al, 2014; NICE 2014). Midwives are influential in determining the positions that women adopt during labour (de Jonge et al, 2008) and a lack of evidence exists that considers how midwives might manage the second-stage and the factors that might influence their practice and the decisions that they make at this time (Bayes and White, 2011).

A.2.4 Perineal Care During the Second-Stage

About 85% of women in the UK sustain some degree of perineal trauma during spontaneous or instrumental vaginal birth (Kettle and Tohill, 2008). Such trauma is associated with significant short and long term morbidity for women (Albers et al, 2005; Aasheim et al, 2017) and can impact their physical, psychological and social wellbeing in both the immediate postnatal and long-term period (Kettle and Tohill, 2008; Bick et al,

2010). The incidence of perineal trauma varies markedly between published studies (Smith et al, 2013) and occurrence tends to be higher within hospital settings when compared with community settings (Lindgren et al, 2008; Smith et al, 2013). Associated risk factors for perineal trauma include length of the second-stage, mode of delivery, fetal size and position, increasing maternal age (Smith et al, 2013; Kettle and Tohill, 2008) as well as the individual practices and interventions performed by clinicians during the second-stage (Ott et al, 2015).

Smith et al (2013) undertook a large prospective study (n= 2754) to estimate the range of perineal trauma sustained by women with a planned singleton vaginal delivery in community and hospital settings. Additionally, the authors aimed to estimate the impact of possible risk factors for spontaneous perineal trauma including obstetric anal sphincter injuries (OASIS). Data on maternal and obstetric characteristics were analysed using univariable and multivariable logistic regression. An overview of the results is presented in table 27.

Table 27: Overview of Risk Factors for Perineal Tears and OASIS (Smith et al, 2013)

Factors associated specifically with OASIS	Factors associated with spontaneous perineal trauma
Forceps (OR 4.43; 95% CI: 2.02–9.71), ,	Hospital delivery (OR 1.48; 95% CI: 1.01–2.17);
Longer duration of second-stage (OR 1.49; 95% CI: 1.13–1.98)	Forceps delivery (OR 2.61; 95% CI: 1.22–5.56)
Heavier birthweight (OR 1.001; 95% CI: 1.001–1.001)	Longer duration of second stage labour (OR 1.45; 95% CI: 1.28–1.63);
	Heavier birthweight (OR 1.001; 95% CI: 1.000–1.001).
Factors associated with reduced incidence of OASIS	Factors associated with reduced incidence of spontaneous perineal trauma
Multiparity (OR 0.52 95% CI: 0.30-0.90)	Multiparity (OR 0.42 95% CI: 0.32-0.56)

The birth environment appeared to be a risk factor for perineal trauma, a finding supported by earlier studies (Lindgren et al, 2008; Hodnett et al, 2010; Brocklehurst et al, 2011). Women giving birth in hospitals are at increased risk of perineal trauma when compared with women giving birth in community settings. Smith et al (2013) have suggested that the model of midwifery-led care provided in MLUs may reduce perineal trauma, a finding supported by other studies (Hattem et al, 2008; Hodnett et al, 2011). A more recent Cochrane review by Sandall et al (2016) found no difference in perineal lacerations requiring suturing or intact perineums in women allocated to midwifery-led continuity of care models or other models of care during pregnancy and birth. However an increase in episiotomy (RR 0.84, 95% CI 0.77 to 0.92; n = 17,674; studies = 14) was found in non-midwifery-led continuity of care models (Sandall et al, 2016).

Maternal positioning at birth and its association with perineal tearing has been investigated (Shorten et al, 2002; Gottvall et al, 2007; Meyvis et al, 2012). Within their observational cohort study (n=12782) Gottvall et al (2007) examined the role of birth position in the occurrence of OASIS. Logistic regression analyses was applied to their findings which showed that prolonged second-stage of more than one hour (OR 1.52, 95% CI 1.11–2.10) and infant birthweight more than four kilogram (OR 2.12, 95% CI 1.64–2.72) increased the risk of OASIS whilst multiparity reduced the occurrence of OASIS, thus lending some support to the findings of Smith et al (2013). The authors also found that the highest proportion of OASIS were found in women who gave birth in the lithotomy (OR 2.02, 95% CI 1.58–2.59) and squatting positions (OR 2.05, 95% CI 1.09–3.82). Adopting the lateral position for birth has also been associated with a reduced incidence of perineal trauma (Shorten et al, 2002; Meyvis et al, 2012) although Smith et al's (2013) study did not support these findings.

Whether midwives should apply a 'hands on' or 'hands poised' approach towards the management of the maternal perineum and advancing fetal head during the second-stage has generated discussion within the literature (McCandlish et al, 1998; Mayerhofer 2002; de Souza Caroci da Costa and Gonzalez Riesco, 2006; Foroughipour 2011; Petronik and Marshall, 2015). McCandlish et al (1998) have described the 'hands on' approach as the midwife putting pressure on the baby's head during birth to slow the birth down. Wang et al (2015) have suggested that the midwife may place their hands on the maternal perineum and/or advancing head as it is crowning to 'flex' the head and support the perineum (Wang et al, 2015: 194). Such measures are thought to protect the

perineum by preventing extension of the fetal head until crowning (Myrfield et al, 1997; Mayerhofer 2002). The 'hands poised' or 'hands off' approach means that the midwife does not routinely place her hands on the fetal head or maternal perineum during crowning, but instead watches closely and applies them only if deemed necessary (Petronik and Marshall, 2015). This allows the baby's shoulders to be born spontaneously (McCandlish et al, 1998).

Within practice, midwives approaches may vary and be influenced by numerous factors (East et al, 2015) although it is unclear what informs their decision-making around this issue. A UK postal survey (n=1000) was conducted to estimate the number of midwives practising either "hands on" or "hands off" the perineum (Trochez et al, 2011). Six hundred and seven questionnaires were returned and revealed that nearly half of midwives (n=299) completing the survey preferred the 'hands off' method (49.3%, 95% CI 45.2-53.3%) which was particularly popular amongst midwives with less experience (72% vs. 41.4%, $p<0.001$). Less experienced midwives were also less likely to perform an episiotomy for symptoms other than fetal distress (37.1% vs. 24.4%, $p=0.001$) which was higher than the 'hands on group.' Other studies support these findings, which suggest that the 'hands off' method is associated with a significantly less risk for episiotomy compared with the 'hands on' method but with an increased chance of OASIS (Hals et al, 2010; Laine et al, 2012).

A Cochrane systematic review of twenty-two trials (n= 15,181) did not support the above findings as no difference in OASIS was found between a 'hands on' versus a 'hands off' approach (average RR 0.68, 95% CI 0.21 to 2.26, 5 studies, n= 7317 women; very low-quality evidence) (Aasheim et al, 2017). The authors did find however that episiotomy occurred more frequently in the hands-on group (RR 0.58, 95% CI 0.43 to 0.79, 4 studies, n= 7247; low-quality evidence) (Aasheim et al, 2017) although there was considerable heterogeneity between the four included studies. National guidance recommends that either a 'hands on' or 'hands poised' technique can be used to facilitate spontaneous birth (NCCWCH, 2014:596) and midwives need to be familiar with both these techniques and use their clinical skills and judgement to optimise outcomes for women.

A.2.5 Summary of the Review of Practice Dilemmas within the Second-Stage

The above sections have presented an analysis of some of the clinical dilemmas that midwives encounter when providing care during the second-stage. These have informed my thinking and rationale for this study. Midwives are expected to work in partnership with women to facilitate their decision-making whilst acting autonomously in their own decision-making. The need to make decisions is often limited by time during the second-stage and the physiological process of labour may distract women, which may compromise the level of interaction necessary to promote decisional autonomy for women (Jefford et al, 2016). Information is required about how midwives use their clinical skills, knowledge and judgement to make decisions at this time.

Appendix B

B.1 Integrative Review Stages (Whittemore and Knafl, 2005)

Table 28: Integrative Review Stages (Whittemore and Knafl, 2005)

Stages of the Review	
Stage one	Problem identification or formulation
Stage two	Literature Search
Stage three	Data evaluation and extraction
Stage four	Data analysis
Stage five	Presentation of results

B.2 Identification of Key Search Terms, Boolean Operators and Truncation

Table 29: The Identification of Key Search Terms, Boolean Operators and Truncation

Review Objective	Keywords	Search strings using truncation and boolean operators
1.To explore the evidence pertaining to midwives decision-making during labour with particular focus on the second-stage of labour	P – Midwives	Midwi* AND decision-making AND second-stage lab* OR 2 nd -stage lab*
		Midwi* AND decision-making AND lab*
	I - Decision-Making, clinical reasoning, clinical judgement, intuition, intuitive	Midwi* AND clinical reasoning AND lab*
		Midwi* AND clinical judgement AND lab*
		Midwi* AND intuition AND lab*
		Midwi* AND decision-making AND intrapartum
		Midwi* AND decision-making AND birth
	E/O - Second-stage labour, 2 nd -stage, birth, labour, intrapartum, delivery,	Midwi* AND decision-making AND delivery
		Midwi* AND decision-making
		Midwi* AND intuition OR intuitive
		Midwi* AND shared decision- making
		Midwi* AND decision-making AND women

B.3 Overview of Databases Searched

Table 30: Overview of Databases Searched

Platforms and Databases	Rationale
EBSCO	
Academic Search Elite-	Provides access to nearly 3000 peer-reviewed journals and full-text journals indexed in Web of Science or Scopus (EBSCO Information Services, 2018).
CINAHL (Cumulative Index to Nursing and Allied Health Literature)	In-depth nursing research data base that provides a broad content coverage that includes 50 nursing specialties, speech and language pathology, nutrition, general health and medicine.
Medline (Medical Literature Analysis and Retrieval System Online)	In-depth biomedicine and health database. Contains more than 23 million references to journal articles in life sciences with a concentration on biomedicine
PsycArticles	Database produced from the American Psychological Association. Provides full-text journal articles from more than 80 journals in behavioral science as well as education, nursing and more.
PsycINFO	Database produced from the American Psychological Association. Includes more than 2,540 peer-reviewed titles
Ovid Platform	
Embase	A biomedical and pharmacological database produced by Elsevier B.V. which contains more than 30 million records

	including articles from more than 8,500 journals published world-wide.
Maternity and Infant Care database	Contains over 120,000 references to articles relating to midwifery, pregnancy, labour, birth, postnatal and neonatal care and the first of an infant's care.
Cochrane Central Register of Controlled Trial	Aims to promote decision making in health care by producing high-quality systematic reviews and other synthesized research evidence.
Ovid Medline and Ovid Medline Full text	Updated daily, offers access to the international literature on biomedicine, including the allied health fields and the biological and physical sciences, humanities, and information science as they relate to medicine and health care. Information is indexed from approximately 5,600 journals published worldwide.

B.4 Quality Assessment Tool for Quantitative Studies



QUALITY ASSESSMENT TOOL FOR QUANTITATIVE STUDIES

COMPONENT RATINGS

A) SELECTION BIAS

(01) Are the individuals selected to participate in the study likely to be representative of the target population?

- 1 Very likely
- 2 Somewhat likely
- 3 Not likely
- 4 Can't tell

(02) What percentage of selected individuals agreed to participate?

- 1 80 - 100% agreement
- 2 60 - 79% agreement
- 3 less than 60% agreement
- 4 Not applicable
- 5 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

B) STUDY DESIGN

Indicate the study design

- 1 Randomized controlled trial
- 2 Controlled clinical trial
- 3 Cohort analytic (two group pre + post)
- 4 Case-control
- 5 Cohort (one group pre + post (before and after))
- 6 Interrupted time series
- 7 Other specify _____
- 8 Can't tell

Was the study described as randomized? If NO, go to Component C.

No Yes

If Yes, was the method of randomization described? (See dictionary)

No Yes

If Yes, was the method appropriate? (See dictionary)

No Yes

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

C) CONFOUNDERS

(Q1) Were there important differences between groups prior to the intervention?

- 1 Yes
- 2 No
- 3 Can't tell

The following are examples of confounders:

- 1 Race
- 2 Sex
- 3 Marital status/family
- 4 Age
- 5 SES (income or class)
- 6 Education
- 7 Health status
- 8 Pre-intervention score on outcome measure

(Q2) If yes, indicate the percentage of relevant confounders that were controlled (either in the design (e.g. stratification, matching) or analysis)?

- 1 80 – 100% (most)
- 2 60 – 79% (some)
- 3 Less than 60% (few or none)
- 4 Can't Tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

D) BLINDING

(Q1) Was (were) the outcome assessor(s) aware of the intervention or exposure status of participants?

- 1 Yes
- 2 No
- 3 Can't tell

(Q2) Were the study participants aware of the research question?

- 1 Yes
- 2 No
- 3 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

E) DATA COLLECTION METHODS

(Q1) Were data collection tools shown to be valid?

- 1 Yes
- 2 No
- 3 Can't tell

(Q2) Were data collection tools shown to be reliable?

- 1 Yes
- 2 No
- 3 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
See dictionary	1	2	3

F) WITHDRAWALS AND DROP-OUTS

(Q1) Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?

- 1 Yes
- 2 No
- 3 Can't tell
- 4 Not Applicable (i.e. one time surveys or interviews)

(Q2) Indicate the percentage of participants completing the study. (If the percentage differs by groups, record the lowest).

- 1 80 -100%
- 2 60 - 79%
- 3 less than 60%
- 4 Can't tell
- 5 Not Applicable (i.e. Retrospective case-control)

RATE THIS SECTION	STRONG	MODERATE	WEAK	
See dictionary	1	2	3	Not Applicable

G) INTERVENTION INTEGRITY

(Q1) What percentage of participants received the allocated intervention or exposure of interest?

- 1 80 -100%
- 2 60 - 79%
- 3 less than 60%
- 4 Can't tell

(Q2) Was the consistency of the intervention measured?

- 1 Yes
- 2 No
- 3 Can't tell

(Q3) Is it likely that subjects received an unintended intervention (contamination or co-intervention) that may influence the results?

- 4 Yes
- 5 No
- 6 Can't tell

H) ANALYSES

(Q1) Indicate the unit of allocation (circle one)

community organization/institution practice/office individual

(Q2) Indicate the unit of analysis (circle one)

community organization/institution practice/office individual

(Q3) Are the statistical methods appropriate for the study design?

- 1 Yes
- 2 No
- 3 Can't tell

(Q4) Is the analysis performed by intervention allocation status (i.e. intention to treat) rather than the actual intervention received?

- 1 Yes
- 2 No
- 3 Can't tell

GLOBAL RATING

COMPONENT RATINGS

Please transcribe the information from the gray boxes on pages 1-4 onto this page. See dictionary on how to rate this section.

A	SELECTION BIAS	STRONG	MODERATE	WEAK
		1	2	3
B	STUDY DESIGN	STRONG	MODERATE	WEAK
		1	2	3
C	CONFOUNDERS	STRONG	MODERATE	WEAK
		1	2	3
D	BLINDING	STRONG	MODERATE	WEAK
		1	2	3
E	DATA COLLECTION METHOD	STRONG	MODERATE	WEAK
		1	2	3
F	WITHDRAWALS AND DROPOUTS	STRONG	MODERATE	WEAK
		1	2	3
				Not Applicable

GLOBAL RATING FOR THIS PAPER (circle one):

- 1 STRONG (no WEAK ratings)
- 2 MODERATE (one WEAK rating)
- 3 WEAK (two or more WEAK ratings)

With both reviewers discussing the ratings:

Is there a discrepancy between the two reviewers with respect to the component (A-F) ratings?

- No Yes

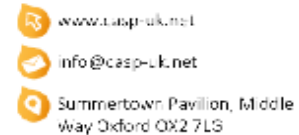
If yes, indicate the reason for the discrepancy

- 1 Oversight
- 2 Differences in interpretation of criteria
- 3 Differences in interpretation of study

Final decision of both reviewers (circle one):

- 1 STRONG**
- 2 MODERATE**
- 3 WEAK**

B.5 The Critical Appraisal Skills Programme (CASP) for Qualitative Studies



CASP Checklist: 10 questions to help you make sense of a **Qualitative** research

How to use this appraisal tool: Three broad issues need to be considered when appraising a qualitative study:

- ▶ Are the results of the study valid? (Section A)
- ▶ What are the results? (Section B)
- ▶ Will the results help locally? (Section C)

The 10 questions on the following pages are designed to help you think about these issues systematically. The first two questions are screening questions and can be answered quickly. If the answer to both is “yes”, it is worth proceeding with the remaining questions. There is some degree of overlap between the questions, you are asked to record a “yes”, “no” or “can’t tell” to most of the questions. A number of italicised prompts are given after each question. These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

About: These checklists were designed to be used as educational pedagogic tools, as part of a workshop setting, therefore we do not suggest a scoring system. The core CASP checklists (randomised controlled trial & systematic review) were based on JAMA ‘Users’ guides to the medical literature 1994 (adapted from Guyatt GH, Sackett DL, and Cook DJ), and piloted with health care practitioners.

For each new checklist, a group of experts were assembled to develop and pilot the checklist and the workshop format with which it would be used. Over the years overall adjustments have been made to the format, but a recent survey of checklist users reiterated that the basic format continues to be useful and appropriate.

Referencing: we recommend using the Harvard style citation, i.e.: *Critical Appraisal Skills Programme (2018). CASP (insert name of checklist i.e. Qualitative) Checklist. [online] Available at: URL. Accessed: Date Accessed.*

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Critical Appraisal Skills Programme (CASP) part of Better Value Healthcare Ltd www.casp-uk.net

B.6 Data Extraction and Overview of Key Elements of Retrieved Studies

Table 31: Overview of Key Elements of Retrieved Studies

Author(s) and year of publication Title and Journal	Study Aim	Participants Setting	Study design and data collection	Data Analysis	Methodological strengths and limitations	Key messages
Weltens et al (2019) Influencing factors in midwives decision-making during childbirth: A qualitative study in the Netherlands. <i>Women and Birth</i>	To gain an understanding of the underlying factors in the decision-making process prior to referral to obstetric-led care among midwives attending childbirth in midwifery-led-care.	10 midwives Midwives working in midwifery-led-care in the Netherlands	Qualitative design (method not specified) data collected via in-depth interviews.	Thematic Analysis	Data not obtained from observations and possibility of recall bias as socially desirable answers may emerge. Limited detail provided re methodological decisions and choice of qualitative method used. Results set out with detailed extracts provided	Midwives viewed knowledge as being the basis for decision-making. This knowledge included knowledge from clinical experience, influence of others including women and theoretical knowledge. Intuition also influenced midwives decision-making although use of this is restricted by midwives fear of being held responsible for professional choices.

<p>Cheyne et al (2006) Making the diagnosis of labour: midwives diagnostic judgement and management decisions</p> <p><i>Journal of Advanced Nursing</i></p>	<p>To examine midwives perceptions of the way in which they diagnose labour</p>	<p>13 midwives</p> <p>Maternity Unit in the North of England</p>	<p>Qualitative design, specific method not given, data collected via focus groups.</p>	<p>Latent content analysis.</p>	<p>Strengths include detail included in findings enabling the reader to judge the transferability of the findings. Transparency of data analysis and theme development also evident.</p> <p>Authors are transparent about potential study limitations which include small sample, drawn from one unit. Data does not represent women's views.</p>	<p>Midwives described using information cues which arose from the woman and the institution. The decision-making process was divided into two stages, diagnostic judgement based on the physical signs of labour and the management decision which was based on consideration of the diagnostic judgement, cues from the woman and her family and institutional requirements.</p>
<p>Wu et al (2013) What factors influence midwives' decision to perform or avoid</p>	<p>To explore midwives reasons for performing or avoiding episiotomies and motivation to change episiotomy</p>	<p>20 midwives</p> <p>OU Singapore</p>	<p>Qualitative design, using a grounded theory approach to interpret data. Focus groups used to collect data.</p>	<p>Thematic Analysis.</p>	<p>Researchers arrived at consensus for identified themes using a transparent process.</p>	<p>Maternal, fetal and other factors cited as primary reason for performing an episiotomy. Medical expectations appeared to have a strong influence over midwives decisions to</p>

episiotomies? A focus group study. <i>Midwifery</i>	practice in a large tertiary maternity hospital					perform an episiotomy.
Chodzaza et al (2018) Cue acquisition: A feature of Malawian midwives decision-making process to support normality during the first stage of labour. <i>Midwifery</i>	To explore Malawian midwives decision-making when caring for women during the first stage of labour in a hospital setting.	9 nurse-midwives An urban and semi urban Malawian hospital	Qualitative: Ethnographic approach using participant observation and interviews over a period of 6 months.	Qualitative analysis software NVivo 10	Triangulation of data collected is a strength. Limitations may be the role of the researcher collecting observational data which was not clearly defined and moved between participant observer to observer participant.	The findings suggest a six-stage process of midwifery decision-making identified as the role of cue acquisition which shows how midwives use assessment data to make decisions and rationalise intrapartum care.
Young (2012) An exploration of clinical decision-making among	To explore how midwifery students and newly qualified midwives learnt to make clinical decisions	49 participant: 36 students, 5 newly qualified midwives and 12 mentors (NB:	Qualitative: Ethnographic approach using observation, interviews and focus groups as data collection methods.	Thematic analysis	Triangulation of data collected allowed for multiple perspectives to be examined.	It was common for midwives to use each other as a resource in decision-making demonstrating a social element to decision-making.

<p>students and newly qualified midwives</p> <p><i>Midwifery</i></p>		<p>4 individuals participated as a student and then a newly qualified midwife)</p>			<p>Limitation was the dual role of the researcher as lecturer was known to most of the study participants.</p>	<p>Workplace culture influenced students and newly qualified midwives decision-making and participants learnt to follow the unwritten rules of the workplace culture.</p> <p>Decision-making learnt primarily through situated learning in practice and through working with mentors.</p>
<p>Rattray et al, (2010)</p> <p>Fetal monitoring: a woman-centred decision-making pathway.</p> <p><i>Women and Birth</i></p>	<p>To explore midwives decision-making processes related to the use of CEFM on low-risk labouring women</p>	<p>5 midwives providing care for women in labour</p> <p>2 Australian hospitals</p>	<p>Qualitative: Grounded Theory</p> <p>Data collected through semi-structured interviews using a 'thinking aloud' method to review scenarios</p>	<p>Constant comparison of data continued until saturation and no new themes emerged.</p>	<p>Transparent audit trail maintained</p> <p>Sampling and data analysis consistent with methodology</p>	<p>Various factors influenced midwives decisions to apply CEFM which included trust and staff workloads, risk management and medical dominance.</p>

<p>Scammell and Alaszewski (2012)</p> <p>Fateful moments and the categorisation of risk: Midwifery practice and the ever-narrowing window of normality during childbirth</p> <p><i>Health, Risk and Safety</i></p>	<p>To examine the ways in risk is categorised in childbirth and how this shapes midwives decision-making in the risk management of childbirth</p>	<p>42 midwives (participant observation)</p> <p>15 midwives (non-participant observation)</p> <p>27 midwives (ethnographic interviews)</p> <p>Total: 84</p> <p>Setting: United Kingdom – An obstetric led unit, an alongside MLU, a standalone MLU and home birth</p>	<p>Ethnographic Approach</p> <p>Data collected through participant and non-participant observation and interviews</p>	<p>Discourse analysis techniques and ATLAS.ti used to check for the reliability and validity of the analysis.</p>	<p>Content analysis checked and corroborated through project supervision and ATLAS.ti. Detailed analysis and findings presented.</p> <p>Snowball sampling used and the potential for this to add bias was noted by the researcher.</p>	<p>Whilst midwives viewed normal birth as integral to the activity of a midwife, they were unable to define it as a concrete concept, referring only to what it was not, through the absence of risk.</p>
<p>Blix-Lindstrom et al, (2008)</p> <p>Midwives' navigation</p>	<p>To explore and understand how midwives perceive and experience decision-making</p>	<p>Twenty experienced labour ward midwives</p>	<p>A qualitative explorative research design that collected data from focus-group discussions.</p>	<p>Thematic content analysis</p>	<p>Details of the methodology are not provided or published elsewhere.</p>	<p>Factors that may influence midwives decision-making about augmentation of labour included regulations and</p>

and perceived power during decision-making related to augmentation of labour <i>Midwifery</i>	about augmentation of labour.	Six hospitals in Sweden				guidelines, medical influence and availability of birthing rooms. Midwives navigated these factors to influence the decision-making process.
Styles et al, (2011a) Scottish trial of refer or keep (the stork study): midwives' intrapartum decision making. <i>Midwifery</i>	To explore midwives' intrapartum referral decisions in relation to their dispositional attitude towards risk.	Participants: 102 midwives who provided labour care Four Scottish health board areas that included consultant led units and community midwifery unit settings.	This was a web-based correlation study that sought to examine the association between midwife's personality (personal risk tendency), place of work (location), years of experience and the timing of their decisions to make referrals (referral score) in a series of fictitious case scenarios (vignettes).	A correlational analysis was carried out between the two total risk scores, Big 5 personality scores and midwives referral scores using Spearman's rho. The Mann-Whitney U test and Kruskal-Wallis test were used to compare referral scores for experienced vs. inexperience midwives. A correlational analysis was also conducted between	The instrument comprised of 3 validated questionnaires. Pilot study used. The use of vignettes may not elicit the same response from midwives when compared with real life situations. Very clear audit trail and detail provided of methodology.	There was no association between referral scores and measures of risk, personality or years of experience. Local factors such as recent adverse events may significantly influence subsequent referral behaviour.

				years of experience and referral score.		
<p>Jefford & Fahy, (2015)</p> <p>Midwives' clinical reasoning during second stage labour: Report on an interpretive study.</p> <p><i>Midwifery</i></p>	<p>To what extent do midwives engage in clinical reasoning processes when making decisions in the second-stage labour?</p>	<p>26 midwives who provided labour care</p> <p>Australia – participants were selected to ensure diversity in geographical location and demographics.</p>	<p>The authors used a feminist, interpretive approach and feminist interpretive analysis was conducted by two researchers guided by the steps of a model of clinical reasoning process.</p> <p>Data collection was by interview. Participants were invited to tell 2 narratives as examples of their clinical reasoning and subsequent actions.</p>	<p>The narratives were analysed and interpreted in the light of extant literature and the researcher's midwifery experience used to provide a feminist lens.</p>	<p>The methodology is reported in detail in another article (Jefford and Sundin, 2013).</p> <p>Data analysis was double checked by a second researcher and respondent validation sought from 8 participants.</p>	<p>13 of the 26 participant narratives demonstrate analytical clinical reasoning abilities but only nine completed the process and implemented the decision.</p> <p>Seven midwives used non-analytical decision-making without adequately checking against assessment data.</p>
<p>Patterson et al, (2015)</p> <p>.Midwives' decision making about transfers for 'slow' labour in rural New Zealand.</p>	<p>To explore midwives' decision making processes when making transfer decisions for slow labour progress from rural areas to specialist care.</p>	<p>15 midwives who provided labour care.</p> <p>New Zealand – midwives who worked in rural settings in</p>	<p>A qualitative descriptive study.</p> <p>Data was collected from individual and group interviews. The recalled decision processes of the midwives were subjected to a content and thematic analysis to expose experiences in common and to</p>	<p>A pragmatic approach to thematic analysis was used.</p>	<p>Limited details of methodology provided and not published elsewhere.</p> <p>Detailed findings were presented.</p>	<p>The key themes that emerged were: 'making the mind shift', 'sitting on the boundary', 'timing the transfer' and 'the community interest'.</p>

<i>Midwifery</i>		the community	highlight aspects of probabilistic (normative), heuristic (behavioural), and group decision making theory within the rural context.			The decision processes were also influenced by the woman's preferences and the distance and time involved in the transfer
Porter et al (2007) New midwifery? A qualitative analysis of midwives' decision-making strategies. <i>Journal of Advanced Nursing</i>	To explore the reasons why midwives decided to adopt observed decision-making strategies relating to the use of technology	16 midwives (participant observation) and a focus group of 8 midwives. Labour ward, antenatal assessment units and postnatal wards in 2 NHS hospitals in England	A qualitative descriptive design that used participant observation and a focus group that used vignettes describing decision-making strategies to collect data.	Participant observation was analysed through a constant comparison of the data (using the conceptual models of occupational control). Data coding was based on the strategies midwives were observed to use to decide about the appropriate use of technology during childbirth.	Limited detail of the methodology provided. Separate and independent analysis of data was carried out to generate a general consensus of interpretation	The dominant mode of decision-making was bureaucratic decision-making, which involved adherence to written policies and procedures. The least frequently used was 'new professional' decision-making, which involved collaboration with clients.
Healy et al (2016) To examine how	To synthesise original research that examines midwives and	13 studies providing 14 papers	An integrative literature review using the five stage process for conducting integrative reviews.	Coopers (1998) five stage process for integrative reviews	Methods of review are clearly documented. Clear search strategy.	The results of this review revealed a dominant theme of an assumption of abnormality in the

<p>perceptions of risk impact on midwives' and obstetricians' facilitation of care for low-risk women in labour.</p> <p><i>Women and Birth</i></p>	<p>obstetricians perceptions of risk about birth when facilitating care for low risk women and asks how does perception of risk impact on midwives and obstetricians clinical practice and decision-making when facilitating care for low-risk women in labour.</p>	<p>(One quantitative and 12 qualitative)</p> <p>6 countries: Australia; UK; Canada; the USA; New Zealand and Belgium.</p>	<p>The initial search resulted in the retrieval of 2429 articles which were reduced to 14 through a systematic process.</p>			<p>birthing process leading to unnecessary intervention and surveillance.</p>
<p>Daemers et al (2017)</p> <p>.Factors influencing the clinical decision-making of midwives: a qualitative study.</p>	<p>To explore the factors that influence clinical decision-making in midwives who work independently.</p>	<p>11 midwives working in primary care</p> <p>The Netherlands</p>	<p>Qualitative study using in-depth interviews which started with exploration of a vignette, the Think Aloud Procedure followed by a semi-structured interview.</p> <p>Three vignettes were constructed which addressed pregnancy, labour and the puerperium</p>	<p>A thematic analysis was performed using QSR NVIVO 8 and a preliminary coding scheme developed by the first and second author. The final coding scheme emerged during further analysis based on consensus.</p>	<p>Vignettes constructed in accordance with recommendations for vignette construction and were reviewed by 4 midwives working in research, education and practice.</p> <p>First interview organised as a pilot.</p>	<p>Midwives clinical decision-making not fully explained by the Evidence Based medicine Framework. The professional and personal skills and attitudes of the midwife in interaction with members of the multi-professional team and women and care organisation</p>

<p><i>BMC Pregnancy and Childbirth</i></p>					<p>Participants were invited to comment on the content and authenticity of the vignettes.</p> <p>Methodological triangulation of data sources occurred.</p> <p>Clear audit trail of proceedings.</p>	<p>play an important role in decision-making.</p>
<p>Cioffi and Markham (1997)</p> <p>Clinical decision-making by midwives: managing case complexity.</p> <p><i>Journal of Advanced Nursing</i></p>	<p>To examine the process of decision-making as performed by midwives and student midwives in the patient assessment phase.</p>	<p>30 midwives</p> <p>Midwifery Units in teaching and district hospitals in Australia</p>	<p>A quantitative study. Midwives were given simulated patient assessment situations of high and low complexity and were required to think out loud a technique they received training in prior to doing this.</p> <p>One case was intrapartum care and one was an APH.A post experimental report was also completed by midwives at the end of each case.</p>	<p>Related t-test, ANOVA and post hoc Newman-Keuls were used to analyse the data</p>	<p>Limited detail of participants.</p> <p>Case studies and answers were validated by a panel of expert midwives (n=10)</p> <p>Analysis of the protocols carried out by 2 raters trained in coding and categorising protocol segments.</p> <p>Very clear overview of data collection and analysis provided and set out in tables.</p> <p>Midwives may respond differently to real life</p>	<p>Midwives were found to use heuristics in their decision-making processes. Their use increased with case complexity.</p>

					clinical situations that simulated assessments.	
Hollins Martin and Bull (2005) Measuring social influence of a senior midwife on decision-making in maternity care: an experimental study. <i>Journal of Community and Applied Social Psychology</i>	To consider the social influence effects of a high status midwife on decision-making within midwifery practice.	209 midwives completed the Social Influence Scale for Midwifery (SIS-M) sent out by post. 60 midwives were randomly invited for interview. England	A self-completed postal survey. The social influence scale was used to collect responses to 10 clinical decisions (focused on intrapartum care). The SIS-M is scored using a five point Likert scale based on the level of agreement with each statement. A case study was presented to each participant before each SIS-M question.	A 3X2 analysis of variance was performed (ANOVA)	Validity and reliability tests were performed in the construction of the SIS-M. The internal reliability of the test was assessed. Limited detail of the methodology.	A senior midwife was able to influence decisions which may have an effect on women centred care and women's choice.
Lankshear et al (2005)	To examine the complexities of work processes in delivery	Staff working on the Labour Wards of 2	A qualitative ethnographic approach was used using participant observation and 16 semi-structured interviews.	Data was coded and analysed using ATLAS.ti.	No specific detail of the participants was provided.	Decision-making on Labour ward was shaped by perceptions of risk

<p>Decision-making, uncertainty and risk: Exploring the complexity of work processes in NHS delivery suites.</p> <p><i>Health, Risk and Society</i></p>	<p>suites, specifically involving decision-making, risk, uncertainty, medical knowledge and professional autonomy.</p>	<p>English Hospitals (site 1 – 500 hours observation and site 2 120 hours observation).</p>			<p>620 hours of observation was a strength of this ethnographic study.</p> <p>The findings provided rich detail of the observational data collected.</p>	<p>and decisions were socially negotiated, culturally constructed and at times contested rigorously by midwives. Whilst midwives viewed themselves as autonomous practitioners, the ultimate power resided with doctors, in particular registrars and consultants.</p>
<p>Cheyne et al (2012)</p> <p>Risk assessment and decision making about in-labour transfer from rural maternity care: a social judgment and signal detection analysis</p>	<p>To examine how midwives and obstetricians made intrapartum transfer decisions and to describe possible sources of variation in decision-making</p>	<p>20 midwives and 4 obstetricians in stage 1 of the research</p> <p>122 midwives and 12 obstetricians in stage 3.</p> <p>Scotland – stand-alone community midwife led units and</p>	<p>The methodological approach was quantitative and informed by Social Judgement Theory and Signal Detection Theory. These processes use vignettes to explore decision-making.</p> <p>The study was conducted in three stages: 1. midwives and obstetricians described factors influencing transfer decisions. 2. Vignettes depicting an intrapartum scenario were developed based on stage one data. 3. Vignettes were presented to midwives and obstetricians who were asked</p>	<p>Social judgment analysis was used to identify the factors used in assessment. Signal detection analysis was used to identify participants' ability to distinguish high and low risk cases and personal decision thresholds.</p>	<p>Stratified sampling was used for midwives which increased the midwife study population representation.</p> <p>Vignettes were piloted and developed from a large number of cases described by clinicians to increase their validity.</p> <p>Vignettes cannot replace real life situations and so practitioners may respond differently in real life.</p>	<p>When reviewing the same case information in vignettes midwives in different settings and obstetricians made very similar risk assessments. Despite this, a wide range of transfer decisions were still made, suggesting that the main source of variation in decision making and transfer rates is not in the assessment but</p>

<i>BMC Medical Informatics And Decision Making</i>		alongside midwife led units	to assess the level of risk in each case and decide whether to transfer or not.			the personal decision thresholds of clinicians
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B.7 Three Conceptual Models of Occupational Control

Table 32: Three conceptual models of occupational control (Porter et al, 2007:528)

Classical professional Model	where control lies with the professionals themselves
Bureaucratic Model	where decisions are made rigidly in accordance with policies and procedures. This is without recourse to either the midwives own discretion or to the wishes of mothers.
New Professional Model	involving a partnership and shared decision-making between the mother and midwife

B.8 Overview of Heuristic Types

Table 33: Overview of the Heuristic Types (Tversky and Kahneman, 1973; Cioffi and Markham, 1997)

Type of heuristic	Meaning
Representative	When judging that the signs and symptoms encountered indicate a clinical condition that has previously been encountered
Availability	How readily previous instances are recalled and are used to inform the assessment
Anchoring and Adjustment	When the midwife starts from an 'anchor point' and adjusts their behaviour according to the anchor point

Appendix C

C.1 Issue Questions

Textbox 5: Issue Questions developed following Literature Review

1. What sources of knowledge do midwives draw upon to inform their practice?
2. Are midwives explicitly aware of their thought processes when making decisions and can they articulate these?
3. Does knowledge about factors external to the woman's care influence midwives practice and decisions?
4. Are midwives able to rationalise all their care decisions?
5. How do midwives describe knowledge that they are unable to rationalise?
6. How do midwives articulate a dilemma in practice and what do they do about it?
7. To what extent do midwives discuss care decisions with other midwives and how does this inform their practice?
8. How does the woman influence the midwives practice?
9. Is the midwives practice different on the MLU in comparison to LW
10. What care practices do midwives use on the MLU that they may not use on LW?
11. Is the use of guidelines implicit or explicit within midwives practice?

C.2 Topic Questions

Textbox 6: Topic Questions

Topic Questions

How long has the birth centre been established?

What is the overall layout of the MLU?

What resources does the MLU have in terms of staffing?

Are there generic MLU midwives or are midwives allocated to the MLU on an as required basis?

C.3 Overview of the Case Sites

Table 34: Overview of the Case Sites

Hospital where Case Site is situated	Births per year	OU	AMLU	Other Features of the Case site
Hospital A	4200	10 labour rooms, 1 birth pool	5 birth rooms, 2 birth pools, a 6 bedded postnatal room	One main reception desk with rooms arranged around this. A rest room for breaks that also serves as the handover room, separate kitchen facilities for staff and service users. Staff toilets (partner toilets outside of the MLU). Ensuite toilet within each birthing room.
Hospital B	5250	12 labour rooms, 2 birth pools	5 birth rooms, 1 birth pool	One main reception desk with birth rooms opposite this. A rest room for staff. Handovers tended to take place at reception desk. Separate kitchen facilities for staff and service users. Separate toilet facilities for staff and partners. Ensuite toilet within each birthing room.

C.4 Observation Proforma

Table 35: Observation Guide:

Appendix one: Observation Aide Memoire v1 01.10.15 Kate Nash

Setting: Participant code: Date: Overview:		Future Action: Follow up questions:	
Time/ Duration	Description of Activity (using 3 phases of observation as described by Spradley, 1980): <ul style="list-style-type: none"> - Descriptive observation (setting the scene) - Focused observation (narrowing perspective to focus on objectives) - Selective observations (as data collection progresses) 	Personal Reflections and Responses	Emerging Questions/ Comments

C.5 Spradley's Three Phases of Observation

Table 36: Spradley's Three Phases of Observation

Stage One
the undertaking of an initial descriptive observation to provide non-specific descriptions and grasp the complexity of the field
Stage two
moving to more focused observation to narrow the perspective on those processes and problems which are most essential for the research question
Stage three
Moving to selective observation which attempts to provide further evidence and examples for the types of practices and processes found in the second phase

C.6 Typology of Participant Observer Roles

Gold's (1958: 213) Typology of the Participant Observer Roles

The complete participant - takes an insider role, is fully part of the setting and often observes covertly.

The participant as observer - the researcher gains access to a setting by virtue of having a natural and non-research reason for being part of the setting. As observers, they are part of the group being studied. This approach may be common in health care settings where members of the health care team are interested in observing operations in order to understand and improve care processes.

The observer as participant - In this role, the researcher or observer has only minimal involvement in the social setting being studied. There is some connection to the setting but the observer is not naturally and normally part of the social setting.

The complete observer - the researcher does not take part in the social setting at all. An example of complete observation might be watching children play from behind a two-way mirror.

C.7 Interview Proforma



Interview proforma
v1 01.10.15.pdf

C.8 Overview of the Stages of Thematic Analysis

Table 37: Overview of the Stages of Thematic Analysis (Braun and Clark, 2006)

Phase 1:	Familiarising yourself with your data
Phase 2:	Generating initial codes
Phase 3:	Searching for themes
Phase 4:	Reviewing themes
Phase 5:	Defining and naming themes
Phase 6:	Producing the report

C.9 Ethical Approval



Health Research Authority

West Midlands - Coventry & Warwickshire Research Ethics Committee
The Old Chapel
Royal Standard Place
Nottingham
NG1 6FS

Telephone: 0115 8839 440

29 December 2015

Ms Kathryn Nash
University of West London
Paragon House
Boston Manor Road
Brentford, Middlesex
TW8 9GA

Dear Ms Nash,

Study title:	An investigation into midwifery practice and decision making during the second stage of labour.
REC reference:	15/WM/0389
IRAS project ID:	185020

Thank you for your letter of 21 December 2015, responding to the Committee's request for further information on the above research and submitting revised documentation.

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

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to make a request to postpone publication, please contact the REC Manager, Rachel Nelson, NRESCommittee.WestMidlands-CoventryandWarwick@nhs.net.

Confirmation of ethical opinion

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

Conditions of the favourable opinion

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

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

Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for NHS permission for research is available in the Integrated Research Application System, www.hra.nhs.uk or at <http://www.rdforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database within 6 weeks of recruitment of the first participant (for medical device studies, within the timeline determined by the current registration and publication trees).

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to contest the need for registration they should contact Catherine Blewett (catherineblewett@nhs.net), the HRA does not, however, expect exceptions to be made. Guidance on where to register is provided within IRAS.

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

Ethical review of research sites

NHS sites

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

Approved documents

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

<i>Document</i>	<i>Version</i>	<i>Date</i>
Covering letter on headed paper [Response to requested amendments - covering letter]	v1 08.12.15	08 December 2015
Covering letter on headed paper [Response to requested amendments - covering letter]	v2 following email 18.12.15	21 December 2015
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only)		14 July 2015
Interview schedules or topic guides for participants [Aide Memoire - observations]	v1 01.10.15	01 October 2015
Interview schedules or topic guides for participants [Interview proforma]	v1 01.10.15	01 October 2015
IRAS Checklist XML [Checklist_21122015]		21 December 2015
Letter from sponsor [RGO Approval - electronic]		08 July 2015
Other [RA2 Lone Interviewing Risk Assessment Guidance]		
Other [RA3 Lone Interviewing Checklist]		
Other [RA4 Lone Interviewing Contact Procedure and Location Form]		
Other [Data Management Plan]	v1 01.10.15	01 October 2015
Other [Summary CV Research Supervisor Ellen Kitson-Reynolds]	v1	19 December 2014
Participant consent form [Midwife participant consent form]	v1 01.10.15	01 October 2015
Participant information sheet (PIS) [Midwife Participant Information Sheet]	v3 21.12.15	21 December 2015
Participant information sheet (PIS) [Information sheet for women during the antenatal period]	v3 21.12.15	21 December 2015
Participant information sheet (PIS) [Information sheet and consent form for women in labour]	v2 21.12.15	21 December 2015
REC Application Form [REC_Form_08102015]		08 October 2015
Referee's report or other scientific critique report [Peer Review Feedback]	v1	30 May 2014
Referee's report or other scientific critique report [Amendments made in response to peer reviewer's comments]	v1	09 April 2015
Research protocol or project proposal [Research Proposal]	v1 01.10.15	01 October 2015
Summary CV for Chief Investigator (CI) [CV Kate Nash]	v1 01.10.15	01 October 2015
Summary CV for supervisor (student research) [Research Supervisor CV Judith Lathlean]	v1	04 October 2015
Summary, synopsis or diagram (flowchart) of protocol in non technical language [Timeline of Research Activities]	v1 01.10.15	01 October 2015

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

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

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

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

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website:
<http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/>

HRA Training

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

15/WM/0389

Please quote this number on all correspondence

With the Committee's best wishes for the success of this project.

Yours sincerely,



Dr Helen Brittain
Chair

Email: NRESCommittee.WestMidlands-CoventryandWarwick@nhs.net

Enclosures: “After ethical review – guidance for researchers”

Copy to: Ms Diana Galpin

Leslie Frederick, Royal Berkshire NHS Foundation Trust

C.10 ERGO Approval

The screenshot shows the ERGO web interface in Internet Explorer. The browser address bar displays https://www.ergo.soton.ac.uk/submission_info.php?submissionID=14649. The page header includes "Ethics and Research Governance Online" and the ERGO logo. A navigation menu on the left lists "Main Menu", "My Research", "Submissions to review", "Downloads", and "Adverse Incident". The main content area shows the submission title "An investigation into midwifery practice during the second stage of labour" and submission ID 14649. A tabbed interface includes "Submission Overview" (selected), "IRGA Form", "Attachments", "Peer Feedback", "History", and "Adverse Incident". A status message indicates "Approved by RGO in 89 day(s) on 8/07/2015". Below this is a table of activities:

Date	Activity	Comments	Attached Documents
8/07/2015 1:59 pm	Note added	University insurance certificate attached on the history tab in ERGO	Note attachment
8/07/2015 1:59 pm	RGO reviewed and approved	I am writing to confirm that the University of Southampton is prepared to act as Research Sponsor for this study under the terms of the Department of Health Research Governance Framework for Health and Social Care (2nd edition 2005). We encourage you to become fully conversant with the terms of the Research Governance Framework by referring to the Department of Health document which can be accessed at: http://www.dh.gov.uk/en/Aboutus/Researchanddevelopment/Researchgovernance/DH_4002112	

The system tray at the bottom shows the date and time as 17:40 on 26/07/2015.

C.11 Research and Development Approval

Committed To Excellence Working Together Facing The Future

Frimley Health 
NHS Foundation Trust

Research & Development
2nd Floor, Pine House
Frimley Health NHS Foundation Trust
Portsmouth Road
Frimley, Camberley
Surrey
GU16 7UJ

01276 522441
www.frimleyhealth.nhs.uk

Miss Kathryn Nash, Doctorate in Clinical Practice Student,
Senior Lecturer in Midwifery,
University of West London,
Paragon House,
Boston Manor Road,
Brentford,
Middlesex
TW8 9GA

15th April 2016

Dear Kathryn

Re: Full R&D Approval

Study Title: An investigation into midwifery practice and decision making during the second stage of labour.

R&D Reference: 16KNBS01

REC Reference: 15/WM/0389

Recruitment Sites: Wexham Site / Frimley Site

Thank you for submitting an R&D Approval Application for the study detailed above. Full R&D Approval has now been granted and the study can begin.

The following documents have been reviewed and approved as part of the R&D governance process:

Document	Version	Date
HRA NRES letter (s)		29/12/2015
Professional Indemnity – (University of Southampton))	Expiry:	31/07/2016
CV – Kathryn Nash		09/03/2016
GCP –Kathryn Nash		09/03/2016



In partnership with the Ministry of Defence

Frimley Health incorporates Frimley Park Hospital, Heatherwood Hospital and Wexham Park Hospital
Headquarters: Portsmouth Road, Frimley, Camberley, Surrey, GU16 7UJ 01276 604604

C.12 Participant Information Sheets

Participant Information Sheet

Study Title:

An investigation into midwifery practice and decision making during the second stage of labour

Researcher: Kate Nash MSc, BSc, RM, RGN Senior Lecturer (Midwifery), University of West London, Boston Manor Road, Brentford, Middlesex, TW8 9GA

Ethics number:

Please read this information carefully before deciding to take part in this research.

Please feel free to ask me if there is anything that is not clear or if you require further information.

If you are happy to participate you will be asked to sign a consent form.

What is the research about?

You are being invited to take part in a research study that I am undertaking as part of the requirements for my Doctorate in Clinical Practice (DClinP). The research study will be submitted as my final thesis. I am a registered midwife and am currently employed by the University of West London as a senior lecturer in Midwifery. My DClinP is being funded by the University of West London and sponsored by the University of Southampton.

The aim of this research study is to investigate midwifery practice during the second stage of labour, identify the different ways that midwives manage the second stage and examine the rationale behind such practice.

I am keen to understand how midwives justify and account for the decisions that they make during the second stage of labour and to identify any factors that might influence their decision making.

I hope that the research findings will contribute to a deeper understanding of midwifery practice within the second stage of labour.

Why have I been chosen?

You have been invited to take part in this study because you are a midwife who has recent experience in looking after women in labour and making decisions about their care.

What will happen to me if I take part?

If you agree, you will be asked to participate in the following activities:

- Observation – This involves the researcher arranging to work shifts with you so that she is able to observe the midwifery care provided by you to women in the second stage of labour. It is anticipated that the researcher will need to arrange to work approximately 3-4 shifts with you in order to obtain this information. This is because you may not always be looking after a woman in the second stage during your shift. Notes will be taken by the researcher as part of the observation process during the second stage of labour. The researcher will not provide midwifery care or interfere with your practice. The researcher will only be present within the birthing room when you are also present in the room. The notes made by the researcher will be stored in a secure place that only the researcher and her two supervisors will have access to. The notes made will also be typed up and stored electronically in an online secure space provided by the University of Southampton that only the researcher and her two supervisors will have access to. You will not be identified by name or any other person specific details. The research information collected from you will be destroyed in accordance with University regulations on completion of the study and/or if you should decide to withdraw from the study.
- Taking part in a face to face interview with the researcher following your shift when you have cared for a woman in the second stage of labour (or at a time agreed by you after this) where you will be asked questions based on the observations that the researcher made during the second stage of labour. The interview will take place in a private room in the maternity unit or the researcher will arrange a convenient time to visit you at home if you would prefer. The main purpose of the interview is to enable further clarification and an understanding of your perspective and will take approximately one hour. The interview will be digitally recorded so that it is recorded accurately and typed up at a later date. The digital recording and any notes made will be stored electronically in a secure space provided by the university that only the researcher and her two supervisors will have access to.

Should you choose to take part in this study I will ask you to sign a consent form. You will be given a copy of the signed consent form.

Are there any benefits in my taking part?

There will probably be no direct benefit to you from taking part although indirectly this study hopes to contribute to our understanding of how midwives rationalise and explain the decisions that they make during the second stage of labour. This will contribute to a deeper understanding of midwifery practice within the second stage of labour and inform the development of a decision making tool to guide midwives practice within the second stage of labour.

Are there any risks involved?

There are no expected disadvantages or risks to taking part. However, if as a result of the observation or interview issues are raised for you these could be discussed further with your Supervisor of Midwives or a member of the Supervisors of Midwives team.

Further support could be sought through your RCM representative, the human resources department or counselling support. In the very unlikely event that you are harmed by taking part in this research project, there are no special compensation arrangements.

Will my participation be confidential?

All information which is collected about you during the course of this research would be kept confidential, in accordance with the Data Protection Act (1998) and the University of Southampton's research data management policy (2014/2015). You would be given a code name immediately for the research should you consent to take part and only the researcher would have access to the consent forms where your real name is stored. These will be kept in a locked fire proof cabinet which only the researcher would have access to. Your code name will be used throughout the study so your true identity will not be evident.

Data will be stored and destroyed as per University policy following study completion or should you choose to withdraw from the study at an earlier date.

The research findings will be used for a final thesis, and published as academic papers and presented at conferences. Any data used from this study for academic purposes will be anonymised to ensure that individuals cannot be identified from the details presented.

What happens if I change my mind?

You are free to change your mind and withdraw from the study at any time without providing a reason. This would not affect you in any way.

What happens if something goes wrong?

In the unlikely case of concern or complaint please contact the Research Governance Manager at the Research Governance Office (Address: University of Southampton, Building 37, Highfield, Southampton, SO17 1BJ: Tel: +44 (0)23 8059 5058; Email: rgoinfo@soton.ac.uk . If you remain unhappy and wish to complain formally the research manager can provide you with details of the University of Southampton Complaints Procedure.

In the unlikely event that substandard care is witnessed during the observation period I will communicate my concerns to you and the Trust's on call supervisor of midwives. Should an emergency occur then I will maintain a low profile so as not to obstruct proceedings, communicate with the woman and her partner, and offer support with simple tasks such as opening doors.

Where can I get more information?

Please do not hesitate to contact me should you have any questions at kate.nash@uwl.ac.uk. My research supervisors are Professor Judith Lathlean J.Lathlean@soton.ac.uk and Dr Ellen Kitson Reynolds e.l.kitson-reynolds@soton.ac.uk who could also be contacted should you have any further queries or concerns.

C.13 Good Clinical Practice Training

NHS
National Institute for
Health Research

Clinical Research Network

CERTIFICATE of ACHIEVEMENT

This is to certify that

Kathryn Nash

has completed the course

Introduction to Good Clinical Practice eLearning (Primary
Care)

March 9, 2016

Modules completed:

Introduction to Research in the NHS
Good Clinical Practice and Standards in Research
Study Set Up and Responsibilities
The Process of Informed Consent
Data Collection and Documentation
Safety Reporting

This course is worth 4 CPD credits

CPD
The CPD Certification Service



National Institute for
Health Research
Clinical Research Network

C.14 Consent Form: Participants

CONSENT FORM (version1 01.10.15)

Study title: An investigation into midwifery practice and decision making during the second stage of labour

Researcher name: Kate Nash Senior Lecturer (Midwifery), University of West London, Boston Manor Road, Brentford, Middlesex, TW8 9GA

Study reference:

Ethics reference:

Statement	Please initial below if you agree with the statement(s):
I confirm that I have read and understood the information sheet and have had the opportunity to ask questions about the study and have had these answered.	
I agree to take part in this research project and agree for my data to be used for the purpose of this study.	
I understand my participation is voluntary and I may withdraw at any time without my legal rights being affected and without providing an explanation.	
I understand that any information collected about me during my participation in this study will be anonymised, coded and stored in either a locked fireproof cabinet or on a password protected computer. This information will only be used for the purpose of this study.	
I understand that this consent form will be stored in a locked fireproof cabinet which is separate to where the anonymised coded data will be stored.	
I agree to the interview being digitally recorded.	
I agree to the use of anonymised quotes in publications.	
I am happy to be contacted regarding other unspecified research projects. I therefore consent to the University retaining my personal details on a database, kept separately from the research data detailed above. The 'validity' of my consent is conditional upon the University complying with the Data Protection Act and I understand that I can request my details be removed from this database at any time.	

Name of participant (print name)

Signature of participant.....Date.....

...

C.15 Antenatal Information Sheet: Women

Information Sheet for women during the antenatal period (version 3 21.12.15)

Information Sheet

Invitation to participate in a small research study

My name is Kate Nash and I am a registered midwife and midwife teacher currently employed as a senior lecturer by the University of West London. I am undertaking my Doctorate in Clinical Practice at the University of Southampton. As part of this I am undertaking a research study to explore how midwives provide care during the second stage of labour. My research is being funded by the University of West London and sponsored by the University of Southampton.

Some of the midwives who work on Labour ward and the Midwifery Led Unit have given permission for me to observe them whilst they provide care to women in labour as part of this research study. When you arrive in labour you may be asked by your midwife if I can be present in your birthing room so that I can observe your midwife. Whether you give permission for my presence in your birthing room is entirely up to you. Before you decide I would like you to understand why the research is being done and what it would involve for you. Please go through the information below if you are interested in taking part. Please feel free to talk to your partner or your midwife about it and ask any questions. Should you choose to not take part in this study your midwife will continue to look after you as usual and it will not affect your care in any way.

The second stage of labour

The second stage of labour begins when the neck of your womb or cervix is fully dilated and ends with the birth of your baby. There are several ways that midwives might manage your care during this time although very little published information is available that tells us how and why midwives make their decisions during this time. This study aims to identify the different ways that midwives manage the second stage and examine the rationale behind such practice.

What will happen should you agree to take part in this research?

I will be present in your birthing room to observe your midwife providing care to you during your labour. I will only be in your birthing room when your midwife is also present in the room. I will make some notes of my observations of the care that your midwife is providing. I will not provide any midwifery care myself or interfere with the midwife's practice in any way. Following your birth I will arrange to interview the midwife at a later time to find out more about the midwifery care that was provided to you during this time. Should you agree to take part in this study the midwife will ask you to verbally consent to my presence within the birthing room.

Are there any benefits to taking part?

There are no direct benefits to you from taking part although indirectly this research hopes to increase our understanding of how midwives make decisions during the second stage of labour. This will contribute to a deeper understanding of how midwives practice and inform the development of a decision making tool to guide midwives practice within the second stage of labour.

Are there any risks involved?

There are no disadvantages or risks to taking part. The on call Supervisor of Midwives can be contacted through the hospital switchboard on a 24 hour basis should you have any concerns that you are unable to address with your midwife or the shift leader. In the unlikely event that substandard care is witnessed during the observation period I will communicate my concerns to the Trust's on call supervisor of midwives.

Will your participation be confidential?

The notes that I make during the observation will be stored in a secure place that only myself and my two supervisors will have access to. The notes made will also be typed up and stored electronically in an online secure space provided by the University of Southampton that only my two supervisors and I will have access to. You or your birthing partner will not be identified by name or any other person specific details within these notes.

All information which is collected about you and your labour during the observation will be kept confidential, in accordance with the Data Protection Act (1998) and the University of Southampton's research data management policy (2014/2015). You would be given a pseudonym immediately for the research should you consent to take part and this will be used throughout the observation period and in any future documentation. Your code name will be used throughout the study so your true identity will not be evident.

Data will be stored and destroyed as per University policy following study completion and the research findings will be used for a final thesis and published as academic papers and presented at conferences. Any data used from this study for academic purposes will be anonymised to ensure that individuals cannot be identified from the details presented.

What happens if you change my mind?

You are free to change your mind at any time and ask me to leave the room. You do not have to provide a reason and this will not affect your care in anyway. Your midwife will continue to provide care for you and your baby in the same way should you ask me to leave the room.

Where can I get more information?

Please do not hesitate to contact me should you have any questions at kate.nash@uwl.ac.uk. My research supervisors are Professor Judith Lathlean J.Lathlean@soton.ac.uk and Dr Ellen Kitsen Reynolds E.L.Kitson-Reynolds@soton.ac.uk who could also be contacted should you have any further queries or concerns. In the unlikely case of concern or complaint please contact the Research Governance Manager at the Research Governance Office (Address: University of Southampton, Building 37, Highfield, Southampton, SO17 1BJ; Tel: +44 (0)23 8059 5058; Email: rgoinfo@soton.ac.uk . If you remain unhappy and wish to complain formally the research manager can provide you with details of the University of Southampton Complaints Procedure.

Please read this information carefully before deciding to take part in this research.

Please feel free to contact me if there is anything that is not clear or if you require further information.

If you are happy to participate you will be asked by your midwife whether you consent to my presence in your birthing room when you arrive in labour. You will only be asked if the midwife providing your care has agreed to take part in this study.

Name:

I agree to being asked to participate in this study when I arrive in labour

I do not agree to being asked to participate in this study

C.16 Intrapartum Information Sheet and Consent Form: Women

Appendix eleven: Information sheet and consent form for women in labour (version 2 21.12.15)

Information Sheet for Women in Labour

Study title: An investigation into midwifery practice and decision making during the second stage of labour

Summary of the Research: My name is Kate Nash and I am a registered midwife employed as a senior lecturer in midwifery at the University of West London. I am undertaking a research study that aims to examine midwifery practice during the second stage of labour. This is to meet the requirements of my Doctorate in Clinical Practice at the University of Southampton.

I would like to request your permission to be present in your birthing room during the time that your midwife provides care for you during your labour. This is so that I can observe your midwife's practice during your labour. Whether you give permission for my presence in your birthing room is entirely up to you. Please feel free to talk to your partner or your midwife about it and ask any questions. Should you choose to not take part in this study your midwife will continue to look after you as usual and it will not affect your care in any way. You will only be asked permission for my presence if the midwife providing your care has agreed to take part in this study.

What will happen if you agree to take part in this research?

I will be present in your birthing room to observe your midwife providing care to you during your labour. I will only be in your birthing room when your midwife is also present in the room. I will make some notes of my observations of the care that your midwife is providing. I will not provide any midwifery care myself or interfere with the midwife's practice in any way. Should you agree to take part in this study the midwife will ask you to give written consent to my presence within the birthing room.

Are there any benefits to taking part?

There are no direct benefits to you from taking part although indirectly this research aims to increase our understanding of how midwives make decisions during the second stage of labour.

Are there any risks involved?

There are no disadvantages or risks to taking part. The on call Supervisor of Midwives can be contacted through the hospital switchboard on a 24 hour basis should you have any concerns that you are unable to address with your midwife or the shift leader. In the unlikely event that substandard care is witnessed during the observation period I will communicate my concerns to the Trust's on call supervisor of midwives.

Will your participation be confidential?

All information which is collected about you and your labour whilst observing your midwife will be kept confidential, in accordance with the Data Protection Act (1998) and the University of Southampton's research data management policy (2014/2015). You will be given a code name immediately for the research should you consent to my presence in your room and this will be used throughout the observation period and in any future documentation so that your true identity will not be evident.

The notes that I make whilst observing your midwife will be stored in a secure place as per University policy. You will not be identified by name or any other person specific details within these notes. The research findings will be used for a final thesis, and published as academic papers and presented at conferences. Any data used from this study will be anonymised to ensure that individuals cannot be identified from the details presented.

What happens if you change my mind?

You are free to change your mind at any time and ask me to leave the room. You do not have to provide a reason and this will not affect your care in anyway. Your midwife will continue to provide care for you and your baby in the same way should you ask me to leave the room.

CONSENT FORM (*version2 21.12.15*)

Study title: An investigation into midwifery practice and decision making during the second stage of labour

Researcher name: Kate Nash Senior Lecturer (Midwifery), University of West London, Boston Manor Road, Brentford, Middlesex, TW8 9GA

Study reference:

Ethics reference:

Statement	Please initial if you agree with these statement(s):
I confirm that I have read and understood the information sheet (<i>version1 24.11.15</i>) and have had the opportunity to ask questions about the study and have had these answered.	
I agree to take part in this research project and agree for my anonymised data to be used for the purpose of this study.	
I understand that my participation is voluntary and I may ask the researcher to leave the room at any time and without providing an explanation. This will not affect my care in any way and my midwife will continue to provide care for me as before.	
I understand that any information collected about me during my labour will be anonymised, coded and stored in either a locked fireproof cabinet or on a password protected computer. This information will only be used for the purpose of this study.	
I understand that this consent form will be stored in a locked fireproof cabinet which is separate to where the anonymised coded data will be stored.	

Name (print name).....

Signature

Date.....

C.17 Data Management Plan

Data Management Plan Adapted from University of Bath (2013) Postgraduate Data Management Plan. Available online: <http://www.bath.ac.uk/research/data/planning/tools.html>
Accessed 05.07.15

1. Overview

1.1 Chief Investigator: Kate Nash (DClinP Student)
1.2 Project Supervisors: Professor Judith Lathlean and Dr Ellen Kitson-Reynolds
1.3 Project title: An investigation into midwifery practice and decision making during the second stage of labour.
1.4 Project start and end dates: 01.01.16 – 30.09.17
1.5 Project context: The study aims to investigate midwifery practice during the second stage of labour with particular focus on how midwives apply their knowledge and skills during the second stage of labour to inform their decision making.

2. Defining and storing data

2.1 Creation of data I will observe participants providing midwifery care to women during their second-stage. Data will be recorded by hand in research field notes. I will build upon the information gained during my observations to encourage the participants to talk about what I have observed when interviewing them. I will record interviews with participants after each observation period using a digital audio recorder. These will then be transcribed verbatim into text. An interview proforma will also be completed by hand during the interview to provide any extra information about the context if required.
2.2 Data Format Observations will be recorded in my field notes by hand. These will be stored as hard copies and typed up as Word documents. Audio recordings of the interviews will be stored as MP3 (MPEG-1 Audio Layer-3). Transcripts of the interviews will be stored as hard copies and as Word documents.

Thoughts, reflections, observations, and an overview of the general context of the interview will be recorded by hand onto the Interview proforma. These will be stored as hard copies and typed up as Word documents.

2.3 Data Storage

Signed copies of consent forms will be stored securely as hard copies within a locked filing cupboard. Only the chief investigator will have access to these.

Hard copies of field notes made during the observations and the completed interview proformas will be kept securely in a fire proof locked cabinet, separate from the consent forms and where only the chief investigator and her supervisory team have access.

Typed copies of the field notes made during the observations, the completed interview proformas and transcripts of the interviews will be stored electronically as word documents in the University of Southampton's storage space. This is a secure space on the J drive where access is obtained only after permission has been granted to use the space and is via individual login. MP3 (MPEG-1 Audio Layer-3) recordings of the interviews will also be stored electronically on the secure storage space on the J drive. Only the chief investigator and her supervisory team will have access to these.

All data will be stored in accordance with the University of Southampton's research data management policy (2014/2015) and Medical Research Council's (MRC) Good Research Practice Guide.

A back up copy of data will be stored on an external hard drive which will be password protected and stored within a locked filing cupboard that only the chief investigator has access to.

2.4 Amount of data generated

I expect to generate less than 500 GB of electronic data.

I expect my field notes to fill one large ring binder

I expect my interview proformas to fill one large ring binder

I expect to have 8 completed consent forms

2.5 Ownership of data

I am the copyright owner of data and outputs created as part of my Doctorate in Clinical Practice.

3. Data upkeep

3.1 Data backup

Data stored on the University J drive is backed up by Computing Services on a two hourly basis. I will ensure that I copy the latest versions of my working files there.

3.2 Data Organisation

Data will be labelled, filed and organised into folders. A coding system will be used with a key to the codes stored separately from the participant names.

I will use version numbering in file names to indicate files revisions or edits and a version control strategy will also be in place.

Data and documentation files will be held in separate folders. Data files will be organised according to data type and then according to research activity.

Documentation files are organised also according to type of documentation file and research activity.

4 Archiving Data

4.1 Keeping data at the end of the project

The consent forms and all of my research data will be kept at the end of the project.

The University of Southampton requires that my data are kept for 10 years after the end of the project.

4.2 Place of archive

It is a requirement of the University of Southampton that I archive my data in the University's research data archive. I will arrange for my data to be archived following the submission of my Doctoral thesis.

4.3 Responsibility for moving and maintenance of data after the study

I am responsible for depositing my data in an archive and the archive service will maintain them.

5 Sharing data

5.1 Access rights and sharing of data during the project

Only my supervisors and I will have access to my data during the project.

Codes will be given to participants following consent and all data obtained will be anonymised and stored securely. Informed consent will be requested from my participants for their anonymised data to be shared following the project. This will be

governed by the data protection Act (1998) and Common Law Duty of Confidentiality. Any direct identifiers will be removed to protect anonymity.

5.2 Sharing of data after the project

Anonymised data will be shared through internal reports, including the final thesis, peer review journal publications and conference presentations provided consent has been gained from my participants.

6 Implementation of data management plan

6.1 Overall responsibility

I will take responsibility for carrying out the actions required by this plan and report them to my supervisor as appropriate.

6.2 Reviewing and updating of plan

My supervisors and I will review this plan and agree if updates if necessary.

6.3 Actions identified from the creation of the plan

Ensure that I request informed consent from my participants for sharing their data.

6.4 Policies relevant to this project

This project is sponsored by the University of Southampton and will adhere to the following policies:

University of Southampton Research Data Management Policy (2014/2015)

The Common Law of Confidentiality

Data Protection Act (1998)

The University of Southampton [University Intellectual Property Regulations](#) (2014/2015)

Appendix D

D.1 Initial Code Key developed following First Cycle of Coding Observational Data

Table 38: Initial code key developed following first cycle of coding of observational data

Code	Operational Definition
¹ EXTERNAL CUES	Relating to any instance of text that refers to my observation of the participant explicitly looking for or confirming external cues relating to labour progress
² PHYSICAL CUES ⁹⁷ (<i>changed to external cues</i>)	Relating to any instance of text where I observed the participant identifying physical signs
³ GUIDANCE	Relating to any instance of text where I observed the participant provided advice to the woman in a supportive manner
⁴ RESPONSIVE ⁹⁸ (<i>Changed to reassurance, guidance and affirming</i>)	Relating to any instance of text where the participant is observed being alert to and responding to the woman on an emotional level
⁵ CHECKING WITH THE WOMAN	Relating to any instance of text that refers to where I have observed the participant checking or clarifying information relating to care processes and assumptions with the woman
⁶ REASSURANCE	Relating to any instance of text where the participant was observed to provide emotional support and encouragement to the woman

⁹⁷ ²PHYSICAL CUES was *changed to external cues and subsequently removed*.

⁹⁸ ⁴RESPONSIVE was *changed to reassurance, guidance and affirming and subsequently removed*.

7AFFIRMING	Relating to any instance of text where the participant was observed to use positive affirmations about the woman's ability to labour and give birth
8WATCHING THE WOMAN	Relating to any instance of text where the participant was seen to be intently observing the woman.
9NORMAL PROCESS	Relating to any instance of text where the participant was observed to confirm normal labour progress during her interactions.
10 PHYSIOLOGY	Relating to any instance of text where the participant was observed to refer to the physiology and birth process to explain what was happening.
11ANTICIPATING EVENTS	Relating to any instance of text where the participant was observed to explicitly articulate future events associated with the woman's labour.
12RESOURCES	Relating to any instance of text where the participant made reference to issues pertaining to staffing/ management of workload outside of the birth room.
13GUIDELINES	Relating to any instance of text where the participant was observed to make explicit reference to or justify practice in relation to guidelines.
14PRESENCE OF COLLEAUES	Relating to any instance of text where the participant was observed responding to the presence of colleagues within the care context or birth room
15COMFORT	Relating to any instance of text where the participant was observed to be making the woman comfortable.
16PROXIMTY	Relating to any instance of text where an observation was made that the participant is physically close to the woman.

¹⁷ INFORMATION GIVING	Relating to any instance of text where it was observed that specific information was provided to the woman about her care.
¹⁸ RELATIONSHIP BUILDING	Relating to any instance of text where the participant has spoken about having a relationship or connection with the woman

D.2 Initial Integrated Code List

Table 39: Initial Integrated Code List

Developed after coding observational and interview data P01

Code	Operational Definition
¹ External cues	Relating to any instance of text that refers to: <ul style="list-style-type: none"> - my observation of the participant explicitly looking for or confirming external cues relating to labour progress - - the participant acknowledging their use and gathering of external cues in relation to care provision and labour progress
² Guidance	Relating to any instance of text where: <ul style="list-style-type: none"> - I observed the participant provide advice to the woman in a supportive manner - the participant spoke about the provision of advice and coping strategies to the woman in a supportive manner
³ Checking with the woman	Relating to any instance of text that referred to: <ul style="list-style-type: none"> - My observation of the participant checking or clarifying information relating to care processes and assumptions with the woman - the participant speaking about checking or clarifying information relating to care processes and assumptions with the woman
⁴ Reassurance	Relating to any instance of text where the participant: <ul style="list-style-type: none"> - was observed to provide emotional support and encouragement to the woman - spoke about providing emotional support and encouragement to the woman

⁵ Affirming	Relating to any instance of text where the participant was observed to use positive affirmations about the woman's ability to labour and give birth (Observation only)
⁶ Watching the woman	Relating to any instance of text where the participant spoke about how they would observe or watch the woman closely.
⁷ Normal processes	Relating to any instance of text where the participant made reference to normal labour progress.
⁸ Physiology	Relating to any instance of text where the participant made reference to the physiology and birth process to explain what was happening.
⁹ Anticipating events	Relating to any instance of text where the participant spoke about anticipating future events associated with the woman's labour.
¹⁰ Resources	Relating to any instance of text where the participant made references to issues pertaining to staffing/ management of workload outside of the birth room.
¹¹ Guidelines	Relating to any instance of text where the participant made explicit reference or justified their practice in relation to guidelines.
¹² Presence of colleagues	Relating to any instance of text where the participant was observed responding to the presence of colleagues within the care context or birth room (Observation only)
¹³ Comfort	Relating to any instance of text where the participant was observed to be making the woman comfortable. (Observation only)
¹⁴ Proximity	Relating to any instance of text where an observation was made or the participant made reference to proximity or personal space in relation to the woman
¹⁵ Information giving	Relating to any instance of text where it was observed that specific information was provided to the woman about her care or the participant spoke about information-giving in the context of care provision.

¹⁶ Relationship building	Relating to any instance of text where the participant was observed to have or had spoken about having a relationship/ connection or developing bond/ trust with the woman
¹⁷ Birth Environment	Relating to any instance of text where reference is made to the birth environment and its influence/ impact on the participant's practice (Interview P01)
¹⁸ Power	Relating to any instance of text where explicit reference was made to power, as in the participant having or giving power in relation to her relationship with the woman or colleagues. (I)
¹⁹ Transition	Any instance of text where explicit reference was made to the woman in relation to transition and the care provided during this stage. (I)
²⁰ Practice Experience	Any instance of text where the participant made reference to experiences or learning gained clinically as a midwife or student midwife.(i)
²¹ Personal Experience	Any instance of text where the participant made reference to experiences or learning gained personally as a woman and/or mother.(I)
²² Being Factual	Relating to any instance of text where the participant made reference to being factual or needing to ascertain the facts of a situation.(I)
²³ Having an inkling	Relating to any instance of text where the participant articulated that she had an 'inkling', just knew' or 'felt' something in relation to her care provision and/or the woman.(I)
²⁴ ETHOS	Relating to any instance of text where the participant talks about ethos in relation to care practices and choices
²⁵ Safety	Relating to any instance of text where the participant made explicit reference to safety in relation to care provision.(I)

²⁶ Control	Relating to any instance of text where the participant spoke about control whether it was to help the woman feel in control or in relation to the participant taking control. (I)
²⁷ Autonomy	Relating to any instance of text where the participant was explicit about practicing autonomously.(I)
²⁸ Articulating a dilemma	Relating to any instance of text where a dilemma, difficulty or possible problem or issue was articulated by the participant.(I)
²⁹ Waiting	Relating to any instance of text where the participant stated that she waited before taking action or providing care (I)
³⁰ Disrupt Energy	Relating to any instance of text where the participant spoke about the energy in the room being affected by something (I)
³¹ Influence of colleagues	Relating to any instance of text where the participant made reference to the influence or impact of working with colleagues (I).
³² Communication (<i>Changed to articulating a dilemma</i>)	Relating to any instance of text where reference was made about communicating with the woman (<i>Interview</i>)

D.3 Colour Key and Final Integrated Code List

Table 40: Colour Key and Final Integrated Code List

Code	Operational Definition	Linked to issue Question
No colour = Codes developed from both observation and interview data	Yellow = developed from observation data only	Green = developed from interview data only
¹ External cues	Relating to any instance of text that referred to: <ul style="list-style-type: none"> - my observation of the participant explicitly looking for or confirming external cues relating to labour progress - the participant acknowledging their use and gathering of external cues in relation to care provision and labour progress 	What sources of knowledge do midwives draw upon to inform their practice?
² Guidance	Relating to any instance of text where: <ul style="list-style-type: none"> - I observed the participant provided advice to the woman in a supportive manner - the participant spoke about the provision of advice and coping strategies to the woman in a supportive manner 	How does the midwife respond to the woman and does the woman influence the midwives practice?
³ Checking with the woman	Relating to any instance of text that referred to: <ul style="list-style-type: none"> - to the participant checking or clarifying information relating to care processes and assumptions with the woman - where I have observed the participant checking or clarifying information relating 	How does the midwife respond to the woman and does the woman influence the midwives practice?

	to care processes and assumptions with the woman	
⁴ Reassurance	<p>Relating to any instance of text where:</p> <ul style="list-style-type: none"> - the participant was observed to provide emotional support and encouragement to the woman - the participant spoke about providing emotional support and encouragement to the woman 	How does the midwife respond to the woman and does the woman influence the midwives practice?
⁵ Affirming	Relating to any instance of text where the participant was observed to use positive affirmations about the woman's ability to labour and give birth (Observation)	How does the midwife respond to the woman and does the woman influence the midwives practice?
⁶ Watching the woman	Relating to any instance of text where the participant was seen to be intently observing the woman. (Observation)	How does the midwife respond to the woman and does the woman influence the midwives practice?
⁷ Normal processes	<p>Relating to any instance of text where the:</p> <ul style="list-style-type: none"> - Participant was observed to confirm normal labour progress during her interactions. - Participant made reference to normal labour progress. 	What sources of knowledge do midwives draw upon to inform their practice?
⁸ Physiology	<p>Relating to any instance of text where the:</p> <ul style="list-style-type: none"> - Participant was observed to refer to the physiology and birth process to explain what was happening. 	What sources of knowledge do midwives draw upon

	<ul style="list-style-type: none"> - Participant made reference to the physiology and birth process to explain what was happening. 	to inform their practice?
⁹ Anticipating events	<p>Relating to any instance of text where the participant:</p> <ul style="list-style-type: none"> - Was observed to explicitly articulate future events associated with the woman's labour. - Spoke about anticipating future events associated with the woman's labour. 	Inductive
¹⁰ Resources	<p>Relating to any instance of text where the participant made reference to issues pertaining to staffing/ management of workload.</p>	How does the presence of external factors influence midwives practice and interactions with women
¹¹ Guidelines	<p>Relating to any instance of text where the participant made explicit reference to guidelines.</p>	What sources of knowledge do midwives draw upon to inform their practice?
¹² Presence of colleagues	<p>Relating to any instance of text where the participant was observed responding to the presence of colleagues within the care context or birth room (Observation)</p>	How does the presence of external factors influence midwives practice and interactions with women
¹³ Comfort	<p>Relating to any instance of text where the participant was observed to be making the woman comfortable. (Observation only)</p>	Inductive
¹⁴ Proximity	<p>Relating to any instance of text where:</p>	Inductive

	<ul style="list-style-type: none"> - an observation was made that the participant is physically close to the woman. - the participant made reference to proximity or personal space in relation to the woman 	
¹⁵ Information giving	<p>Relating to any instance of text where:</p> <ul style="list-style-type: none"> - it was observed that specific information was provided to the woman about her care. - the participant spoke about information-giving in the context of care provision. 	Inductive
¹⁶ Relationship building	<p>Relating to any instance of text where the participant spoke about having a relationship with the woman or made reference to relationships with women or having a connection with the woman</p>	How does the midwife respond to the woman and does the woman influence the midwives practice?
¹⁷ Birth Environment	<p>Relating to any instance of text where reference is made to the birth environment and its influence/ impact on the participant's practice</p>	How does the presence of external factors influence midwives practice and interactions with women
¹⁸ Checking with colleagues	<p>Relating to any instance of text where the participant was:</p> <ul style="list-style-type: none"> - observed to check or clarify information with colleagues - speaks about talking with her colleagues regarding a dilemma or hunch in relation to care provision 	To what extent do midwives discuss care decisions with other midwives and how does this inform their practice?

		How do midwives articulate and respond to dilemmas in practice and describe knowledge that they are unable to rationalise?
¹⁹ Articulating a dilemma	Relating to any instance of text where the participant articulates a dilemma or concern that they had with the woman or an aspect of care provision:	How do midwives articulate and respond to dilemmas in practice and describe knowledge that they are unable to rationalise?
²⁰ Making a plan	Relating to any observation of the participant articulating a plan (Observation only)	How do midwives articulate and respond to dilemmas in practice and describe knowledge that they are unable to rationalise?
²¹ Instructing	Relating to any instance of text where an observation has been made of the participant directing or instructing the woman to do something which was perceived to be different in tone/nature than guidance. (Observation only)	Inductive
²² Influence of colleagues	Relating to any instance of text where the participant made reference to the influence or impact of working with colleagues.(Interview only)	To what extent do midwives discuss care decisions with other midwives and how does this inform their practice?

<p>²³Belief in the woman</p>	<p>Relating to any instance of text that refers to the midwife accepting information provided by the woman regarding her assessment of her progress. (Interview only)</p>	<p>How does the midwife respond to the woman and does the woman influence the midwives practice?</p>
<p>²⁴Time Restrictions</p>	<p>Relating to any instance of text where the participant makes reference to time restrictions on labour progress. (Interview only)</p>	<p>Inductive</p>
<p>²⁵ Disrupt Energy</p>	<p>Relating to any instance of text where the participant spoke about the energy in the room being affected by something. (Interview only)</p>	<p>How does the presence of external factors influence midwives practice and interactions with women (i)</p>
<p>²⁶Checking hunches</p>	<p>Relating to any instance of text where the participants refers to the process of seeking to find a rationale for why they are not happy or have an inkling about something in relation to the woman's care. (Interview only)</p>	<p>How do midwives articulate and respond to dilemmas in practice and describe knowledge that they are unable to rationalise?</p>
<p>²⁷Knowledge of the woman –</p>	<p>Relating to any instance of text where the midwife explicitly makes reference to knowing her woman or having knowledge about the woman acquired through spending time with her. (Interview only)</p>	<p>How does the midwife respond to the woman and does the woman influence the midwives practice?</p>
<p>²⁸Waiting</p>	<p>Relating to any instance of text where the midwife stated that she waited before taking action or providing care. (Interview only)</p>	<p>Inductive</p>

²⁹ Autonomy	Relating to any instance of text where the participant was explicit about practicing autonomously. (Interview only)	Inductive
³⁰ Safety	Relating to any instance of text where the participant made explicit reference to safety in relation to care provision. (Interview only)	Inductive
³¹ Advocacy	Relating to any instance of text where the participant talks about being an advocate for women. (Interview only)	Inductive
³² Control	Relating to any instance of text where the participant spoke about control whether it was to help the woman feel in control or in relation to the participant taking control. (Interview only)	Inductive
³³ Having an inkling	Relating to any instance of text where the participant articulated that she had 'an inkling', just knew' or 'felt' something in relation to her care provision and/or the woman.(Interview only)	How do midwives articulate and respond to dilemmas in practice and describe knowledge that they are unable to rationalise?
³⁴ Power	Relating to any instance of text where explicit reference was made to power, as in the participant having or giving power in relation to her relationship with the woman or colleagues. (Interview only)	Inductive
³⁵ Transition	Any instance of text where explicit reference was made to the woman in relation to transition and the care provided during this stage. (Interview only)	Inductive
³⁶ Practice Experience	Any instance of text where the participant made reference to experiences or learning gained	What sources of knowledge do midwives draw upon

	clinically as a midwife or student midwife. (Interview only)	to inform their practice?
³⁷ Personal Experience	Any instance of text where the participant made reference to experiences or learning gained personally as a woman and/or mother. (Interview only)	What sources of knowledge do midwives draw upon to inform their practice?
³⁸ Being Factual	Relating to any instance of text where the participant made reference to being factual or needing to ascertain the facts of a situation. (Interview only)	Inductive
³⁹ Partnership working	Relating to any instance of text where the participant speaks about decisions and care provision being made with women to ensure that women are involved in decision-making. (Interview only)	How does the midwife's relationship with the woman influence her care?

D.4 Development of Subcategories and Categories from Observational and Interview Data

Table 41: Development of Categories from Observational and Interview Data

Observational and Interview Data		
Codes	Subcategories	Categories
Having an Inkling; Checking Hunches; Articulating a Dilemma; Checking with Colleagues; Being Factual; Personal Experience; Practice Experience; Making a Plan; Guidelines,	<ul style="list-style-type: none"> - Having a hunch or inkling - Experiential Knowledge - Dealing with uncertainties 	<p>Experience and developing hunches (Responding to uncertainties collapsed into this category).</p> <p>Category renamed Experience, Developing and Checking Hunches</p>
Relationship Building; Proximity; Comfort; Guidance; Knowledge of the woman; Checking with the woman; Reassurance; Affirming; Information Giving; Instructing, Advocacy, Control, Belief in the woman	<ul style="list-style-type: none"> - Relationship-building - Personal knowledge of the woman - Control and Advocacy 	Responding to the woman
Presence of Colleagues; Influence of Colleagues; Resources; Disrupt Energy	<ul style="list-style-type: none"> - Resources - Influence of Colleagues 	External influences on care provision

Physiology; Normal Processes; Anticipating Events; Waiting; Watching the Woman; External Cues; Transition; Safety	<ul style="list-style-type: none"> - Labour Progress - External Cues <p>Anticipating Events</p>	Observing the process
Time Restrictions; Guidelines; Autonomy; Birth Environment	<ul style="list-style-type: none"> - Birth Environment - Time Restrictions 	Influence of the birth environment
Information Giving; Guidance; Partnership working; Power, Autonomy, Information-Giving, Instructing,	<ul style="list-style-type: none"> - Giving Instructions - Autonomy 	Working in partnership

Glossary of Terms

Alongside Midwife-Led Units are birth centres run by midwives that are within or alongside a hospital and Obstetric Unit.

Apgar score this is an accepted method of assessing how the newborn has adapted to extra uterine life immediately following birth

Band 7 clinical midwives are experienced midwives with recognised clinical expertise in the care of women. Responsibilities include the day-to-day running of the ward area, allocation of work, liaising with obstetricians and monitoring other midwives practice.

Band 6 clinical midwives are midwives who have completed a preceptorship period and are not newly qualified. They may have a varying degree of clinical expertise and provide care and support to women and their families before, during and after childbirth.

Band 5 clinical midwives are midwives who are newly qualified or who have not completed a preceptorship period and obtained their competencies in skills such as suturing and cannulation. They provide care and support to women and their families before, during and after childbirth.

Birth Centres are another name for **midwife-led units** that are run by midwives and have a home like environment. They are most suitable for women without complications and can be next to a hospital maternity unit (**'alongside'**) or situated in the community (**'freestanding'**).

Cardiotocography (CTG) is an electronic machine that records the fetal heartbeat and the uterine contractions during pregnancy. It is recommended for use on women with complications that may impact upon fetal wellbeing during labour.

Caseload midwife is a named midwife who provides continued care to a designated caseload of women throughout pregnancy and after the birth and sometimes during the intrapartum period.

Community midwifery is provided for the majority of women during the antenatal and the postnatal periods where women visit a named midwife or midwife from a named team at the hospital, local health or community centre, GP surgery or receive a home visit. Community midwives also provide a home birth service and undertake on calls to attend emergencies and homebirths within the community setting. Some community midwives also provide an on call service to help staff Midwife Led or Obstetric Units.

Consultant led Care is where the lead professional responsible for the planning of a woman's care is the consultant obstetrician.

Clinical Dashboards were introduced within clinical practice in 2008 and provide a visual tool for capturing local clinical data that can be used for monitoring and improving standards of care (NHS Connecting for Health, 2008).

Electronic Fetal Monitoring is a technical way of monitoring the fetal heart rate and maternal contractions using cardiotocography

Episiotomy is a surgical cut to the maternal perineum that can be made as the vertex of presenting part extends the maternal perineum

First-stage of labour is characterised by the initiation of uterine contractions to efface and dilate the cervix and facilitate the descent of the fetus into the pelvis (Coad and Dunstall, 2011)

First degree perineal laceration involves damage to the maternal fourchette and superficial perineal skin or vaginal mucosa

Free-Standing Midwife-Led-Unit are birth centres run by midwives that are situated away from a hospital and Obstetric Unit.

Fundal Pressure involves application of manual pressure to the uppermost part of the uterus

Head of Midwifery or Director of Midwifery is the most senior midwife in a maternity unit who has overall responsibility for the service provided to women and their families

Haemostasis means the stopping of bleeding

Holistic model of birth views birth as a normal physiological process and acknowledges the women's mind, body and spirit as essential elements of this

Iatrogenesis refers to any adverse consequence that result from medical treatment or intervention

Intrapartum Period is the period from the start of regular contractions to the birth of a baby. The term childbirth or birth is also used to describe the process of parturition.

Instrumental birth is sometimes called 'assisted birth' and refers to when the obstetrician uses forceps or vacuum extraction to help birth the baby.

Labour Ward is also called the '**Delivery Suite**', '**Obstetric Unit**', or '**Consultant Led maternity Unit**' and is the part of a hospital where women give birth. It is staffed by midwives, obstetricians, anaesthetists and maternity support workers. Women with complications are usually recommended to give birth on the Labour ward due to the presence of the multidisciplinary team and close proximity to theatre.

Maternity Service Liaison Committees are made up of a group of people who are involved in planning, providing and receiving maternity care, and who advise on developments in local maternity services and monitor progress towards agreed standards so that all parents profit from improvements in care.

Medical model of birth means to treat birth as a medical problem.

Midwife led care refers to when midwives are the lead professionals in the planning and implementing maternity care in partnership with women.

Midwife-led units are another name for birth centres that are run by midwives and have a home like environment. They are most suitable for women without complications and can be next to a hospital maternity unit ('alongside') or situated in the community ('freestanding').

Multidisciplinary Team is a group of professionals from one or more clinical disciplines who together make decisions regarding recommended care. In maternity this tends to be midwives, obstetricians, anaesthetists and neonatologists

Multiparous refers to women who have previously given birth

Normal birth definition may vary although within England the RCM has defined it as birth "*without induction, caesarean, instrumental delivery or episiotomy, but including epidurals and other anaesthetic*". The current rate of this in England is 45% (RCM, 2015)

Nulliparous refers to women who have not previously given birth

Postpartum period or postnatal period is the period beginning immediately after the birth a child and extending for about six weeks.

Second-stage begins when the maternal cervix is fully dilated and ends with the birth of the baby

Second degree perineal laceration involves damage to the perineum that extends beyond the fourchette, perineal skin and vaginal mucosa to the perineal muscles and fascia.

Sonicaid is the name given to small handheld Doppler fetal monitors that are used for auscultating the fetal heart

Technocratic model of birth is a paradigm that provides the rationale for the medical conduct of the birth process and views the female body as an inherently defective machine which perpetuates the profound cultural belief in the innate inferiority of women to the men (Davis Floyd, 2018).

Third stage of labour lasts from the birth of the baby until the placenta and membranes have been expelled and the achievement of haemostasis

Third or fourth degree perineal laceration involves damage to the fourchette, perineal skin, vaginal mucosa, muscles, and anal sphincter.

Transition refers to the distinctive physiological changes that occur sometime during full dilatation of the cervix and the commencement of expulsive contractions

Vertex is an area of the head that is bounded by the anterior and posterior fontanelles and laterally by the parietal eminences (Tiran, 289)

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