Midwives' Facilitation of Physiological Placental Birth: A Delphi Study

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A thesis submitted in fulfilment of the degree Master of Midwifery

at Otago Polytechnic, Dunedin, New Zealand

14 December 2020

Declaration Concerning Thesis Presented for the Degree of Master of Midwifery

…….....

I, Deb Beatson

solemnly and sincerely declare in relation to the thesis entitled:

Midwives' Facilitation of Physiological Placental Birth: A Delphi Study

(a) That work was done by me, personally

and

(b) The material has not previously been accepted in whole, or in part, for any other degree or diploma

Date: 14 December 2020

Abstract

In Aotearoa New Zealand (NZ), it is common for women to have a physiological placental birth (PPB) following a physiological birth. In this context, evidence suggests that PPB results in less blood loss than does active management, and a lower incidence of postpartum haemorrhage (PPH). However, there is minimal literature about midwives' experience and knowledge about PPB.

The study aimed to uncover how midwives in NZ facilitate PPB. Objectives included reaching consensus about a definition of PPB and aspects of practice which support midwives to support women to achieve a PPB following physiological labour and birth. The research question explored was "what do midwives in NZ do to facilitate physiological placental birth, following physiological labour and birth?".

The Delphi technique, an iterative quantitative non-experimental survey method used for obtaining consensus of expert opinion on a topic was employed. The participants individually respond to the questions posed. The researcher reviews the expert responses and modifies the tool, which is then sent to the same participants, and the process of review and revision is continued aiming for 80% consensus.

Eighteen participants were recruited for their expert experience with PPB, with 14 continuing to the third and final round of the survey. The expert inclusion criterion employed was: Lead Maternity Carer midwives in NZ who provide PPB care for at least 30% of their caseload, and who have a postpartum haemorrhage rate of less than four percent (this based on the criteria used in the MEET study (Begley et al., 2012)).

The data was analysed using descriptive statistics with 13 resulting statements reaching consensus. These statements included a definition of PPB, factors which should be present or should be avoided in PPB, ways to facilitate PPB, and factors which influence decision making for supporting PPB. Four themes were generated following thematic analysis of the qualitative comments: understanding of and trust in physiology, supporting physiology (awhi), individualised care and continuous midwifery assessment. The importance of an upright maternal position, and methods of supporting physiology, particularly supporting the woman's external environment, were highlighted. The technique of gentle cord traction (as opposed to controlled cord traction) to birth the placenta once it is in the vagina was endorsed by this group of midwives.

This distillation of midwives' knowledge on PPB will add to the existing body of knowledge about placental birth. The findings are congruent with existing guidelines and models in NZ in the context of continuity of midwifery care and should give midwives confidence in the techniques uncovered.

Acknowledgements

Firstly, I would like to thank the midwives who gave their time to participate in this study. I appreciate your willingness to engage not once but three times and would like to express my gratitude to you for sharing your practice wisdom with me. I have endeavoured to honour the knowledge shared with me and hope that capturing this wisdom will enable more midwives to support more women to experience physiological placental birth.

Secondly, I would like to acknowledge my supervisors, Dr Suzanne Miller and Dr Jean Patterson. Your awhi through the process, expert eyes and encouragement have helped immeasurably.

I would also like to thank my colleagues at Otago Polytechnic, my friends and my midwifery mentors who have listened to my burgeoning ramblings, have supported me throughout and pushed me to keep going.

Thank you to my midwifery mentor, Raewyn Harris, who sparked the midwifery fire in me, fanned the flames and has continued to stoke the fire.

Finally, thank you to my family who have been patient while I have been squirrelled away in my office. I'm looking forward to having weekends free so that I can spend more time with you all.

Ehara taku toa i te toa takitahi, engari he toa takitini.

My success is not mine alone, it is the success of the collective.

Glossary

Awhi	to embrace, hug, cherish or surround
Hapū	kinship group, clan, tribe, subtribe (also to be pregnant)
Iwi	extended kinship group, tribe, nation, people (also strength, bone)
Kaitohutohu	advisor or instructor. The Kaitohutohu Office upholds Otago Polytechnic's partnership with local iwi and the local Māori community, supports the aspirations of Māori staff and students, and oversees the implementation of the Māori Strategic Framework across the Polytechnic. This includes the research consultation process from a Kaupapa Māori perspective.
Kanohi ki te kanohi	face to face
Kaumatua	elder/s
Kaupapa Māori	Māori approach, Māori topic, Māori customary practice, Māori institution, Māori agenda, Māori principles, Māori ideology - a philosophical doctrine, incorporating the knowledge, skills, attitudes and values of Māori society.
Muka	prepared flax fibre from the harakeke plant

Nga Maia	a collective of Māori midwives in NZ
Pākehā	New Zealander of European descent
Papatūānuku	mother earth
Pounamu	greenstone
Tangata Whenua	the indigenous people of NZ, people born of the whenua, i.e. of the placenta and of the land where the people's ancestors have lived and where their placenta are buried.
Te Ao Māori	the Māori world
Te Reo Māori	the Māori language
Turanga Kaupapa	guidelines, developed by Nga Maia in 2006 for the midwifery profession, to provide cultural guidelines and recognition of Māori as Tangata Whenua. These have been formally adopted by both the Midwifery Council of New Zealand and the New Zealand College of Midwives.
Wahine	woman
Whakapapa	genealogy, lineage, descent lines
Whānau	extended family, family group (also to be born, give birth)

Whare tangata	‘house of humanity’, uterus/womb
Whenua	placenta, land, ground

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Introduction

Midwives have always shared their practice wisdom with each other, with students and with the women they work alongside. In the late 1990's, I was introduced to both physiological and active management of placental birth in my undergraduate midwifery programme. I was fortunate to work with midwives who were familiar with both methods and subsequently felt confident with placental birth upon commencing practice. Three years later I moved to Brisbane, Australia, to work in a birth centre and was exposed to new ideas, in particular, the use of a birth stool to facilitate physiological placental birth. I loved this idea – utilising gravity, while facilitating skin-to-skin and early breastfeeding – and I found the placenta would just fall out! I have subsequently shared this knowledge with others. I wanted to formally explore the practice wisdom of midwives in relation to physiological placenta birth, surfacing this knowledge and sharing it beyond the individual interactions in practice, described by some as embodied knowledge (Hunter, 2008).

I had an inkling that something different may be happening in Aotearoa New Zealand (NZ), when Dixon et al. (Dixon et al., 2009; Dixon et al., 2013a) published the outcomes of women in NZ who received physiological care in the third stage compared with those who received active management. Data were analysed from the New Zealand College of Midwives (NZCOM) database which showed that increased numbers of women experienced physiological care in NZ compared with other countries. The researchers found that following spontaneous labour and a physiologic birth, the women with physiological third stage care had less blood loss and less need for manual removal of the placenta than those who had an actively managed third stage. The researchers concluded that physiological care in the third stage of labour should be considered for healthy women following spontaneous labour and birth.

From this came my research question "what do midwives in NZ do to facilitate physiological placental birth, following physiological labour and birth?" with the aim of describing midwives' practice wisdom about physiological placental birth following physiological labour and birth.

Background to the Research

When exploring the midwives' practice wisdom about physiological placental birth it is helpful to understand key concepts which background the research. A summary of the physiology of placental birth, followed by an overview of the third stage of labour from a practice perspective is offered. Next the context of placental birth in NZ is described and the significance of the placenta for the indigenous Māori population is discussed.

Physiology of Placental Birth

Begley et al. (2019) notes that we are yet to have a full understanding of the physiology of the third stage of labour. However, the following overview provides an outline of what we know. Placental separation usually starts with the contraction that births the baby (Baddock, 2019; Ndala, 2005). The placenta separates from the decidua (the wall of the uterus) due to strong uterine contractions which continue under the influence of oxytocin (Baddock, 2019; Buckley, 2001). These contractions reduce the size of the placental site, forcing blood in the intervillous spaces back in to the spongy layer of the decidua which results in the firmer tissue of the placenta 'shearing' away from the uterine wall (Baddock, 2019; Buckley, 2001; Ndala, 2005). The uterine wall thickens and the weight of the placenta strips the membranes off the uterine wall, and the placenta descends in to the vagina (Baddock, 2019; Ndala, 2005). Following this the uterus retracts further and brings the wall of the uterus together applying pressure to the placental site, while the oblique muscle fibres surrounding the uterine blood vessels retract and act as 'living ligatures' to strangle the blood vessels preventing further blood loss (Baddock, 2019; Ndala, 2005). Additionally clot formation is

maximised by a transitory increase in the activity of the coagulation system and the placental site is rapidly covered by a fibrin mesh (Ndala, 2005).

Herman et al. (2002), in their study using continuous real-time ultrasound of 101 normal births, identify that placental separation occurs in a multiphasic process with most demonstrating a down-up separation pattern where the separation commences at the lower pole and progresses towards the upper pole. However, when the placenta is fundal, this separates first at their poles with the fundal part separating last. The three distinct phases identified are latent, contraction/detachment and expulsion (Herman et al., 2002).

Hormonal Influence

> Despite research gaps, a consistent and coherent mosaic is coming into view of a finely tuned hormonal physiology of childbearing, active from pregnancy to lactation and beyond, which supports health, connection, and well-being of mother and baby, in the short term and even lifelong (Buckley, 2015, p.viii)

Three hormone systems have been identified as playing important roles in the third stage of labour: endorphins, catecholamines and oxytocin (Buckley, 2001). Endorphins are natural opiates which produce an altered state of consciousness and positively alter the experience of pain, while the catecholamines adrenaline and noradrenaline (the 'fight and flight' hormones) provide the body with a burst of energy to help push a baby out in second stage (Buckley, 2001). Oxytocin plays a pivotal role during labour and birth, including the third stage (Uvnäs-Moberg et al., 2019). Named from the Greek words for 'quick' and 'childbirth labour' (Uvnäs Moberg, 2003), oxytocin is produced in the hypothalamus and transported to the posterior pituitary and during labour is released in pulses from the pituitary to induce uterine contractions, with the uterus being highly sensitive to oxytocin (Uvnäs-Moberg et al., 2019).

There is a significant rise in oxytocin levels between full dilatation and crowning, and oxytocin levels are elevated at the end of labour with a four-fold rise of oxytocin levels in connection with the birth of the baby (Uvnäs-Moberg et al., 2019). Oxytocin continues to be released after birth in connection with expulsion of the placenta (Uvnäs-Moberg et al., 2019). Further, skin-to-skin contact in the sensitive period in the hour or so after a physiologic birth encourages peak oxytocin activity potentially leading to stronger contractions and a reduction in the risk of postpartum haemorrhage (PPH) (Buckley, 2015). The peaks of oxytocin at this stage are higher than at any other time in a woman's life (Nissen et al., 1995; Rahm et al., 2002; Saxton et al., 2014).

As well as acting on the uterus, endogenous oxytocin enhances mood and wellbeing, promotes social interactions, decreases anxiety and pain, and lowers both physiological and psychological stress (Uvnäs-Moberg et al., 2019). Importantly, oxytocin released during labour and birth decreases the experience of pain, as well as helping the mother to bond with her baby, enhancing sensitivity of the skin and promoting vasodilation of the superficial blood vessels in the mother's chest, which can help with newborn warming (Uvnäs-Moberg et al., 2019).

Prolactin is another hormone playing a major role in reproduction and in the synthesis of breast milk (Buckley, 2015). In the third stage of labour, prolactin increases steeply prior to birth, probably because of the peaks of oxytocin and endorphins at this stage (Buckley, 2015). Prolactin stimulates oxytocin release, and levels of prolactin remain high for several hours after birth likely promoting breast milk production and maternal adaptations, such as a reduction in anxiety, aggression, and muscle tension, which may assist mothers to care for their baby (Buckley, 2015). The hormones introduced here, prolactin, endorphins,

catecholamines and oxytocin all interact with each other in the perinatal period promoting or inhibiting one another's activity (Buckley, 2015).

Overview of the Third stage of Labour in Practice

The third stage of labour refers to the period of time from the birth of the baby, and includes the separation and expulsion of the placenta and membranes (International Confederation of Midwives, 2011), until the bleeding from the placental site is minimised (Ndala, 2005). There are two methods of care: active management or physiological management (Dixon et al., 2011), with mixed management also described (Begley et al., 2015).

Active Management

It is widely accepted that active management (AM) involves early cord clamping, the administration of uterotonic drugs and the application of controlled cord traction (CCT) to birth the placenta (Begley et al., 2019; International Confederation of Midwives (ICM) & International Federation of Gynaecologists and Obstetricians (FIGO), 2003; Thorpe & Anderson, 2019). Uterotonics are agents used to stimulate the uterus to contract, used for prophylaxis or treatment of bleeding – most commonly Oxytocin/Syntocinon, Ergometrine or a combination of the two (Brucker, 2001; Johnson & Taylor, 2016).

Mixed management of the third stage uses some but not all of the components of AM (Begley et al., 2015) and has been criticised in textbooks with practitioners urged not to mix methods, as this may lead to partial separation of the placenta and blood loss with adverse effects for the woman and her baby (Thorpe & Anderson, 2006).

Physiological Placental Birth

The physiological third stage of labour refers to the expectation that the birth of the placenta and membranes will follow the physiological process of birth

uninterrupted (Dixon et al., 2011; NZCOM, 2013; Thorpe & Anderson, 2006). The physiological third stage of labour is also known as expectant, passive, natural or conservative management/birth/third stage and will be referred to as physiological placental birth (PPB) from this point onwards in recognition that it is a woman who gives birth to her placenta and it is a physiological process.

Lotus birth is the practice of leaving the umbilical cord intact with the baby remaining attached to the placenta until the cord naturally separates at the umbilicus (Edwards & Wickham, 2018; Thorpe & Anderson, 2019). The placenta is sometimes washed, dried, salted and placed in a wrapping, often with fresh rosemary or lavender (Edwards & Wickham, 2018; Thorpe & Anderson, 2019).

There is no international consensus about what constitutes PPB and there is no universally accepted definition (Baker, 2014; Brucker, 2001; Fahy et al., 2010; Fahy, 2009; Hastie & Fahy, 2009). The International Confederation of Midwives (ICM, 2011) provides a position statement about the role of the midwife in PPB but does not provide a definition for this, rather referring to attending the birth of the placenta without the aid of uterotonics. This definition could be seen as being framed in negative terms as it is framed in relation to the absence of the components of AM (Edwards & Wickham, 2018; Fahy, 2009; Odent, 2002). Fahy et al. (2010) explain that most definitions of PPB exclude environmental conditions (such as temperature and lighting and the confidence and knowledge of the midwives attending the PPB) and do not limit this method to women who have a normal pregnancy, labour and birth. In the definition used in the 2009 Cochrane Review (Prendiville, Elbourne, & Mcdonald, 2009) the terms 'physiological management' and 'expectant management' are used synonymously, and the definition is noted as 'a hands off policy where the signs of separation are awaited and the placenta is allowed to deliver spontaneously' (Fahy et al., 2010). In the most recent Cochrane Review, the definition is condensed to 'signs of placental separation are awaited and the placenta is delivered' (p.1) in the abstract or 'the

mother delivers the placenta, or after-birth' (p.2) in the plain language summary (Begley et al., 2019). They expand on this in the description of the intervention noting that:

1. a prophylactic uterotonic agent is not administered;
2. ideally, the umbilical cord is neither clamped nor cut until the placenta has been delivered but, at a minimum, caregivers have waited until cord pulsation has ceased; and
3. the placenta is delivered spontaneously with the aid of gravity and sometimes maternal effort (Begley et al., 2012; Rogers et al., 1998) (Begley et al., 2019, p.7)

Again, this is framed in comparison to an intervention, AM, rather than focussing on a physiological process.

Postpartum Haemorrhage

Postpartum haemorrhage (PPH), refers to excessive blood loss, greater than or equal to 500ml (Thorpe & Anderson, 2006). However there is some discussion that blood loss of 1000 ml or more (severe PPH), or symptoms of hypovolaemia, acknowledging the individuals' response to blood loss, may be of more significance (Begley et al., 2015; Edwards & Wickham, 2018; Prichard et al., 1995). Begley et al. (2019) suggest that a woman's body is well prepared for normal blood loss at birth and note that given that 600-750ml of diluted blood is comparable to a routine blood donation in some countries, a blood loss of less than 750ml is not severe in a healthy woman. It is acknowledged, however, that in NZ the routine blood donation volume is less at 470ml, with an extra 15ml taken for testing (New Zealand Blood Service, 2019). Additionally, Begley et al. (2019) note that the physiological decrease in plasma volume following birth results in an increase in haemoglobin concentration and conclude that this is an area for further exploration (Begley et al., 2019).

Management of the Umbilical Cord

Immediate clamping and cutting of the cord following the birth of the baby became widespread following the introduction of uterotonics in the 1940s and 1950s, along with pulling on the cord as a way of birthing the placenta more quickly (Edwards & Wickham, 2018; Stojanovic, 2012). The suggested motivations for this have been noted to be in order for the baby to be removed from the bed so that the practitioners could focus on the mother, to avoid mess, and to expedite the transfer of mothers and babies out of the delivery room (Edwards & Wickham, 2018). Another reason for early clamping is to facilitate newborn resuscitation (Hewitt, 2019). The increased use of narcotic analgesia in labour in the mid-1900s, caused more respiratory depression in the newborn and increased the need for resuscitation (Hewitt, 2019)

Stojanovic (2012) records that in NZ in the late 1940s the practice had been to wait until the cord stopped pulsing before tying it, however some believed that there was potential for the additional blood in the cord to overload the baby's circulation and consequently some practitioners were moving to clamping and cutting the cord almost immediately after birth or as soon as respiration was established, as part of the AM package.

Controlled Cord Traction

Pulling on the cord was paired with a technique called 'guarding the uterus' to prevent uterine inversion. Uterine inversion is extremely painful for the woman and an emergency situation as it can lead to maternal shock (Edwards & Wickham, 2018). This technique, where the practitioner supports the woman's uterus by putting one hand firmly on the woman's lower abdomen in front of her uterus while applying traction to the cord with the other to expedite the removal of the placenta, is now known as controlled cord traction (CCT) (Edwards & Wickham, 2018). Controlled cord traction was introduced because of the increasing number of retained placentae following the administration of

intravenous ergometrine, which could cause the placenta to become trapped in the uterus if it was not removed immediately (Richards, 2010).

Recently, the combination of early cord clamping, the use of uterotonics and CCT in AM has been questioned, and there have been three studies which have evaluated the effects of CCT with or without AM (Althabe et al., 2009; Deneux-Tharaux et al., 2013; Gülmezoglu et al., 2012; Hofmeyr et al., 2015). A Cochrane review incorporating these studies notes that CCT may be uncomfortable for the mother and may interfere with her preference for a natural birth process. The review concludes that CCT, compared to when the placenta was born by maternal effort, did not reduce severe PPH but did result in a small reduction in PPH (less than 1000ml). However, there was a significant reduction in manual removal of the placenta with CCT (risk ratio [RR] 0.69, 95% confidence interval [CI] 0.57 to 0.83) (Hofmeyr et al., 2015). It has been proposed that it is likely the administration of the uterotonic, and not the early cord clamping and CCT, that reduces PPH (Hewitt, 2019).

In relation to employing CCT in PPB (mixed management), Edwards & Wickham (2018) highlight that CCT may be more likely to cause a problem than if the placenta is allowed to birth naturally in situations when the placenta has an extra lobe or the cord is attached on the edge of the placenta. In their conclusion, they state

> For these reasons, it is not a good idea to fiddle with or pull on the cord when the birth of the placenta is physiological. In fact, any handling of the uterus can cause pain and bleedings so, unless there is a need to manually help the woman's uterus to contract in order to manage bleeding, so-called 'fundal fiddling' should also be avoided (Edwards & Wickham, 2018, p.63).

Hastie and Fahy (2009) also advocate for leaving the cord alone in PPB, noting DO NOT (their capitals) pull on the cord as it can cause partial separation and bleeding and may even invert the uterus (p. 94).

Delayed Cord Clamping

Stojanovic noted that Botha, an obstetrician, influenced midwifery practice in NZ, particularly in the homebirth setting (Stojanovic, 2012). In 1968, Botha, who attended 26,000 Bantu[1] women over the course of 10 years, reported that retained placenta was seldom seen in this population and purported that it was better for mother and baby if the cord was not clamped or cut (Buckley, 2001). However, AM with the three components outlined previously was deeply embedded as the management of choice and therefore Botha only influenced a few midwives (Stojanovic, 2012).

There has been a recent change in practice noticeable in NZ and internationally, as practitioners move to delayed clamping of the cord in both AM and PPB (Buckley, 2009; Hewitt, 2019; Main, 2012; Mcdonald et al., 2013). This is in response to rapidly growing evidence about the harms of immediate cord clamping, in particular the consequence of a reduction in blood volume resulting in low iron stores for babies at three to six months of age (McDonald et al., 2013). Subsequently, the World Health Organisation (WHO, 2014) has recommended that the cord should not be clamped earlier than one minute after birth for both term and preterm births, and for vaginal and caesarean births. Their definition of delayed cord clamping is when clamping is carried out more than one minute after the birth or when cord pulsation has ceased, although optimal timing has yet to be been determined. The WHO further recommends that waiting to clamp the cord for two to three minutes, or until the cord ceases to pulsate (late clamping), allows for a physiological transfer of placental blood to the infant (WHO, 2014). In addition to the benefits of improving haemoglobin and haematocrit with improved iron status up to six months of age for term babies, for preterm babies there may be a benefit to neurodevelopmental outcomes in male infants, along

[1] Bantu peoples refers to speakers of the Bantu subgroup of the Niger-Congo language family who occupy the southern projections of the African continent.

with decreasing the need for surfactant, blood transfusions and mechanical ventilation when cord clamping is delayed (McDonald et al., 2013). A small increased risk of jaundice requiring phototherapy for babies of all gestations receiving delayed cord clamping has been observed (Mcdonald et al., 2013). However, Mercer et al. (2017) refute this stating that the evidence for the practice of delayed cord clamping being associated with severe hyperbilirubinemia and polycythaemia is lacking.

As previously noted, the need for neonatal resuscitation is often the reason cited for early cord clamping (Hewitt, 2019). However there is growing evidence about the benefits for these babies of a longer period of placental transfusion to assist cardiopulmonary transition (Hewitt, 2019). Hewitt (2019) concludes that while the evidence for intact cord resuscitation is mounting, along with the invention of mobile resuscitation trolleys for this purpose, guidelines have not yet been developed to support this practice.

The benefits for mothers of delayed cord clamping include the potential for a shorter third stage of labour and decreased incidence of retained placenta, due to less blood remaining in the placenta, without an increase in postpartum haemorrhage rates (McDonald et al., 2013). However, more research is needed in this area (Begley et al., 2019)

The New Zealand Context

Lead Maternity Care (LMC) midwives in NZ provide continuity of care from the beginning of pregnancy, throughout the labour and birth and for up to six weeks after the baby is born. While most women, 94.2%, choose a midwife as their LMC, women may choose a general practitioner (GP) or a private obstetrician (Ministry of Health (Manatū Hauora), 2019). Midwifery or GP LMC care is funded by the Ministry of Health, whereas women who choose to receive care from a private obstetrician usually have to pay a co-payment (Ministry of Health (Manatū

Hauora), 2019). Midwives may follow women in whichever place they choose to birth (home, primary unit, secondary or tertiary hospital). In NZ, it is common for women to have a physiological third stage of labour following a physiological birth (Dixon et al., 2009). The expectation is that midwives must be competent in supporting both the PPB, and AM (NZCOM, 2013).

A consensus statement about *Facilitating the Birth of the Placenta* has been developed to provide practice guidance (NZCOM, 2013). The consensus statement is consistent with the ICM (2011a) *Guideline for Attendance at a Physiological (Expectant) Third Stage of Labour*, which is based upon scientific literature and expert opinion.

Significance of the Whenua to Māori

In many cultures the placenta is recognised as an important organ (Edwards & Wickham, 2018) and it is acknowledged that the whenua (placenta) has special significance in Te Ao Māori (the Māori world). Māori are Tangata Whenua, the indigenous people of NZ. Whenua has dual meanings of land and placenta in te Reo Māori (the Māori language), with parallels between the placenta nourishing the foetus and the land nourishing the people (Moewaka Barnes et al., 2013; Murphy, 2013; Rimene et al., 1998; Tikao, 2012). This duality is seen in other words related to reproduction, and particularly in the term whare tangata, which means 'house of humanity' and uterus/womb, recognising the symbolic power of Māori women as the bearers of future generations (Simmonds, 2019; Wepa & Te Huia, 2006). Returning the placenta to the land is acknowledged as a traditional Māori birthing practice (Tikao, 2012; Yates-Smith, 2019). Murphy (2013, p.94-95) reflects on the philosophies underpinning the return of the whenua to the earth and notes that burying the placenta is an act of 'dedication' to Papatūānuku (mother earth) that marks one's belonging within an ancestral landscape, reaffirming whakapapa (genealogy, descent lines) back to Papatūānuku.

The significance of the whenua is acknowledged by Nga Maia (a collective of Māori midwives in NZ) in the Turanga Kaupapa concept of Tikanga Whenua: "Maintains the continuous relationship to land, life and nourishment; and the knowledge and support of kaumatua (elders) and whānau (family) is available" (NZCOM, 2015, p16). Turanga Kaupapa were developed by Nga Maia in 2006 to provide cultural guidelines, and these have been formally adopted by both the Midwifery Council of New Zealand (MCNZ) and the NZCOM (2015). It is possible that the Māori viewpoint on the whenua may have impacted the practice of the midwives in NZ in relation to PPB.

Purpose and Overview of the Study

The aim of my research was to uncover how midwives in NZ facilitate PPB. The literature, explored in the next chapter, has only recently begun to capture the knowledge of midwives experienced in PPB.

Delphi, an iterative survey methodology seeking consensus, was the method employed in this study. A group consensus methodology such as the Delphi technique can help inform practice through the merging of evidence-based finding and practice-based knowledge (Falzarano & Pinto Zipp, 2013). The decision to employ the Delphi methodology was based on my desire to honour the expertise of midwives who are experienced in supporting PPB.

The research question was "what do midwives in NZ do to facilitate physiological placental birth, following physiological labour and birth?". It was anticipated that consensus could be reached about what constitutes a PPB, and a definition agreed upon. Additionally, it was thought that consensus may be reached on aspects of practice which support midwives to support women to achieve a PPB following physiological labour and birth.

Midwives who self-identified as experts in PPB (by meeting the inclusion criteria) were invited to participate in the research, which involved three rounds of surveys. The midwives' responses to the initial survey generated statements which were presented back to the midwives in the next iteration along with the opportunity to provide further qualitative text comments. The last survey comprised of presenting the statements which met consensus followed by those that did not reach consensus. Three final questions were posed. As each round was returned, participants' responses were analysed using descriptive statistics and thematic analysis of the text to develop the next iteration of the survey.

The statements which met consensus and those that did not have been presented in the findings chapter along with the conclusions drawn from the thematic analysis of the qualitative responses. Subsequent recommendations have been made.

Chapter Summary

This chapter has provided a background to the study, including an introduction to key concepts in relation to physiological placental birth, and introducing the research question, purpose and aims of the research. The purpose was to explore the practice wisdom of a sample of NZ midwives experienced in the practice of PPB. The motivation for conducting this study was to give a voice to these midwives in NZ, who may be doing something unique in relation to PPB. The significance of the whenua to Māori may have influenced the practice of the midwives in NZ. Employing the Delphi methodology was based on my desire to honour the expertise of midwives who are experienced in supporting PPB. Next, an overview of the structure and content of this thesis is presented.

Overview of Chapters

This thesis is comprised of six chapters.

Chapter One has introduced the study and provided the background, objective, research question and methods used to undertake the research.

Chapter Two reviews the literature about placental birth, particularly the motivation for advocating AM over PPB and the contrasting philosophies of the biomedical model, and the normal physiology paradigm. The literature in relation to placental birth in the NZ context is explored.

Chapter Three outlines the methodology used and the design of the study, including the theoretical underpinnings.

Chapter Four presents the findings of the surveys undertaken and the themes generated from thematic analysis of the qualitative text entries. The development of the rounds of the survey have also been presented.

Chapter Five provides a discussion of the findings, and consideration of the strengths and limitations of the study.

Chapter Six presents the conclusions and recommendations from the research.

Literature Review

"Ethically, medical intervention has to prove itself against nature. Not the other way around." (Wickham, 2016).

This chapter provides a review of the literature relevant to placental birth. Firstly, the focus is on the research conducted about active versus physiological placental birth (PPB), and the associated complexities, particularly the application of this research to women who have experienced a physiological labour and birth. Next midwifery research about placental birth which takes a more holistic approach is considered. Lastly, the NZ context in relation to placental birth is explored.

Active Management Versus Physiological Placental Birth

Most research on the third stage of labour examines active versus physiological management, with a focus on blood loss, length of the third stage, which uterotonics are best, the use of blood transfusion, or retained placentae (Begley et al., 2015; Dixon et al., 2009; Dixon et al., 2013a; Edwards & Wickham, 2018; Prendiville et al., 1988; Rogers et al., 1998). Maternal death from postpartum haemorrhage has been identified as the most common (ICM & FIGO, 2003) and important cause (Begley et al., 2019; Kashanian et al., 2010; Prendiville et al., 1988) of maternal death worldwide and it could be argued, therefore, that the research should be focussed on these issues. However, the majority of maternal morbidity and mortality from PPH occurs in the resource-poor world, due to factors such as poor nutritional status, difficulty accessing treatment and inadequate intensive care (Begley et al., 2019; Mousa et al., 2014). So, this focus on minimising blood loss and avoiding PPH may not be as applicable to the NZ setting, although it is acknowledged that PPH remains a significant cause of maternal mortality and morbidity in NZ (Edwards & Wickham, 2018; Ministry of Health, 2013).

Active management of the third stage of labour was introduced before research about the approach had taken place (Baker, 2014; Edwards & Wickham, 2018). Subsequent research has concluded that active management (AM) shortens the length of the third stage and is more effective than PPB in reducing postpartum haemorrhage, and therefore AM has become widely accepted and recommended practice (Edwards & Wickham, 2018; Hastie & Fahy, 2009; ICM & FIGO, 2003; Kanikasamy, 2007a; Prendiville et al., 1988). Two foundational studies which have made this recommendation and have significantly influenced practice are outlined next.

Firstly, there was a landmark randomised controlled trial (RCT) of 1695 women known as the Bristol trial (Prendiville et al., 1988). The objective of the trial was to compare the effects on foetal and maternal morbidity of active versus physiological management of the third stage of labour. The primary hypothesis was that AM reduces the incidence of PPH. This trial included women who were at known risk of PPH, including women who had episiotomies, and medication such as opiates, synthetic oxytocin for augmentation or induction, and epidurals. It was concluded that AM, as practised in the trial (giving oxytocin-ergometrine, clamping the cord early, and applying controlled cord traction) reduces the incidence of PPH. In addition, it was concluded that AM shortens the third stage and results in reduced neonatal packed cell volume (the latter being seen at the time to be a positive effect) (Prendiville et al., 1988).

Likewise, the Hinchingbrooke RCT tested the hypothesis that AM of the third stage of labour lowers the rates of PPH compared with expectant management (Rogers et al., 1998). This trial differed from the Bristol trial being conducted in a setting where practitioners were familiar with both methods of care. In the Bristol trial only six weeks training had been allowed for midwives to become familiar with the physiological approach (Edwards & Wickham, 2018; Prendiville et al., 1988). Pregnant women who expected to birth at Hinchingbrooke Hospital

between June 1993 – December 1995 and were judged to be at low risk of haemorrhage were eligible. Exclusion criteria were previous PPH, APH after 20 weeks gestation, anaemia, placenta praevia, non-cephalic presentation, multiple pregnancy, intrauterine death, parity >5, uterine fibroid, epidural anaesthesia, oxytocin infusion, anticoagulation therapy, intended instrumental/operative delivery, gestation < 32 weeks and 'any other circumstances judged by the clinician in charge to be overwhelming contraindication to any of the managements'(Rogers et al., 1998, p. 694). Out of 6446 women giving birth, 4934 did not take part in the trial because they were ineligible (3958) or declined to participate (976). Included were 1512 women, assessed to be at low risk of PPH. These authors concluded that compared with expectant management, AM of the third stage of labour reduced the risk of PPH. As a result, they recommended that clinical guidelines advocate for the use of active management (with oxytocin) in hospital settings (Rogers et al., 1998).

Midwives have access to and are familiar with the Cochrane Database (Tracy, 2015) and the Cochrane Systematic Reviews on active management versus expectant management in the third stage of labour have influenced practice. The first Cochrane Review on active management versus expectant management from 2000 concluded that AM was superior and recommended that it be the management of choice (Begley et al., 2019). However Fahy et al (2010), and Baker (2014) have critiqued this conclusion noting that generalising findings from a sample of women, including women at high risk of PPH (in the Bristol trial), to a population of women who are at low risk of PPH is unreasonable. Fahy critiques how expectant management was performed in the trials noting that immediate cord clamping was used routinely in one trial, cord traction in another, and intention-to-treat analysis was used in all trials and subsequently there were large numbers of women allocated to the expectant management group who actually received active management yet were included in the expectant group analysis (Fahy, 2009). Fahy (2009) asserts that "conclusions about the superiority of active

management over expectant or physiologic management in women at low risk of PPH cannot be made until a proper study with fidelity of treatment is accomplished" (p. 385).

At the time of commencing this research, the most recent Cochrane review on active versus expectant management was from 2015 (Begley et al., 2015). This included the Bristol and Hinchingbrooke trials explored above, along with five other trials. They included all randomised, and quasi-randomised, controlled trials of active versus expectant management. The studies were dated from 1988 – 2011, and were conducted in hospital settings in the UK, Ireland, Sweden, Tunisia and Abu Dhabi. The authors comment that the evidence is not high quality but conclude that, irrespective of women's risk of severe bleeding, active management reduced severe bleeding and anaemia. However, in this review it is noted that in hospitals in high-income countries, there was no statistically significant difference in PPH greater than 1000ml (although the number of women was insufficient to assess this outcome with confidence) (Begley et al., 2015).

The current Cochrane review on active versus expectant management was released in 2019, drawing similar conclusions (Begley et al., 2019). Eight studies were included in this review, the seven included in the 2015 review and the addition of one new low quality trial from Turkey (Yildirim et al., 2016). This trial of 654 women with no risk factors for PPH was undertaken in 2010 comparing active versus mixed management (as defined by the review panel, yet described as expectant management by the authors) (Begley et al., 2019; Yildirim et al., 2016). The inclusion criteria was singleton pregnancy, 36-42 weeks, live foetus with cephalic presentation with expected weight 2500-4500g, maternal age <40 years and parity between 0-3 (Yildirim et al., 2016). Mixed management in this trial was managed as: umbilical cord clamping after cord pulsation had slowed down, placental separation signs were seen, the placenta was allowed to fall by maternal effort and gravity and 10IU oxytocin by IM injection was administered after the

birth of the placenta (Yildirim et al., 2016). Although the authors titled their article 'comparison of active vs. expectant management of the third stage of labor in women with low risk of postpartum hemorrhage' (Yildirim et al., 2016, p.399) , the method they describe does not correlate with what midwives consider to be PPB (Baker, 2014) or the method of PPB described by the NZCOM consensus statement on facilitating the birth of the placenta (NZCOM, 2013). Again, all trials in the review were undertaken in hospital settings. Half of the trials included women at low risk of bleeding, and the other half included women of all risk profiles. The reviewers conclude that, in women at low risk of bleeding, it is uncertain whether there was a difference between active and expectant management for PPH greater than 1000ml and therefore women could be given information about the harms and benefits of each method in order to support them to make a choice (Begley et al., 2019). Therefore, the practice of AM may not be justified in well women at low risk of bleeding.

AM continues to be advised if labour and birth has not been straightforward; for example if the woman has required uterotonic drugs during labour (Thorpe & Anderson, 2019), or has a risk factor which makes her more prone to bleed during the birth of the placenta (NZCOM, 2013), such as a bleeding disorder, previous PPH or uterine fibroids (Edwards & Wickham, 2018). Edwards & Wickham (2018) suggest that interventions during labour, precipitate or prolonged labour may result in a woman's body being unable to secrete the oxytocin needed to birth the placenta safely. Although they highlight that we do not have good evidence about many of the risk factors for bleeding as they are based on observation, experience or common sense rather than research-based analysis (Edwards & Wickham, 2018).

Looking More Broadly

As with any medication, there are risks and side effects to be considered when administering uterotonics. Begley et al. (2015) found that AM increased the

woman's blood pressure, after-pains, vomiting, the need for postpartum pain relief and the need for women to return to hospital because of bleeding. In addition, they noted that AM reduced the baby's birthweight (most likely due to immediate cord clamping). The optimal timing of the administration of the uterotonic, and the potential adverse effects of some uterotonics still needs to be determined, as well as the timing of cord clamping (Begley et al., 2019).

Synthetic oxytocin during labour, including for PPH prevention and treatment, has been shown to increase the chance of a woman receiving a documented depressive or anxiety disorder diagnosis, or for the woman to receive a prescription for antidepressant/anxiolytic in the first year postpartum (Kroll-Desrosiers et al., 2017). The behavioural effects of oxytocin, both endogenous and exogenous and particularly the influence in the peripartum period, is an area for further investigation (Kroll-Desrosiers et al., 2017).

While the third stage is viewed from a medical viewpoint as a risky or dangerous stage of labour (Fry, 2007; Gülmezoglu & Souza, 2009), a blanket policy of active management to avert the chance of PPH does not sit well with concepts of normal physiological birth. Kanikasamy (2007) concurs stating that research conducted in medicalised environments cannot always be applied in a normal birth environment. Indeed, Hastie & Fahy (2009) highlight that the Cochrane reviewers themselves acknowledge that their findings cannot be generalised to home and birth centre settings. While Edwards & Wickham (2018) acknowledge there is no way of eradicating all risk. They identify that for many people the decision to birth the placenta naturally is a reasonable one when the birth has been straightforward and there is access to the skills, medication and equipment to treat excessive bleeding should it occur (Edwards & Wickham, 2018). Further, Baddock (2019) questions whether a meta-analysis is the appropriate tool for a practice issue such as this.

Oishi et al. (2017) present data from their small retrospective cohort study of 512 women who birthed in a midwifery-led maternity home in Japan where the midwives aim to support physiological birth of the baby and the placenta without the use of uterotonics. The home provides care for low risk well women, with a singleton foetus and cephalic presentation, who are expecting to have a spontaneous vaginal birth. The study was initiated because the midwives felt that while the blood loss in the women seemed to be above 500ml, these women had an uneventful postpartum period. There was speculation that the blood loss could be considered normal blood loss. The birth of the placenta in this setting is described:

> The placenta is delivered spontaneously without either the administration of a prophylactic uterotonic agent or fundal massage or suprapubic pressure. After the baby is born and has been placed onto the mother's chest for skin to skin time, the umbilical cord is clamped and cut after making sure pulsation has ceased. Most women lie supine for the delivery of the placenta and are sometimes encouraged to push or squat (Oishi et al., 2017, p. 24).

The method of measurement of blood loss (weighing of blood, linen and pads) is also described and was introduced for consistency of measurement. The mean loss at the end of the third stage was 392ml and 608ml at two hours following birth (Oishi et al., 2017). Fifty percent of women lost less than 500ml, with 32% losing between 500-999ml. Total loss was positively correlated with the weight of the placenta, the baby's weight and the woman's body mass index (BMI) (Oishi et al., 2017). These findings, from an outside of hospital context, add to our knowledge about physiological blood loss norms following physiological birth of the baby and the placenta.

The contrasting philosophies of the biomedical and normal physiological approach to birth are likely to influence the practices of health professionals in relation to placental birth. Brucker (2001) identifies the difference in approach in

the third stage of labour as reflecting the difference between the 'normal physiology' paradigm and the 'birth is normal in retrospect' or biomedical paradigm where the focus is on shortening the third stage and decreasing blood loss. Physiological placental birth is firmly in the normal birth paradigm and is challenging the risk averse culture we are entrenched in (Fry, 2007; Stojanovic, 2012). In the following studies, midwives have begun to explore the third stage of labour with a more holistic lens.

In contrast to the research purporting the benefits of AM, Dixon et al. (2011) provide a systematic review of the literature relating to the effectiveness of the PPB following a physiological labour and birth. The aim was to provide evidence to support and guide health practitioners who choose PPB or who have no access to uterotonics (therefore have a PPB by default) by reviewing all research studies published over the past 25 years on PPB. The key conclusion from the systematic review is that PPB can be supported for well and healthy women when it has been preceded by a physiological labour and birth (Dixon et al., 2011). Tellingly there were only four publications that met the inclusion criteria (out of 2701 publications retrieved), and two of the studies had small sample sizes. Therefore, it appears there is a gap in the literature surrounding the clinical effectiveness of PPB following a physiological labour and birth.

Fahy et al. (2010) endeavoured to address this gap with a retrospective cohort study in Australia, comparing AM with their holistic approach to physiological care in a population of women deemed as being at low risk of PPH. They describe this approach as one where the midwife engages with and supports integration of the woman's spirit, body and mind and her environment during the third stage of labour. They suggest that a woman needs to feel safe, secure, cared about and trusting that her privacy is respected for her physiology to function optimally. In addition, the midwife must be knowledgeable and confident in the procedure. The approach is described as:

- Immediate and sustained skin to skin contact between the woman and baby, who are both kept warm
- The midwife gently encourages the woman to focus on her baby, whilst maintaining awareness that the placenta is yet to be born
- Support people remain focused on mother and baby
- There is self-attachment breastfeeding
- The midwife observes (unobtrusively) for sign of separation of the placenta
- There is no fundal meddling or massage
- The placenta is birthed entirely by maternal effort and gravity
- The midwife or the woman gently check the fundus frequently for one hour after the birth of the placenta to ensure contraction and haemostasis (Fahy et al., 2010, p. 148).

This cohort study included 3436 low risk women, comparing women who received care at a tertiary unit (where intention was active management of the third stage) with those in a midwifery-led unit (where the intention was holistic psychophysiological care of the third stage). They found that 'holistic psychophysiological care' (Hastie & Fahy, 2009) in the third stage of labour was safe for women at low risk of PPH, whereas low risk women in the cohort study who experienced AM had a seven to eight fold increased chance of PPH (Fahy et al., 2010). The authors note that a prospective observational evaluation would be beneficial to test this assertion (Fahy et al., 2010). Whilst the authors acknowledge some other limitations with the study, such as accuracy of estimation of blood loss and divergence of practices for active management, they contend that a cohort study has the advantage of reflecting real world practice.

Further to this is the theory of Pronurturance Plus which provides midwives with a model for practice in the third stage of labour irrespective of the level of risk for PPH (Saxton et al., 2016). Pronurturance Plus is a holistic approach which aims to optimise oxytocin synthesis and uptake to prevent PPH, described as an extension of 'holistic psychophysiological care'. It expands on the concept of Pronurturance

(skin-to-skin contact and breastfeeding within 30 min of birth) and describes the environmental conditions (warmth, dim lights, peaceful surroundings, minimising distractors) which enable a woman to focus on the baby who has been immediately placed skin-to-skin, with both covered with a warm blanket. They propose that this supports parasympathetic dominance and nurturing behaviours (Saxton et al., 2016).

There are some parallels noted between the components of holistic psychophysiological care and the findings of the MEET study (Begley et al., 2012). The MEET study explored the midwifery contribution to placental birth and the knowledge that midwives hold in relation to the PPB (Begley et al., 2012). They examined Irish and NZ midwives' expertise in expectant management of the third stage of labour, in an exploratory qualitative descriptive study that aimed to identify best practice in relation to expectant management (Begley et al., 2012). Twenty-seven midwives, recognised as experts in expectant third stage management, were interviewed using semi-structured recorded interviews, which were analysed using the constant comparative method. The midwives identified as beneficial previously uncovered elements of PPB, such as skin-to-skin contact, breastfeeding, upright positions and maternal effort. They also identified avoiding clamping the cord, the importance of a calm, safe, warm environment and 'watchful waiting' in the third stage. A 'guilty secret' was exposed, with 26 of the 27 midwives stating that they would ease gently on the cord to help lift out a placenta that was separated and sitting just inside the vagina. Rather than using controlled cord traction this is described as a "gentle easing of the placenta down and out, when they can see the insertion of the cord, or the bulging of vaginal walls indicating that the placenta has descended into the vagina" (Begley et al., 2012, p.738). The MEET study highlighted features of primary midwifery care that facilitated PPB and provides a base from which to examine further the experience of PPB and how midwives can support normal physiology (Begley et al., 2012).

Physiological Placental Birth in the New Zealand Context

In addition to the MEET study, which examines both Irish and NZ midwives' expertise in PPB, the following literature explores PPB in the NZ context.

A small retrospective exploratory study of PPB was presented in 1995 which examined the outcomes of the undisturbed physiological process (Prichard et al., 1995). Forty-eight domiciliary midwives in NZ (practicing in the homebirth setting) were surveyed about 213 births. Findings reported were a 3.3% PPH rate, with none of the women requiring a manual removal of the placenta, a mean of 239ml estimated blood loss and the greatest blood loss estimated at 900 ml (Prichard et al., 1995). A range of 1- 274 minutes was found for the length of the third stage, and the women who experienced a long third stage did not have an increased blood loss. Only 11.3% required a uterotonic as treatment in this sample. The authors conclude that the results should be interpreted with caution because of the small sample size, the potential for sample bias and the challenges with accurately estimating blood loss. However, they recommend that this study could be used as the basis for ongoing research about the relationship between blood loss and haemoglobin, blood loss and the length of labour, and the relationship between previous and subsequent PPH as well the rate of retained placenta (Prichard et al., 1995).

In 2008, Miller completed a mixed methods study comparing labour and birth events for two groups of first-time mothers, who were cared for by the same midwives in a continuity of care context in either a home or hospital environment in NZ. Miller found that women who planned to give birth at home had a smaller mean blood loss (249ml) than those who planned to give birth in hospital (350ml), a significant difference ($t=-3.169$, $p=0.002$). The PPH rate was higher in the hospital group, despite the greater use of uterotonics. The mean length of the third stage was longer at home, 25 minutes, compared to 16 minutes in the hospital group, reflecting that most of the women giving birth at home experienced PPB (74%)

compared with 43% in the hospital group (Miller, 2008). Although there was a small sample of 221 women, the strengths of the study are that the same midwives cared for both groups of women, and therefore it is likely that blood loss reporting was similar, and that the two groups of women were matched for risk status. Additionally, as most studies about third stage management have been conducted in hospital, these findings add to our knowledge about third stage management in the outside of hospital context.

In 2009, data from the NZCOM database 2004-2008 were analysed to compare outcomes for women who received physiological care in the third stage, and those who received AM (Dixon et al., 2009). The NZCOM database is an aggregated collection of clinical data from midwives who are members of the Midwifery Maternity Provider Organisation (MMPO) a provider organisation. The database held data for approximately 32% of all births in NZ in 2006 & 2007 (Davis et al., 2012). The midwife members input each woman's clinical data in order to claim from the government for the care provided. This study, like Miller's, contains data from both the hospital and community setting. In the five-year period, out of 88,781 women, there were 48.1% of women who received physiological management and 51.9% who received AM. The authors note that this is an important finding, with increased rates of women experiencing PPB compared with other countries, while noting that comparison of the rate of PPB in other high resource settings is difficult because of a lack of published data about rates of this practice (Dixon et al., 2009). Results suggest, in contrast to the RCTs, that AM of the third stage following a physiological labour and birth results in higher blood loss when compared with physiological care; 96.3% of women having PTSL had a blood loss of less than 500ml compared to 93.1% who had AM (Z-test=12.7, $p<0.05$); for women who had PPH of between 500ml-1000ml, those who had PTSL made up 3.1% compared to 5.3% in the AM group ($Z=9.9$, $p<0.001$); in the over 1000ml blood loss group, women who had PTSL comprised 0.5% compared to 1.5% in the AM group ($Z=8.2$, $p<0.001$) (Dixon et al., 2009). While it is

acknowledged that the NZCOM retrospective cohort study is observational data, and prospective research is suggested (Baddock, 2019; Dixon et al., 2009), there is a non-causal link found between PPB and normal blood loss, when care is given by midwives experienced in PPB, and following a physiological labour (Stojanovic, 2012). Dixon et al. (2009) conclude that, following a physiological labour and birth, a PPB results in less blood loss than AM and a lower incidence of PPH (Dixon et al., 2009). Therefore, NZ is a unique context for exploring PPB.

A background about the NZ maternity context in relation to placental birth is provided by Stojanovic's doctoral thesis (Stojanovic, 2012). She describes the methods of the 16th century to the present time. It is evident from this account that placental birth is subject to the fashions of the time, influenced by the culture of midwifery and medicine. Stojanovic (2012) explains that the medical profession had become the gatekeepers of the NZ maternity system by the 1940's and describes the introduction of syntocinon and ergometrine as the medications of choice for third stage prophylaxis and the treatment of PPH. In NZ, by the 1960's, AM was strongly recommended by obstetricians as the only way to reduce PPH, and was almost universally adopted by the 1970's (Stojanovic, 2012). She states that, with the reintroduction of midwifery autonomy and importantly the concepts of consumer choice and consent being passed in legislation, alternative midwifery practices were introduced into hospitals which exposed midwives to PPB (Stojanovic, 2012). From the early 1990's there has been a re-emergence of PPB as midwives supported women who were wanting a normal birth experience (Stojanovic, 2012).

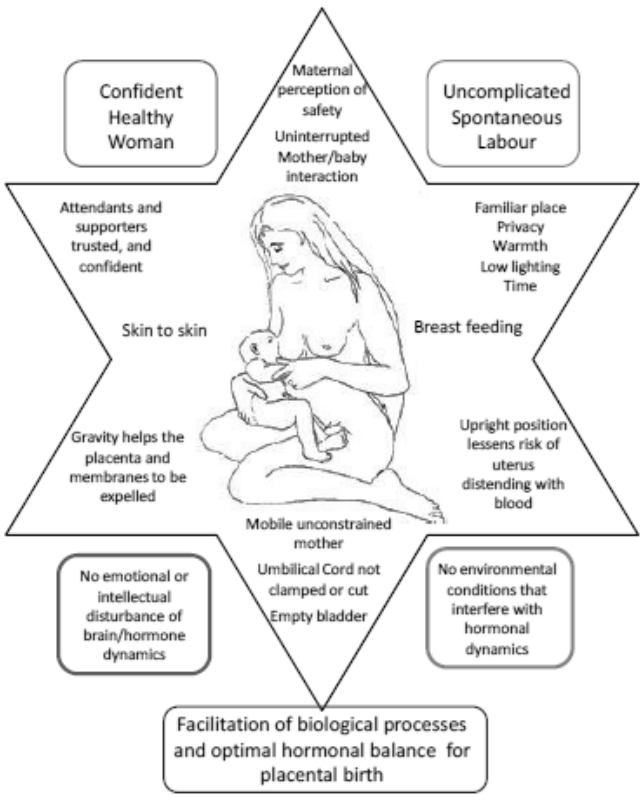
Stojanovic's (2012) research supports the use of PPB, in well women having normal pregnancies and labours. She uncovers that some midwives wish to uphold the midwifery imperative to protect normal birthing, and these midwives see PPB as safer than AM for women experiencing a normal birth (Stojanovic, 2012). Stojanovic (2012) identifies that PPB was the customary way for Māori to

birth the placenta, which aligns with the belief that pregnancy and childbirth were considered a normal part of Māori society (Wepa & Te Huia, 2006). As established in the previous chapter, it is acknowledged that the whenua (placenta) has special significance in Te Ao Māori.

Stojanovic proposes a model of facilitation of biological processes and optimal hormonal balance for placental birth. The theoretical model is in the shape of a star, which represents the woman as the central focus or 'the star' (Figure 1). Note permission was received from the author to include the model in my thesis (see Appendix A). Many of the practices presented in the model have been uncovered in the aforementioned research, such as warmth, upright position, skin to skin and breastfeeding, and maternal perception of safety. Additionally, Stojanovic identifies that there is a relative lack of studies that examine practitioners' experiences with the third stage.

Figure 1 *Theoretical Model of Factors Facilitating Optimal Physiological Placental Birth*

(Stojanovic, 2012, p. 56).



Chapter Summary

Physiological placental birth will remain a controversial subject because of the contrasting philosophies of the biomedical model, and the normal physiology paradigm. The literature has recently begun to capture the knowledge of midwives experienced in physiological management of the third stage of labour. There is an opportunity to add to this body of midwifery knowledge. The works cited within this chapter, provide a base from which to provide a midwifery definition and consensus on what constitutes PPB. Supporting PPB by 'watchful waiting', promoting calm environmental conditions, skin to skin, no cord clamping and the woman adopting upright positions are some of the commonalities identified in the literature. The methods I employed to explore midwives' practice wisdom about PPB will be outlined next.

Methods

This chapter provides the detail of how Delphi Technique has been utilised in the current research. The chapter begins by discussing the choice of Delphi Technique, exploring its development as a methodology and the advantages and disadvantages of this non-experimental survey method. The remainder of the chapter addresses the study design, development of the survey, the process used to recruit participants, ethical considerations and finally the methods of data analysis employed.

Delphi Technique

As health professionals continue to seek evidence to support practice, a group consensus methodology such as Delphi technique (referred to as Delphi from this point onwards) can help inform practice through the merging of evidence-based findings and practice-based evidence (Falzarano & Pinto Zipp, 2013), particularly when there is incomplete knowledge about phenomena (Skulmoski et al., 2007).

Delphi is named after the famous oracle at Delphi, Greece (Balasubramanian & Agarwal, 2012; Hasson et al., 2000). The word Delphi, comes from the Greek word for dolphin, and is a city located in central Greece, on the south side of Mount Parnassus overlooking the Gulf of Corinth (Speake, 1995). The Greeks believed that Delphi was the centre of the world, as ordained by Zeus (the king of Greek gods), who one day decided to release two eagles, one from the west and one from the east (Andronicos, 1976). Where they met, near Apollo's temple at Delphi, was declared the omphalos (a familiar term for midwives), which was considered the navel of the earth (Andronicos, 1976; Speake, 1995). The temple of Apollo is halfway up the mountain and this is where advice and prophesies were given by the Priestess of Apollo – the Oracle of Delphi (Speake, 1995). Eventually men came from throughout the world to seek advice, often making a sacrifice of a goat and presented other, often extravagant, offerings (Andronicos, 1976; Speake, 1995). The

Priestess, known as Pythia, would go into a deep trance (it was thought that Apollo himself was possessing her) then she would speak and the priests standing nearby would record what she said and translate her words in to a poem (Andronicos, 1976). The poem, which was often ambiguous, was written down and given to the advice-seeker, who would then interpret the oracle. The Oracle at Delphi was the most famous, celebrated and venerated throughout the world (Andronicos, 1976).

Today, the concept of Delphi technique is used as a quantitative non-experimental survey method and is described as an important data collection methodology gathering information from people immersed and embedded in a topic or activity, and who can provide real-world knowledge (Falzarano & Pinto Zipp, 2013; Hsu & Sandford, 2007; Wagstaff, 2000). It was developed in the 1950s and 1960s and initially used to address strategic military questions and technological forecasting (Hasson et al., 2000; McPherson et al., 2018). Since the late 1970s, Delphi has also been used in healthcare research (Boulkedid, Abdoul, Loustau, Sibony, & Alberti, 2011) and is viewed as an established research methodology which transforms expert opinion into group consensus (McPherson et al., 2018). Whilst typically used as a quantitative method, Delphi can employ qualitative techniques and has been described as well suited to rigorously capture qualitative data (Skulmoski et al., 2007). Braun, Clarke, & Gray (2017) note that surveys have the potential to generate rich, broad qualitative data and the Delphi method has been used to describe and explore exemplary midwifery practice (Kennedy, 1999) and a modified Delphi study was employed to develop a consensus statement on normal physiologic birth (Kennedy et al., 2015).

In contrast to other survey methods Delphi is iterative, involving the use of a series of questionnaires (Balasubramanian & Agarwal, 2012; Wagstaff, 2000). The participants individually respond to the questions posed. The researcher reviews the expert responses and modifies the tool (Falzarano & Pinto Zipp, 2013).

Responses from each survey are summarised and returned to participants as part of the next survey (Boulkedid et al., 2011; Hasson et al., 2000). The revised survey is then sent to the same participants, and the process of review and revision is continued until a pre-determined percentage of consensus is achieved (Falzarano & Pinto Zipp, 2013).

Theoretical and Philosophical Underpinning

Delphi has been described as belonging within the human science paradigm, examining the subjective experiences of humans (McPherson et al., 2018). Underpinning the method is the belief that

> *n* +1 heads is better than one (1) and that the potential sum of useful information available to the group will be at least as great as, and more usually greater than, that of any particular individual within that set (Rowe, Wright, & Bolger, 1991, p.235).

McPherson et al. (2018) suggest that examining the assumptions that underpin Delphi will assist with understanding and accepting the results of any research utilising this methodology (McPherson et al., 2018).

Firstly, it is acknowledged that reality is constructed, with multiple views, and can change and be influenced by experience (McPherson et al., 2018). It is assumed that experts can share their ideas and opinions (Creswell & Poth, 2018), which are captured qualitatively in the first round of the survey, and may be modified or clarified based on feedback in subsequent iterations of the survey (McPherson et al., 2018). It is accepted that each expert is equal in their expertise and the weight of their opinion is therefore equal (Hsu & Sandford, 2007). A further assumption is that consensus can be reached through a group process, which is nonthreatening (Hasson et al., 2000). It is accepted that bias may be present from both the perspective of the researcher/s and the participants because subjective ideas are gathered and interpreted (Creswell & Poth, 2018; Hasson et al., 2000).

However, harmonious agreement may be achieved at the cost of silencing dissenting voices. The theory of Delphi presumes that those participants most sure of their position through their superior knowledge (the 'holdouts'), draw the 'swingers' toward their viewpoint (Rowe et al., 1991). This suggests the influences of group behaviour may still impact the group, irrespective of the anonymity that Delphi provides. To reduce this impact it is crucial that participants are indeed experts, who are given a way to exchange information, such as by incorporating feedback between rounds in the Delphi process (Rowe et al., 1991). Despite these critiques, methodology theorists suggest that using Delphi to gather the opinion of experts can bring us closer to the objective truth than would be achieved through less formal, conventional ways of seeking expert opinion (Balasubramanian & Agarwal, 2012).

Types of Delphi

Several types of Delphi have been identified, which all involve iteration and controlled feedback, and three of these are explored in more detail: Classical, Policy, and Decision Delphi methods (Crisp et al., 1997). The Classical Delphi is described as a forum for facts and involves anonymity for the participants (Crisp et al., 1997; Skulmoski et al., 2007). It often results in prediction or forecasting of future events (Tanner, 2012). The Policy Delphi is described as a forum for ideas, where options are presented with supporting evidence and the panel consists of anonymous lobbyists who define and differentiate their views (Crisp et al., 1997; Tanner, 2012). The aim is a clearer understanding rather than consensus (Crisp et al., 1997). The Decision Delphi is described as a forum for decision, and, in contrast to the previous types described above, anonymity of members is not a feature but responses are anonymous (Crisp et al., 1997). The panel is comprised of those in decision-making position, and once again the process of iteration and controlled feedback occurs. The present study aligns with the Classic Delphi, allowing anonymity for the participants to share their practice wisdom.

Advantages

Delphi has been praised for promoting communication and debate about a clinical issue where there is a lack of evidence for practice (Falzarano & Pinto Zipp, 2013). It has advantages in that there is no need for participants to be face to face, which can allow involvement by participants from different geographical areas, and may be relatively inexpensive (Balasubramanian & Agarwal, 2012; Hasson et al., 2000; Wagstaff, 2000). The effects of group behaviour can be decreased as there is 'subject anonymity' when utilising the Delphi approach (Balasubramanian & Agarwal, 2012). The use of iterative surveys may allow opinions to be considered in a non-adversarial manner, allowing reflections on personal opinion compared to the rest of the group, recognising other opinions and giving participants the opportunity to change their opinions (Hasson et al., 2000). Thus, Delphi has been described as reducing the effect of 'noise'; communication that occurs in a group where members focus on their individual opinions, which can distort the data and affect problem solving (Hsu & Sandford, 2007).

Disadvantages

Disadvantages in Delphi include low response rates and attrition, when participants do not remain engaged, due to the iterative nature of the process (Balasubramanian & Agarwal, 2012; McPherson et al., 2018). In addition, the method requires large blocks of time for administration and analysis, on the part of the researcher (Hsu & Sandford, 2007). In recent times, the use of electronic survey methods has streamlined the distribution and data collection process (compared with mail or fax distribution) (McPherson et al., 2018). However, this may be limiting, as it does require that experts must be computer literate (Hasson et al., 2000). There is also potential for researchers to shape opinion due to the iterative characteristics of Delphi and the way ideas may be re-presented, particularly if researchers lose objectivity in the analysis phase, and in the development of the subsequent iterations of the survey (Balasubramanian & Agarwal, 2012; Falzarano & Pinto Zipp, 2013). Despite a desire for objectivity, it is

recognised that researchers bring their subjectivity in to the research, especially when qualitative aspects of analysis are considered (Braun & Clarke, 2013).

As Delphi's aim is to obtain consensus about a topic, it may not highlight important minority issues (Balasubramanian & Agarwal, 2012). Young and Hogben (1978, p.57) "note the disturbing absence of any effort in the technique to probe beneath the surface of policy recommendations for explanations" and suggest an experimental design, which incorporates presenting feedback from participants at each round to address this. Finally, the impact of group dynamics may still influence the data, despite anonymity and geographic distance, and some experts may be reluctant to share a view that is contrary to other participants views and may instead move towards consensus (Keeney et al., 2006).

Delphi Process

Successful Delphi projects should incorporate the following elements in relation to participants, sample size, anonymous participation, and pre-determining what constitutes consensus. Conversely the number of iterations cannot be presumed at the outset.

Choice of participants (experts) is acknowledged as the most important step in the Delphi process, as this will influence the quality of the results generated (Balasubramanian & Agarwal, 2012; McPherson et al., 2018). There is debate about the use of the term 'expert' and how to identify a professional as an expert (Hasson et al., 2000). For example, there has been critique that it is scientifically untenable and overstated that one group can represent expert opinion (Strauss & Zeigler, 1975, cited in Hasson et al., 2000). McPherson et al. (2018) describe an expert as "having, involving, or displaying special skill or knowledge derived from training or experience" (p. 405). Arguably, participants must have knowledge of the topic being investigated, and be relatively impartial (Hasson et

al., 2000). Ultimately, participants must be interested in the research topic and prepared to be involved in several surveys (Hasson et al., 2000).

Sample size needs to be large enough to be representative. A panel of between 15-30 participants from the same discipline is recommended with fewer (10-15) advised if the background of the participants is homogeneous (Balasubramanian & Agarwal, 2012; Hsu & Sandford, 2007). The larger the sample size, the more data is generated, which will influence data handling and analysis, especially if utilising an exploratory, qualitative first survey approach (Hasson et al., 2000). Conversely, if the sample size is too small, then participants may not be considered to provide representative pooling of opinion about the topic (Balasubramanian & Agarwal, 2012)

Purposive sampling or criterion sampling is often employed in Delphi (Hasson et al., 2000) with emphasis placed on explaining the level of participation to potential participants. Completing multiple iterations of the survey can be time-consuming for participants (McPherson et al., 2018). Therefore recruitment and retention can be challenging but is vital to the integrity of the research (McPherson et al., 2018).

Anonymity is a critical concept in the Classical Policy Delphi, as participants must be untraceable by other expert participants and the data set must not be connected to the participants' identity (McPherson et al., 2018). Anonymity has been identified as permitting those with less power to have their opinions considered equally (Kennedy et al., 2015). While participants are always anonymous to each other, this is not so for the researcher who needs to follow up with participants throughout the research (Balasubramanian & Agarwal, 2012).

There is no universally agreed proportion of consensus or number of iterations in Delphi. The aim is to achieve consensus in Delphi, and it could take several rounds to achieve this. Historically three to four rounds were suggested (Young &

Hogben, 1978) but now many suggest that two or three iterations are often sufficient (Balasubramanian & Agarwal, 2012; Boulkedid et al., 2011; Hasson et al., 2000; Hsu & Sandford, 2007; McPherson et al., 2018). Likewise, there is no universally agreed proportion of consensus with ranges suggested between 51-100 percent as the pre-determined percentage agreement (Falzarano & Pinto Zipp, 2013; Hasson et al., 2000; McPherson et al., 2018). Indeed, it has been suggested that the stability of the response through a series of rounds of a survey is a more reliable indicator of consensus rather than an arbitrarily determined numerical value (Crisp et al., 1997; Hsu & Sandford, 2007). One article defines consensus as "a general agreement: the judgment arrived at by most of those concerned" (McPherson et al., 2018, p.405). Importantly, the criterion used to define a consensus influences the number of rounds (Boulkedid et al., 2011).

Survey Development

The first iteration of the survey seeks responses to open-ended questions, in order to generate a large amount of data on the topic (McPherson et al., 2018). The questions are devised through a review of the relevant literature (McPherson et al., 2018). Some recommend that participants be asked for at least six opinions, in order to elicit a variety of responses (Hasson et al., 2000). Once the questions have been developed and prior to the survey distribution, it is advised to trial a pilot survey. This is to test understanding of the questions and validity (Hasson et al., 2000; Hicks, 1996; Skulmoski et al., 2007; Wagstaff, 2000), and to test the medium, particularly if an electronic survey method is employed.

Once all experts have participated in the first round of the survey the data is analysed for both qualitative comments and statistical measures (Boulkedid et al., 2011; McPherson et al., 2018). There is no standardised approach to data analysis in Delphi, however content analysis and frequency counts of specific words and phrases are often used in the first round (McPherson et al., 2018). The participants'

information and opinions are summarised and become the core data informing the development of the next survey (Round 2) (McPherson et al., 2018).

The second round of the survey moves towards forming consensus. Participants are asked to review the items summarized by the researcher based on the data collected in the first round (Hsu & Sandford, 2007). This survey is likely to contain yes/no responses, Likert scales, rank ordering, and possibly some open-ended questions and space for comments (Falzarano & Pinto Zipp, 2013).

In the third round of the survey, participants are sent the results of the analysis of round two responses, indicating which items have reached consensus (Hasson et al., 2000). Falzarano & Pinto Zipp (2013) suggest that the researcher should direct the experts to review only those survey items that did not reach consensus in earlier rounds. The process continues with further rounds until no further consensus is achieved. Knowing when to stop is crucial, as the balance must be sought between sample fatigue, evidenced by the number of participants completing the rounds decreasing, and obtaining meaningful results (Hasson et al., 2000).

Although it is ideal to achieve consensus, it is unlikely that every member of a group will agree on each point raised in the Delphi survey (Christie & Barela, 2005). The iterative process allows the participants to reassess their initial opinion about the information provided in previous iterations, based on their ability to review the feedback provided by the other participants (Balasubramanian & Agarwal, 2012). However, Christie & Barela (2005) argue that another purpose of Delphi is to identify the 'dissensus' within a group. Indeed, this could assist with the identification of areas for ongoing research.

In conclusion, Delphi is noted as an appropriate method to employ when the research question necessitates the gathering of subjective information from an

expert panel, either to set priorities or to reach consensus (McPherson et al., 2018). Advantages include a reduction in the effects of group behaviour when seeking consensus, the ability to access geographically dispersed participants and cost effectiveness. Conversely, disadvantages include attrition of participants due to the iterative nature of the process, and the effect of group behaviour exerting effects on participants whose views are at a distance from the mean. In addition, it is acknowledged that Delphi is potentially influenced by both researcher and subject bias. The decision to employ this methodology to explore physiological placental birth (PPB) was based on the desire to honour the real-world expertise of midwives who are experienced in supporting PPB.

Method

The following section outlines the methods used in conducting my study. It includes the criterion for the expert participants, the process used to recruit participants, ethical considerations, the development of the survey and the methods of data analysis employed.

Participants

For this study, I aimed to recruit 20 participants, who met the following expert inclusion criterion which was used in the MEET study (Begley et al., 2012):

> LMC midwives in NZ who provide PPB care for at least 30% of their caseload, and who have a postpartum haemorrhage rate of less than 4%.

It is important to note, that in the MEET study, the expert classification was cross-checked against the Midwifery and Maternity Providers' Organisation database (L. Dixon, personal communication, April 29, 2019), whereas this study relied on midwives self-identifying that they met the criteria.

Recruitment Process

To recruit the participants, I contacted NZCOM with a request to access the membership database to disseminate a request to participate in the study. This

was approved by the NZCOM Research Access and Governance group in April 2019.

The invitation to participate in the study was sent via email by NZCOM to the entire membership, informing them of the purpose of the study, along with a precis of the Delphi process. They were informed of the expert criteria and asked to email me if they met the criteria and wished to participate (Appendix B). Midwives who indicated that they wanted to participate were then sent the Participant Information Sheet (Appendix C) and the Consent Form (Appendix D) to complete and return. Upon receiving the consent, which indicated that the participant met the expert criteria (outlined above), a subsequent email with a hyperlink to the first survey was sent. For the following iterations, I sent a link to the survey by email via the survey platform, with a timeline for response (three weeks).

Ethical Approval

Ethical approval was received on 17 April 2019 from the Otago Polytechnic Research Ethics Committee (#810) (Appendix E). The following ethical concerns of vulnerability, use of personal information, employing incentives, the likelihood of causing personal harm, socio-cultural aspects and feedback to participants were considered in addition to the recruitment methods above.

Vulnerability

As the participants were all practising midwives there was unlikely to be a dependent relationship or implicit coercion, and because of the recruitment method they would not be considered vulnerable participants.

Use of Personal Information

To provide confidentiality, I assigned each participants a code known only to me.

Data collected was password protected and backed up on an external hard drive which was kept in a locked cabinet. Only myself and my two research supervisors had access to the data during the data collection and analysis stage. Personal identifiers for any raw data have been destroyed. Data will be retained in secure storage for a period of seven years, after which it will be destroyed.

Participant Incentives

No incentive, remuneration or koha (gift) was offered for participation.

Potential Harm

The risk of psychological or emotional risk to participants was deemed to be low. However, participants were advised to make use of counselling sessions through their Employee Assistance Programme if they experienced any psychological discomfort because of the research. Midwives are entitled to three confidential counselling sessions free of charge, and self-employed midwives can access this through NZCOM.

Socio-Cultural Considerations: Honouring te Tiriti o Waitangi

Beverly Te Huia, a former chairperson of Nga Maia, has stated that the Midwifery Partnership Model of care in NZ, reflects the values of Māori and enables customary practice of Māori to continue (Nga Maia, 2016). This research aims to provide guidance for practice about the facilitation of physiological placental birth, particularly in the NZ context. Given the significance of the whenua, it was important to include Māori midwife participants when conducting this research. This may support Māori women to choose this practice, which has been identified as the customary way for Māori birth (Stojanovic, 2012), as birthing for Māori in pre-colonial times was perceived as natural and healthy (Tikao, 2012).

The research may also support the first point in the Otago Polytechnic Māori Strategic Framework Visions for Māori Advancement; To live as Māori: being able

to have access to Te Ao Māori, the Māori world, which means having access to language, culture, cultural practice, marae, resources, iwi, hāpu and whānau (Te Komiti Kawanataka & Otago Polytechnic, 2015, p. 9). Consultation with the Kaitohutohu Office at Otago Polytechnic was undertaken prior to submitting the Ethics Application. The initial survey was presented to the Kaitohutohu Office for feedback about the cultural appropriateness and ways to potentially elicit a Māori world view. I received and responded to this feedback (Appendix F)

It is acknowledged that the Delphi methodology could mask the voice of Māori as a minority, as it was likely that there would be a small number of Māori participants. Alternatively, because the Delphi methodology reduces the effects of group behaviour (as the surveys are completed individually) this may allow the voice of Māori to be heard. It is acknowledged that there have been constraints to gaining a Māori perspective. The methodology is not one which can be completed kanohi ki te kanohi (face to face) and it was not feasible to complete a dual process (surveying Māori and Pākeha separately).

Feedback to Participants

Participants will receive a report of the findings on the completion of the project. A submission of a paper to the NZCOM Journal is planned and expected as part of the process of gaining access to the NZCOM Midwifery Membership Database to disseminate the invitation to participate in the survey.

Survey Design

For this study, a limit of four iterations was planned, aiming for 80% consensus. Some suggest interviewing participants, who are at distance from the mean, to determine the rationale for their responses (Christie & Barela, 2005). I elected to incorporate the interview process only if 80% consensus could not be reached by the third iteration of the survey. Each iteration was trialled with two colleagues,

who met the participant criteria but whose responses were not included in the research. Qualtrics Survey Platform was used for all three rounds.

Balasubramanian and Agarwal (2012) note that the iterative nature of the Delphi process can be time consuming and low response rates (due to the iterative process) could hinder progress. I considered this and planned a month between iterations, allowing three weeks for responses.

Round One

Following ethical approval, the invitation to participate in the survey was sent by NZCOM on 4 June 2019.

Round Two

The request to participate in the second survey was sent to the participants on 25 October 2019. Reminder emails were sent on 8 November and 15 November. After discussion with my supervisor the closing date was extended until 22 November.

Round Three

All original respondents were invited to complete the third survey, with the invitation sent on 6 March 2020. Reminder emails were sent on 20 March, and 26 March (one day before the survey was due to close). After discussion with my supervisor, we extended the survey timeframe by a week to 3 April. Participants were sent an email about the extension on 28 March.

I have chosen to present the ongoing survey development between rounds within the findings chapter due to each iteration being dependent upon the results of the previous round of the survey.

Data Analysis

As each round was returned, participants' responses were analysed using descriptive statistics and thematic analysis of the text was employed to develop the following survey.

Statistical Analysis

Statistical analysis often utilised in Delphi are measures of central tendency (mean and mode) and level of dispersion (standard deviation and inter-quartile range), (Balasubramanian & Agarwal, 2012; Hsu & Sandford, 2007). For the current research I firstly analysed the demographic questions to describe the participants. Following Round Two and Round Three responses to each question were assessed looking for consensus. The threshold for reaching consensus was met when:

- at least 80% of participants agreed to a term
- at least 80% of participants agreed that a factor was essential or ideal (rather than not ideal)
- at least 80% of participants agreed to a factor (rather than disagreed)
- at least 80% of participants agreed that a factor was an absolute contraindication or consideration (rather than not a consideration)
- at least 80% of participants scored the statement at 7 out of 10 or higher on a ten point scale (Balasubramanian & Agarwal, 2012).

The final point above was decided upon after reviewing the work of Kennedy et al. (2015), who decided that statements were retained if 75% of participants scored it at 4 out of 6 or higher, and Balasubramanian & Agarwal (2012) who suggested that at least 70% of participants needed to rate three or higher on a four point scale and the median must be 3.25 or higher. Subsequently, I decided that statements had met consensus if at least 80% of participants scored the statement at 7 out of 10 or higher.

Thematic Analysis

Thematic analysis is a method for identifying, analysing and reporting patterns within data (Braun et al., 2017 p.79). While originally developed by a physicist Gerald Holton in the 1970's, it was not until Braun and Clarke published their paper *Using thematic analysis in psychology* in 2006, which outlined a systematic approach for identifying and analysing patterns across a dataset, that it was recognised as a distinctive method. Braun and Clarke (2006) describe thematic analysis as a flexible and useful method, which is now widely used in qualitative research (Braun & Clarke, 2013). They propose that it is a foundational method, suggesting that it is the first method of analysis that researchers should learn as it is an accessible form of analysis that is not aligned to a pre-existing theoretical framework (such as grounded theory or discourse analysis) (Braun & Clarke, 2006). Thematic analysis was therefore deemed an appropriate method to employ for the qualitative aspects of this research.

A theme represents something important, a pattern or meaning, about the data (Braun & Clarke, 2006). Initially a coding process is employed to identify aspects of the data that relate to the research question (Braun & Clarke, 2013). These codes can be semantic (data-derived) reflecting the semantic content of the data, or latent (researcher-derived) which are conceptual or theoretical interpretations of the data and identify the assumptions that underpin what has been expressed in the data (Braun & Clarke, 2013). In reality, codes can and do have both semantic and latent elements (Braun & Clarke, 2013). After coding, the search for broader patterns (themes) begins. Researcher judgment is employed to determine a theme from the codes, rather than solely relying on prevalence, or the proportion of the data set that displays evidence of the theme (Braun & Clarke, 2006). Ideally there will be several instances of the theme across the data set, but more instances do not necessarily identify the theme as more important. Braun and Clarke (2006) describe six phases of analysis which I followed in my analysis:

- Familiarising yourself with your data
- Generating initial codes

- Searching for themes
- Reviewing themes
- Defining and naming themes
- Producing the report

Thematic Analysis Process

When embarking on analysis, I chose to transcribe the text responses (even though you can download these directly from Qualtrics Survey Platform) as I wanted to become familiar with the data - a concept which Braun, Clarke, & Gray (2017) states helps the researcher to see the richness and complexity in the data.

I chose to provide a thematic description of the entire data set, rather than themes for each round, with the aim to give the reader a sense of the overarching themes. Braun and Clarke (2006) acknowledge this as a helpful method when investigating an under-researched area but acknowledge that some depth may be lost. Another approach is to provide a detailed and nuanced account of a theme or group of themes (Braun & Clarke, 2006) in each round. In the context of a Delphi study, I chose to identify the themes at a semantic (explicit) level, focussing on the surface meaning of the data and interpreting the significance of the patterns in the data, rather than exploring at the latent (implicit) level.

Responses to the first survey (Round One) were grouped to identify initial codes (broad themes and patterns) using colour to highlight these. The same process occurred following Round Two and Round Three. Braun et al. (2017) describe the initial coding of surveys as relatively straightforward because of the structure of the questions in surveys, which I found to be the case. The patterns developed throughout the process, with rounds allowing for time to 'sit' with the codes before conducting the full analysis. When the data set was complete, following Round Three, I actively looked for themes generated from the identified codes. Initially I identified seven themes, however upon defining them and applying

quotes from the participants to match to the codes, I refined these to four themes. For example, *Upholding woman's choice* was a theme but became a sub-theme of the *Individualised care* theme. The final four themes I identified were: Understanding of and trust in physiology; Supporting physiology (Awhi); Individualised care; Continuous midwifery assessment during physiological placental birth.

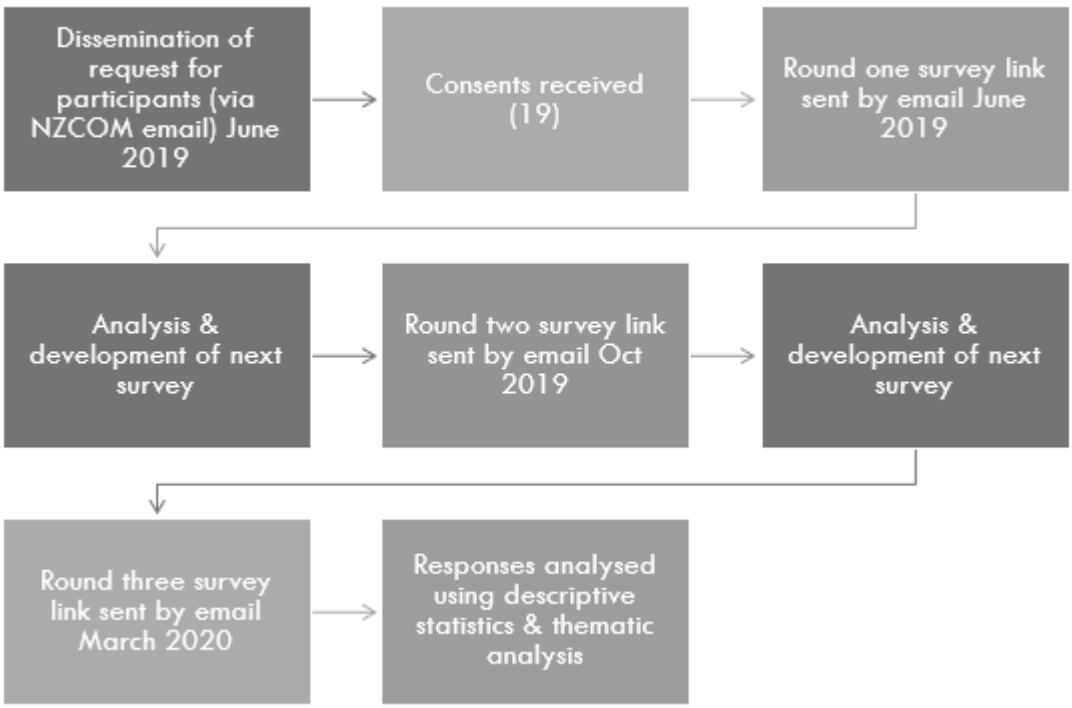
Chapter Summary

This chapter has explored Delphi as the method employed in this study to explore midwives' practice wisdom about PPB and was based on the desire to honour the real-world expertise of midwives who are experienced in supporting PPB. The approach for the current research study was presented, including the development of the survey questions which resulted in three rounds of survey. The data generated from these surveys was analysed using descriptive statistics to identify statements which reached consensus and to describe the demographics of the expert panel. Thematic analysis was employed to identify four themes in the qualitative comments. These findings will be presented in detail in the next chapter.

Findings

This chapter presents the results of the three rounds of surveys. I will begin with a graphic summarising the timeline of events related to the data collection. The demographic profile of the participants is outlined followed by the rounds of the survey, outlining the development of each survey iteration. I chose to present the participants firstly, rather than as part of the findings for Round One, as the expert panel is critical within the Delphi method. Following this the statements which reached consensus, and those which did not, are presented. Finally, four themes are identified from the qualitative data, along with their sub-themes, which are linked by quotes from the midwives.

Figure 2 *Summary of Data Collection*



Participants

Twenty-three midwives initially contacted me to express their interest in participating in the research. Nineteen midwives completed the consent process

(16 consents were returned by 25 June with the remaining three returned by 14 August). Reminder emails sent weekly from initial contact.

Eighteen midwives participated in the first survey (16 completed by 14 July, with a further two by 3 September). A reminder was sent two weeks after the survey link was sent.

The second survey commenced on 25 October. Reminder emails were sent on 8 November and again a week later. After discussion with my supervisor the closing date was extended until 22 November, which elicited five more responses, making a total of seventeen participants completing the second survey.

All 18 original respondents were invited to complete the third survey. Fourteen participants completed this final survey (with 15 commencing the survey).

Participation in the final survey may have been impacted by the Covid-19 pandemic, with the survey commencing on 6 March 2020 and NZ going into Level 4 lockdown on 26 March (Level 2 on 21 March, and Level 3 on 23 March). Subsequently, after discussion with my supervisor, we extended the final survey timeframe by a week (closing on 3 April), which gained a further participant resulting in fourteen participants completing the final survey.

Table 1 *Overview of Surveys*

Round	Date	Participants
One	June 2019	18
Two	October 2019	17
Three	March 2020	14

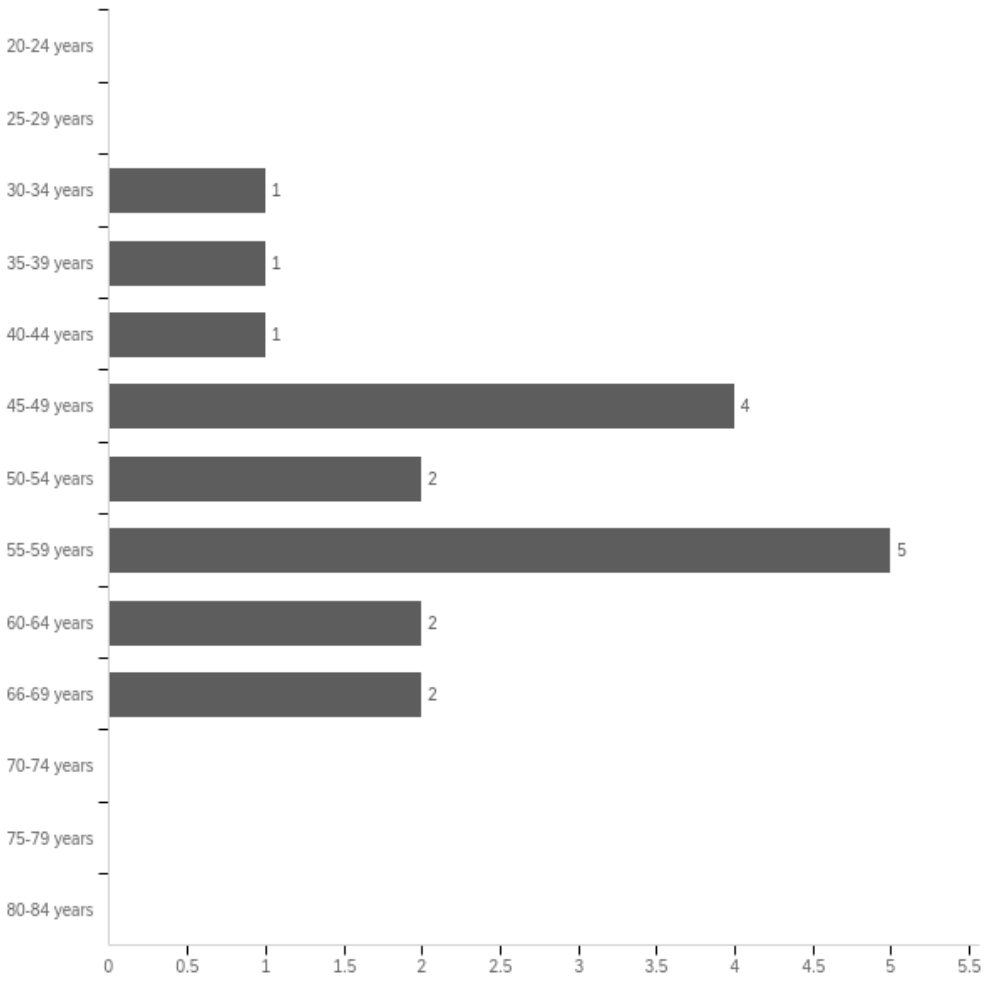
Demographics

This section describes the demographic information provided by the participants in Round One.

Age

Participants' age ranged from 30 - 69 years, with most falling in the 55-59 age group (28%), closely followed by the 45-49 age group (22%), with the mean and median in the 50-54 age group. The average age of midwives in NZ in the 2018 Midwifery Workforce survey is 47.0 years (MCNZ, 2019).

Figure 3 *Age of Participants*



Ethnicity

Participants were asked to describe their ethnicity. Table 2 below presents the ethnicity of participants by prioritised ethnicity. This is a process which allocates one ethnic group to each individual, giving precedence to Māori, then Pacific, followed by Asian, Middle Eastern, Latin American and African (MELAA); and European and Other ethnicities (McDonald et al., 2018). These are groupings which are used within the health sector. In addition, I have chosen to group New Zealand European (encompassing Pākehā, New Zealander, NZ Pākehā, NZE and NZ European as reported by the participants) as a distinct category to align with the categories used by the MCNZ (2019). There were no participants who identified as Pacific or MELAA.

Table 2 *Ethnicity of Participants (by Prioritised Self-Reported Ethnicity)*

	NZ European[1]	Non NZ European[2]	Māori[3]
Number of participants	11	5	2

1. *Pākehā, New Zealander, NZ Pākehā, NZE, NZ European*
2. *Euro, European, British, Other European, Australian New Zealander*
3. *Maori, maniapoto*

The following table presents participants' ethnicity compared with the most recent 2018 Midwifery Workforce Survey (MCNZ, 2019). The participants in this research were less diverse than the population of midwives in NZ, however the three most common ethnicities have been represented. The workforce is dominated by NZ European and other European ethnicities (MCNZ, 2019). The percentage of Māori who give Māori as their first, second or third ethnicity was similar between the current research and the workforce data at 11.11% and 9.47% respectively. Thus, the aim of representing the ethnicity spread of midwives in NZ within my research has been met, despite the small number of participants. Unfortunately,

while two midwives who identified themselves as Māori completed the first and second surveys, only one midwife identifying as Māori completed the third.

Table 3 *Ethnicity of Participants by First, Second or Third Ethnicity Compared to MCNZ 2018 Midwifery Workforce Survey*

	Total	NZ European[1]	Non-NZ European[2]	Māori[3]	Asian	Other	Pacific	Not Stated
Total Count Current Study	21	11	8	2	0	0	0	0
Percentage Current Study	117%	61%	44%	11%	0%	0%	0%	0%
MCNZ 2018 Count	3712	2161	904	294	153	123	69	8
MCNZ 2018 Percentages	120%	70%	29%	9%	5%	4%	2%	0.26%

1. *Pākehā, New Zealander, NZ Pākehā, NZE, NZ European*
2. *Euro, European, British, Other European, Australian New Zealander*
3. *Maori, maniapoto*

Note – as participants sometimes gave more than one ethnicity, the number of participants and percentages add to more than 100%.

Time in Practice

Participants had been in practice from one – 45 years. With the mean and median bracket 16 – 20 years. This correlates with an average time in the midwifery workforce of 15.9 years in the 2018 Midwifery Workforce Survey (MCNZ, 2019).

Table 4 *Number of Years in Practice*

	Total	1-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	31-35 years	36-40 years	41-45 years
Number of Participants	**18**	2	1	3	3	3	2	2	1	1

Education

Thirteen participants were educated in NZ with the remainder educated in England, United Kingdom, Scotland and Canada. This comprises 72% of participants educated in NZ in the current research, compared to 54% of midwives educated in NZ in the 2018 Midwifery Workforce Survey (MCNZ, 2019).

Table 5 *Place of Initial Midwifery Education*

	Total	Aotearoa New Zealand	England	UK	Scotland	Canada
Total Count	**18**	13	2	1	1	1

Countries Where Participants Have Practiced Midwifery

Twelve participants have only practiced in NZ, while some have also practiced in countries reflecting their place of midwifery education, and one who has practiced in both NZ and Australia.

Table 6 *Countries Where Participants Have Practiced Midwifery*

	Total	Aotearoa New Zealand only	England & New Zealand	Canada & New Zealand	Australia & New Zealand	Scotland & New Zealand	UK & New Zealand
Total Count	**18**	12	2	1	1	1	1

Supporting Physiological Placental Birth

Ten participants described supporting PPB from the beginning of their practice. Other responses ranged from five - 40 years. One described her own experience of physiological birth being influential. Another noted:

> *First homebirth in 1988. The mother knew what she wanted. I had faith in her and knew she would teach me. This birth was also a Lotus birth wow mind blowing then. Her first of 4 over the next few years. Forever grateful to her. (Katie)*

Some participants noted specific people and events as being influential: Michel Odent (specifically his 'Birth Reborn' book), the Gold online conferences and Jenny Johnson (midwife). Many acknowledged their midwifery colleagues being influential, alongside their education, reading, a supportive environment,

women's preferences, common sense, women centred care and choice, and their belief in the physiological process of birth.

Summary

The demographic data provided by the participants in Round One has been presented and compared with the demographic data in the most recent Midwifery Workforce Survey in NZ.

Survey Development

The following section describes the development of the survey which evolves as part of the Delphi process, building on the findings from each round to formulate the next survey. Qualtrics Survey Platform was used for all three rounds.

Round One Development

The first round was exploratory (Sue & Ritter, 2012), with the goal of revealing relevant components related to facilitating PPB. This is presented in Appendix G. Firstly, five demographic questions were asked using radio buttons (small circles with text next to it which are clicked to indicate agreement (Sue & Ritter, 2012)) and open text boxes. Following this, nine questions were posed about PPB, using open text boxes.

Round Two Development

The second round of the survey began by asking participants to identify the terminology they prefer for PPB, from a list generated from Round One. Following this the statements generated in the first round were presented back to the midwives and they were asked to rate each statement. These were arranged in categories and chronologically in the order in which the third stage of labour or decision making occurs. Sliding scales using a 10-point scale were utilised along with radio buttons to choose whether factors were not essential, ideal, or essential; not a consideration, a consideration, or an absolute consideration; and some agree

or disagree options. Text boxes were incorporated to capture explanations for choices and to identify additional factors. Further questions asked participants to identify from a list created in Round One those factors that they agreed with. During the development of this round, I discovered that one of the initial questions planned was inadvertently missed on the first survey. Subsequently this survey included this question. The Round Two survey is presented in Appendix H.

In the traditional Delphi, participants are given an indication of where their judgements sit in relation to the rest of the panel (Mead & Moseley, 2001). This feedback was incorporated into one question which was re-presented in Round Two: *Do you employ cord traction/easing the placenta out during physiological third stage?* Participants were informed that over a quarter of participants responded 'no' to this in Round One, while almost three quarter of participants responded 'yes' or 'sometimes'. In addition, further information was provided to the panel from the MEET study (Begley et al., 2015), including the finding that gently easing of the placenta down and out was a 'guilty secret' for many midwives in the study. Participants were then asked *Given this explanation, is this technique something that is occasionally employed in your practice?* They were asked to tell me about their selection.

Round Three Development

Round three comprised of presenting the statements which met consensus followed by those that did not reach consensus. Three final questions were then posed (Appendix I), firstly aiming to distil the preferred term for PPB (using radio buttons and collated from the terms identified in Round Two). Secondly the revised definition of PPB was presented (agreement measured with a sliding scale). Finally, an open text box question offered participants the opportunity to express any additional comments about PPB.

Consensus Statements

The following statements met the threshold for consensus in Round Two, with the number of participants responding and percentage presented. Included below the statement/s is the process of generating the statements from the findings of the earlier rounds. Alongside each statement is a summary of the qualitative comments for each, where provided. Participants have been allocated a pseudonym to identify their quotes.

Consensus was met when:

- at least 80% of participants agreed to a term
- at least 80% of participants scored the statement at 7 out of 10 or higher on a ten point scale
- at least 80% of participants agreed that a factor was essential or ideal (rather than not ideal)
- at least 80% of participants agreed to a factor (rather than disagreed)
- at least 80% of participants agreed that a factor was an absolute contraindication or consideration (rather than not a consideration).

Statements Which Reached Consensus

Statement 1	Number	%
Physiological placental birth is defined as "the spontaneous birth of the placenta/whenua by maternal effort, following the physiological birth of the baby".	14/17 scored 7 or above	82%

This definition was generated from summarising the responses to the Round One question 'What is your definition of physiological third stage of labour? While 82% agreed with the statement, eight participants commented that maternal effort is not always required. The definition was therefore refined and re-presented in Round Three. Two participants also noted that sometimes a PPB may follow a birth that was not completely physiological.

Statement 2	Number	%
For the woman, the following factors should be present when supporting physiological placental birth:		
o The woman is well prepared and understands that she is still in labour when the placenta is born	8 essential, 8 ideal, 1 not essential = 16/17	94%
o Freedom of movement	10 essential, 7 ideal, 0 not essential = 17/17	100%
o Undisturbed mother baby interaction	10 essential, 5 ideal, 2 not essential = 15/17	88%
o Maternal perception of safety	8 essential, 7 ideal, 2 not essential = 15/17	88%
o Immediate and sustained skin to skin with the baby	9 essential, 8 ideal, 0 not essential = 17/17	100%
o Time	9 essential, 7 ideal, 1 not essential = 16/17	94%
o An empty bladder	2 essential, 13 ideal, 2 not essential = 15/17	88%
o The presence of a known midwife throughout	1 essential, 16 ideal, 0 not essential = 17/17	100%
o Maternal confidence in physiological process	8 essential, 8 ideal, 1 not essential = 16/17	94%
o Trust in the midwife/attendants	6 essential, 11 ideal, 0 not essential = 17/17	100%
o Early self-attachment of the baby at the breast	3 essential, 12 ideal, 2 not essential = 15/17	88%

Statement 3	Number	%
For the midwife, the following factors should be present when supporting physiological placental birth:		
o Midwife confidence in physiological process	14 essential, 2 ideal, 0 not essential = 16/17 (1 no answer)	94%

Statement 4	Number	%
For the birthing environment, the following factors should be present when supporting physiological placental birth:		
o A warm environment	7 essential, 10 ideal, 0 not essential = 17/17	100%
o Low lighting	5 essential, 12 ideal, 0 not essential = 17/17	100%
o A quiet environment	5 essential, 11 ideal, 0 not essential = 16/16 (1 no answer)	100% (94%)
o Privacy	8 essential, 9 ideal, 0 not essential = 17/17	100%
o Absence of technology e.g. mobile phones	3 essential, 12 ideal, 2 not essential = 15/17	88%
o Familiar place	1 essential, 13 ideal, 3 not essential = 14/17	82%
o Support people are trusted and confident	8 essential, 9 ideal, 0 not essential = 17/17	100%

Statement 5	Number	%
The following factors disrupt the normal process when supporting physiological placental birth and should be avoided:		
o Immediate cord clamping	16 Agree, 1 Disagree = 16/17	94%
o Separation of mother and baby	17 Agree, 0 Disagree = 17/17	100%
o Massage of the uterus – leave the uterus alone	16 Agree, 1 Disagree = 16/17	94%
o An unsupportive environment – bright lights, cold room, lack of privacy, lack of supportive companions	17 Agree, 0 Disagree = 17/17	100%
o Emotional or intellectual disturbance of brain/hormone dynamics – any situation in which the mother feels threatened or unsupported	17 Agree, 0 Disagree = 17/17	100%

Statements 2, 3, 4 and 5 were generated from responses to the Round One question 'What factors influence your decision to support/or not support a physiological third stage of labour with a specific woman?' alongside the findings from Stojanovic's thesis on placental birth (Stojanovic, 2012), the NZCOM consensus statement on facilitating the birth of the placenta (NZCOM, 2013) and the work of Hastie and Fahy on optimising psychophysiology in third stage of labour (Hastie & Fahy, 2009). The categories For the midwife, For the woman, For the birthing

environment in statements 2-4 mirror those in the work of Kennedy et al. (2015) to define the normal physiology of childbirth.

Statement 6	Number	%
The midwife facilitates undisturbed maternal baby interaction, encourages skin to skin contact, keeps mother and baby warm.	17 Agree, 0 Disagree = 17/17	100%

Statement 6 was generated from the NZCOM consensus statement on facilitating the birth of the placenta (NZCOM, 2013). Several midwives mentioned that undisturbed maternal baby interaction, skin to skin contact and keeping the mother and baby warm facilitates the release of hormones. This is explored in the Supporting Physiology (Awhi) theme identified below.

Statement 7	Number	%
The midwife encourages the woman to adopt a comfortable position for her – preferably upright to aid descent of the placenta and observation of blood loss.	16 Agree, 1 Disagree = 16/17	94%

Statement 7 was also generated from the NZCOM consensus statement on facilitating the birth of the placenta (NZCOM, 2013). Some participants noted that an upright position is not always necessary, while others noted that gravity helps with descent. Hannah challenges the need for encouragement to adopt a comfortable position to observe blood loss:

> *I don't think it is necessary for the midwife to encourage the woman to be in a comfortable position to observe the blood loss. It is more important for the woman to be in a comfortable position to aid descent of the placenta. It may not always be comfortable either, as the birth of the placenta can cause discomfort as it is coming out. (Hannah)*

While Kezia states:

> *I would have preferred this statement to have been in two parts. I agree with the first part, not the second part. (Kezia)*

Statement 8	Number	%
The following signs have been identified as 'signs of separation' in physiological placental birth: o Gush of blood – 'separation bleed' o Lengthening of the cord o Woman's experience – cramping, sore back, sore bum, heaviness in vagina, desire to bear down	 17 Agree, 0 Disagree = 17/17 17 Agree, 0 Disagree = 17/17 17 Agree, 0 Disagree = 17/17	 100% 100% 100%

Statement 8 was generated from the narrative in Round One, where three participants discussed signs of separation in their response to the request to providing their definition of PPB. The signs above (and in Statement 15 below, which did not reach consensus) were identified in the MEET study (Begley et al., 2012). Participants identified the following additional signs of separation:

- A flat, white, empty cord, which is not pulsing
- The woman becomes restless/fidgety or feels uncomfortable
- The woman notices weight in the vagina
- The woman notices a sore tailbone
- The woman reports a contraction

One participant noted that a separation bleed is more 'a trickle than a gush'.

Statement 9	Number	%
Cord clamping/cutting occurs after the cord has stopped pulsating **or** at the request of the woman or whānau, **or** after the birth of the placenta. Sometimes the cord will not be cut (when the woman/whānau has requested a lotus birth).	16/17 chose 7 or above	94%

Statement 9 was generated by summarising the responses to the Round One question 'Describe when cord clamping or cord cutting occurs with physiological third stage of labour in your practice'.

Statement 10	Number	%
The cord may be tied with muka and cut with obsidian/pounamu/an instrument that has been appropriately prepared.	17/17 chose 7 or above	100%

Statement 10 was generated from the responses to the Round One question 'Describe any additional practices, in relation to physiological third stage, you offer or employ in response to a request from the woman/family'. Muka is prepared flax fibre from the harakeke plant, which is woven in to a cord and can be used to tie the umbilical cord (Tikao, 2012, p.109). Pounamu is greenstone.

Statement 11	Number	%
Cord traction/easing the placenta out during physiological third stage is occasionally employed in my practice.	Yes 14/17, No 1/17 = 14/15 (2 no answer)	93% (82%)

Statement 11 was generated from a finding in the MEET study (Begley et al., 2012) where midwives described occasionally employing a gentle easing of the cord when the placenta is in the vagina (which cannot lead to inversion as placental separation and descent has taken place). In the MEET study, the midwives were clear that this was different from controlled cord traction and described it as a *gentle easing of the placenta down and out, or 'lift out', when they can see the insertion of the cord or the bulging of vaginal walls indicating that the placenta has descended into the vagina* (p.738). This was presented as a 'guilty secret' by many (Begley et al., 2012). This information was shared with the midwives and they were then asked: 'Given this explanation, is this technique something that is occasionally employed in your practice?'. As you can see two participants did not answer this question, which may have indicated dissent. This resulted in 82% of participants agreeing.
In contrast, in Round One the same question was asked (with an open text box response sought and without the qualifying information from the MEET study). Five participants (27%) responded 'no', with one midwife stating that she had changed her practice away from this. Thirteen participants (72%) responded 'yes' or 'sometimes'.

I have chosen to present all the qualitative text responses to the Round Two question as I believe this is an important area where the midwives should be

heard (with Holly, Bridie, Bianca and Hannah's response included in the section *Encouraging the birth of the placenta (Doing)* sub-theme below rather than here). Some midwives comments concurred with the findings of the MEET study (Begley et al., 2012) in relation to applying gentle traction to ease the placenta down or to lift it out, and described their decision making and process:

> *My initial practice was to be totally hands off but I experienced several PPH's with blood banked up behind the placenta. Once I started using a small amount of tension I realised that often the placenta gets stuck in the os and works like a plug and a small amount of tension helps to release it. Now I try maternal effort first and then if no result apply a small amount of pressure. (Rachel)*

> *Occasionally I'll apply gentle traction on the cord if it's obvious the placenta has descended into the vagina, especially if the woman has expelled all her efforts and has little energy left for the last bit. (Donna)*

> *The placenta when it is in the vagina has naturally separated and often the lady is weary so by gently not pulling but putting traction on the cord is used. (Maria)*

> *I will use this practice if the woman has previously had a retained placenta or PPH in the past – when I can see the placenta just sitting in the vulval area (especially if we are in the Birthing Pool). This is purely because of the woman's past history and to pre-empt the situation occurring again, and so I can anticipate if we need to get out of the BP and give ecbolics. I would also be more pro-active if there is a neonatal situation, and we are needing to anticipate transfer to a secondary service urgently. (Ella)*

> *This can happen especially if the birthing client is tired, or cannot really connect anymore with that part of labour. (Becky)*

Often after 15 mins and cord is white and the woman is ready a tug on the cord will plop it out. (Katie)

Sometimes the woman is showing me signs that the whenua is going to birth, and I sometimes guide her by wiggling the cord gently in circles so she feels it coming. If it's not ready, I replace the towel between her legs and cover her again and wait til she feels the cramps or tail bone feeling again where I could see the cord lengthening and get ready to catch the whenua, or wiggle the cord again to help her sensation and see if she feels like a little push/nudge of it out. (Dianne)

Some midwives addressed the 'guilty secret' aspect of applying gentle traction to ease the placenta down or to lift it out:

It's the truth! (Olivia)

I thinks it's because I haven't actually had that much success with maternal effort only. I do feel better knowing that 75% of my peers have also had success with their 'guilty secret'. (Sophie)

Conversely Tilly and Kezia acknowledge that they have not tried applying gentle traction to ease the placenta out but would be prepared to, or only do this rarely:

I actually haven't done this but I would do if the situation was right. E.g. the woman was over it, uncomfortable, time ticking on etc. (Tilly)

I have not done this for years – it would be a very rare occasion I would do it, and only if I had carefully ascertained that the whenua was in the vagina and tried every other technique (positional changes, acupressure etc) first. (Kezia)

Statement 12	Number	%
The following factors were identified as influencing decision making about supporting physiological placental birth: The woman has a previous history of:		
o PPH	3 Absolute contraindication, 12 Consideration, 1 Not a consideration = 15/16 (1 no answer)	94% (88%)
o PPH over 1000 ml	7 Absolute contraindication, 10 Consideration, 0 Not a consideration = 17/17	100%
o Risk factor for PPH	1 Absolute contraindication, 16 Consideration, 0 Not a consideration = 17/17	100%
o Pre-existing bleeding issues	11 Absolute contraindication n, 6 Consideration, 0 Not a consideration = 17/17	100%
o Placenta accreta	11 Absolute contraindication, 6 Consideration, 0 Not a consideration = 17/17	100%
o Incomplete or retained placenta	5 Absolute contraindication, 12 Consideration, 0 Not a consideration = 17/17	100%
The woman has these current pregnancy factors:		
o Low haemoglobin (below 100)	4 Absolute contraindication, 12 Consideration, 1 Not a consideration = 16/17	94%
o Baby over 4.5kg	0 Absolute contraindication, 14 Consideration, 3 Not a consideration = 14/17	82%
o APH in current pregnancy	3 Absolute contraindication, 14 Consideration, 0 Not a consideration = 17/17	100%
o Polyhydramnios	5 Absolute contraindication, 11 Consideration, 1 Not a consideration = 16/17	94%
o Multiple pregnancy	6 Absolute contraindication, 9 Consideration, 1 Not a consideration = 15/17	88%
o Anything out of the ordinary	2 Absolute contraindication, 15 Consideration, 0 Not a consideration = 17/17	100%
o Not showing commitment to physiological placental birth	6 Absolute consideration, 10 Consideration, 1 Not a consideration = 16/17	94%
o Thrombin issues	12 Absolute contraindication, 5 Consideration, 0 Not a consideration = 17/17	100%
The woman has experienced these factors during labour:		

o Interventions in labour	5 Absolute contraindication, 12 Consideration, 0 Not a consideration = 17/17	100%
o Induction	9 Absolute contraindication, 8 Consideration, 0 Not a consideration = 17/17	100%
o Epidural	9 Absolute contraindication, 7 Consideration, 1 Not a consideration = 16/17	94%
o Syntocinon/hormonal augmentation	14 Absolute contraindication, 3 Consideration, 0 Not a consideration = 16/17	94%
o Prolonged latent phase and a tired woman	4 Absolute contraindication, 12 Consideration, 1 Not a consideration = 16/17	94%
o Prolonged labour	4 Absolute contraindication, 12 Consideration, 1 Not a consideration = 16/17	94%
o Prolonged second stage	3 Absolute contraindication, 14 Consideration, 0 Not a consideration = 17/17	100%
o Maternal exhaustion	2 Absolute contraindication, 14 Consideration, 1 Not a consideration = 16/17	94%
o Shoulder dystocia	5 Absolute contraindication, 12 Consideration, 0 Not a consideration = 17/17	100%

Statement 12 was generated from responses to the Round One question 'What factors influence your decision to support/or not support a physiological third stage of labour with a specific woman?'.

The following statement met the threshold for consensus in Round Three:

Statement 13	Number	%
Physiological placental birth is defined as 'the spontaneous birth of the placenta/whenua following the physiological birth of the baby'.	13/14 chose 7 or above	93%

As noted above in relation to Statement 1, the definition of PPB was revised in Round Three in response to feedback from Round Two where participants commented that maternal effort is not always required. Maternal effort was therefore removed from the definition.

Statements Not Reaching Consensus

The following statements did not reach consensus in Round Two:

Statement 14	Number	%
For the woman, the following factors should be present when supporting physiological placental birth:		
o Upright position	2 essential, 10 ideal, 5 not essential = 12/17	71%
o Access to food and drink as the woman desires	4 essential, 9 ideal, 4 not essential = 13/17	76%

Like Statement 2, Statement 14 was generated from responses to the Round One question 'What factors influence your decision to support/or not support a physiological third stage of labour with a specific woman?' However, these factors did not reach consensus.

Statement 15	Number	%
The following signs have been identified as 'signs of separation' in physiological placental birth:		
o Uterine shape changes – smaller, rounder, may rise in the abdomen`	6 agree, 11 disagree = 6/17	35%

Like Statement 8 above, Statement 15 was generated from the narrative in Round One, where three participants discussed signs of separation in their response to providing a definition of physiological placental birth. Uterine shape change was identified in the MEET study (Begley et al., 2012) but did not reach consensus in the current study.

Statement 16	Number	%
The following factors were identified as influencing decision making about supporting physiological placental birth: The woman has these current pregnancy factors:		
o Low lying placenta	3 Absolute contraindication, 9 Consideration, 5 Not a consideration = 12/17	71%
o Low haemoglobin (below 110)	0 Absolute contraindication, 13 Consideration, 4 Not a consideration = 13/17	76%
The woman has experienced these factors during labour:		
o ARM	2 Absolute contraindication, 8 Consideration, 7 Not a consideration = 9/17	59%
o Birthing in a hospital setting	0 Absolute contraindication, 4 Consideration, 12 Not a consideration = 4/16 (1 no answer)	25% (24%)

Like Statement 12 above, Statement 16 was generated from responses to the Round One question 'What factors influence your decision to support/or not support a physiological third stage of labour with a specific woman?' However, these factors did not meet the criteria for consensus.

The following statements did not reach consensus in Round Three:

Statement 17	Number	%
Preferred Term:		
o Physiological birth of the whenua/ afterbirth /placenta	8/14 agree	44%
o Physiological birth of the placenta	3/14 agree	16%
o Physiological third stage	1/14 agree	5.5%
o Natural birth of placenta	1/14 agree	5.5%
o Physiological placental birth	1/14 agree	5.5%
o Physiological whenua birth	0/14 agree	0%
o Physiological third stage with maternal effort	0/14 agree	0%
o Spontaneous placental birth	0/14 agree	0%

In Round One, participants were asked to identify terms that they used to refer to PPB. In Round Two they were asked to identify their preferred term/s from the complete list generated in Round One, and also terms that they wouldn't use.

From there, participants were asked to select their preferred term from the list above in Round Three. This list included terms from Round Two which 80% of participants indicated they would use.

Terms which were excluded in Round Two were 'delivery of the placenta' and 'expectant management', which over half would not use, along with 'physiological management of third stage', 'physiological care', 'natural birth of the placenta', and 'undisturbed placental birth'. Ultimately, as can be seen in Statement 17 above, participants have not agreed to a preferred term throughout the iterative process across three rounds.

Hope noted how her language about PPB has evolved over time:

> *I think the language around the birth of the whenua has changed for me throughout my career. I used to talk about the delivery of the placenta, but as I have developed in my practice I now discuss the birth of the whenua to reflect the completion of the birth process, the whenua being born. I also like to include Te Reo in my practice as I become more familiar with it, and most women respond positively to this. (Hope)*

Summary

This section has presented the statements which met the criteria for consensus in Round One and Round Two, followed by those statements which did not reach consensus in the same rounds. The number of participants who responded and the percentage of agreement has been presented, along with relevant qualitative comments from participants.

Themes

The four themes identified by the process of thematic analysis of the qualitative comments are presented here, alongside the sub-themes, with quotes utilised to enable the midwives' voice to be heard.

Theme One: Understanding of and Trust in Physiology.

In the responses throughout the rounds, it was evident that the midwives understand the anatomy and physiology of placental birth, including the hormonal influences, and believe the process to be normal.

It's Normal

The underpinning belief that PPB is normal was demonstrated in the language participants used with several comments about this: *'a belief in normal'* (Donna), '*my belief in birth as a normal process'*, *'a strong belief in the physiological process of birth'* (Olivia), *'it's normal'* (Bridie), and *'a trust in the physiological processes during birth'* (Bianca). Hope expanded on this

> *I have always supported normal birth of the whenua. Just as birth of the baby is a normal event, so too is the birth of the whenua. (Hope)*

Some described the promotion of PPB in their practice:

> *…I would always encourage attempting a physiological 3rd stage unless there was some problem. (Bridie)*

> *I promote physiological 3rd stage as a safe and natural option. (Sophie)*

While others describe PPB as their default way of birthing the placenta:

> *It's just what I do with all births unless a woman chooses otherwise or there is a clear, clinical reason to do otherwise – always with the woman's consent. (Hannah)*

> *I assume everyone will have a normal birth of the placenta after a normal birth. This is my conversation, normal then if there are interventions in labour or concerns at the birth, like excessive blood loss or low haemoglobin. Not the other way around. (Katie)*

> *All my births start with physiological 3rd stage intent. (Dianne)*

Hormones

Participants described supporting physiology, with many acknowledging that they protect the environment to allow the release of hormones which facilitates the process of PPB.

> *The birth is wonderful for the mother and she needs to be able to enjoy this moment even though the midwife is still busy thinking about the third stage. The production of sufficient oxytocin to enhance strong uterine contraction to deliver placenta are impacted by how relaxed the woman feels. (Bridie)*

One hundred percent of participants agreed with the statement: the midwife facilitates undisturbed maternal baby interaction, encourages skin to skin contact, keeps mother and baby warm. Some offered their rationale, with some highlighting the importance of oxytocin:

> *This allows the natural release of oxytocin and helps with delivery. (Maria)*

> *Oxytocin aka love hormone is needed in 3rd stage, if things above are not facilitated, the production and release of oxytocin is directly changed (Becky)*

Ella acknowledged that:

> *This 4th stage of labour (sic) is extremely important to the dynamics of the mum and baby bonding and the release of hormones which are going to both aid in the placental separation, but also start the lactation process. (Ella)*

While Bianca stated she does this

> *For all the reasons we know to leave mammals alone to do their process. (Bianca)*

In contrast, Kezia acknowledges that sometimes it is beneficial to have interactions with whānau:

It depends what you mean by undisturbed. The mother and baby might be constantly interacting with the other family members/support people and this may be ideal for their particular hormonal cascade. (Kezia)

Katie concurred noting that:

…some women are noisy celebrating and surrounded by excited family. (Katie)

Diane acknowledges that supporting the bonding process helps with PPB:

I believe that if women relax off her bottom and focus on their baby, in a warm comfortable way, the whenua comes. And this psychologically helps the physical. (Diane)

Theme Summary: Understanding of and Trust in Physiology.

The midwives' belief that PPB is normal was underpinned by a wider belief in birth being a normal physiological event and was considered by some as their default way of birthing the placenta. Supporting physiology to allow the release of hormones was surfaced with midwives acknowledging the importance of this for bonding as well as for facilitating PPB.

Theme Two: Supporting Physiology (Awhi)

This theme encompasses how midwives support normal physiology by encouraging holding space (not doing) and by encouraging ways to birth the whenua (doing). Awhi was a word used by one of the participants, Holly. Awhi is a Māori word which, in this context, means to embrace, hug, cherish or surround (Moorfield, n.d.), and is commonly used and understood in NZ. This resonated with me as it seems to encompass what midwives do to support physiology.

Holding Space (Not Doing)

The midwives support normal physiology by protecting the woman's environment holistically to allow the normal hormonal cascade.

Holly describes her philosophy of supporting physiology:

> *Physiological third stage for me, is a wholistic evaluation I am doing as a midwife quietly and calmly, within giving space to allow the natural processes and communication between the mother and her baby to be awhi positively. This awhi supports everything, but I am mindful of the signs that I need to look for…for me, if I totally understand the physiology, then the abnormal clues declare themselves for me to change towards the medical interventions a woman may need to help her. (Holly)*

Kezia echoes this with her description:

> *The "third stage" following physiological birth is ideally an undisturbed, protected part of the labour experience where the midwife is watchful, but creates a space which supports the woman to mother instinctually and this will optimise hormone production in both the mama and the pepe. It is my belief that (usually) we should interfere in this time as little as possible. (Kezia)*

The importance of allowing time was echoed by many participants who mentioned the importance of 'waiting', 'not to be impatient', with one emphasing this:

> *WAIT Be calm, we are all where we need to be, not going anywhere at this time, no rush, relax. (Katie)*

Protecting privacy was incorporated in participants' descriptions of supporting PPB. Dianne explains:

> *The woman rests on her side covered and warmed by a blanket…she nuzzles baby, and when she has cramps, or tail bone discomfort coming on like the whenua is coming thru her cervix, we see if the whenua births. Sometimes she can raise her top leg and I fold back the blanket from behind to see her rear bottom view so she is mostly covered still by the blanket and not exposed…sometimes she will give a*

push, other times it comes out with her body contracting… I believe that private warm space with not a lot of exertion creating stress, facilitates the birth of the whenua with less issues. (Dianne)

Maintaining a warm environment was mentioned by several participants including Diane in her commentary above.

Many participants described delaying cord clamping until the cord had ceased pulsating or until after the whenua was birthed (unless the mother had chosen a lotus birth).

I feel much more confident about the delivery of a placenta if the cord has stopped pulsing. It's a simple test to know when to complete third stage. Usually no more than about 15 mins from birth. My PPHs have reduced using this method. (Rachel)

Some describe occasions when the cord is cut prior to the birth of the placenta because of a short cord (irritating the clitoris, or making it hard to exit the bath, or to change position). Katie noted that:

sometimes the cord presses on the clitoris which can be unsettling for Mama. so mainly try to change position to leave intact. If very short still try to leave but some women want their baby closer so could be cut after 10 mins. Happy to leave until after the placenta is born- then we really know baby has taken everything he wants. (Katie)

Encouraging the birth of the Placenta (Doing)

The midwives support normal physiology by encouraging ways to birth the placenta. Many midwives mentioned using gravity to encourage the birth of the whenua. Bridie explains that:

Gravity assists the descent of the placenta so it doesn't only separate from the uterus but is actually evacuated from the uterus. (Bridie)

While Rachel concurs that this is part of her usual practice:

> *Observe for placental separation Have woman in sitting or upright position while waiting. Squat for maternal effort. Very slight cord tension if sure separation has taken place while in squat. (Rachel)*

Positional change was also noted as assisting the birth of the placenta, with many describing suggesting this to woman:

> *I may suggest a change of position to the woman if she is ready to do something to help the placenta/whenua to come. (Hannah)*

Some encourage maternal effort but several noted that this is not always required (when exploring the definition of physiological placental birth). Freya noted that

> *sometimes there is no obvious maternal effort and the placenta just comes :) (Freya)*

And Ella agrees:

> *Maternal effort is not always required in expelling the placenta. (Ella)*

Skin to skin with baby and breastfeeding were other strategies that the midwives employed to support physiology, alongside emptying the bladder:

> *Similar to birth environment. Calm undisturbed. Skin to skin. Breastfeeding. Gravity. Warm calm supported environment. Empty bladder, sit on toilet or birth stool. (Donna).*

In contrast to 'hands off', which was identified as part of the Holding Space sub-theme, the use of cord traction/easing the placenta out was explored.

> *If I can see a placenta is in the vagina and the woman is uncomfortable but not prepared to push it out I will either suggest she pull gently on the cord with the next push or do so myself. (Holly)*

If there is clear evidence that the placenta had separated, shown by further bleeding, cord lengthening, and the mother saying she is feeling the placenta in the vagina then I may guide the placenta gently out, mostly at maternal request. I ensure that other techniques, such as breastfeeding, skin to skin, upright positions are first employed. (Hannah)

Bridie describes her use of cord traction:

I get the woman to push a bit if she is sitting. If kneeling or standing this may not be necessary. I ask her to push a bit only after I have seen a separation bleed and palpated and found the fundus firm i.e. the placenta is in the lower segment or vagina. sometimes I may provide very gentle traction just for a few seconds in case placenta is just lodged e.g. half in half out of cervix. (Bridie)

She goes on to explain:

Because I will do it when I can be sure it is safe to do so and when it will make the difference of a successful physiological birth. I practice with experienced judgement and practice very safely. However practice guidelines do not acknowledge this and rather suggest it as incorrect or not safe. Therefore it is not wise to widely report it in an environment where you are incorrectly judged. (Bridie)

Bianca addresses the controversy around the use of cord traction/easing the placenta out asserting:

I absolutely do not see it as a guilty secret. It's gentle assistance IF required to foreclose the birth process and let mamma get on with bonding with her child. It doesn't expedite or interfere with the process. It's like helping an elderly person step up on the curb. (Bianca)

Maria was the only participant to describe feeling for the placenta in the vagina:

I encourage the lady to push out the placenta if signs of separation are apparent. I sometimes insert a finger gently into the vagina following an explanation to the mother to see if I can feel the placenta to further encourage. (Maria)

Finally, Kezia explains how she both supports physiology by holding space (not doing) and incorporates many of the (previously discussed) ways to encourage the birth of the whenua (doing):

Following the birth of the baby, I encourage the whānau to welcome their baby as they see fit, and I maintain awareness of the wellbeing of mother and baby while they do so. This will have been discussed antenatally. Once the initial celebration has occurred and some time has passed (will depend upon the circumstances and maternal preferences, but will often be >45 minutes if the whenua is not already born) I will encourage the woman to feed the baby is she has not already done so. The baby will have remained skin to skin this entire time (if the mother so wishes and if the baby is not needing other support of some type). The mama may want to move about, if needed to encourage the birth of the placentas, so sometimes I will suggest this. On occasion (but rarely) this may involve standing next to the bed or sitting on the toilet. On a very rare occasion I may suggest pressure points to assist the placental birth – but this is usually when we are almost at the hour mark, or the mother is asking to hurry things along. Mostly I find that during the first 30 minutes or so following the birth of the baby, the mother will be feeding/have fed the baby for the first time and will announce that she has contractions or pressure in her bottom and then the placenta will be born without me facilitating anything at all – except perhaps holding space. I don't suggest the cord is cut until after the whenua is born unless it's really short and the mother wants to snuggle her baby up higher. (Kezia)

Theme Summary: Supporting Physiology (Awhi)

Supporting physiology was described by the midwives as holding space (not doing), encompassing waiting, a holistic approach, and providing/maintaining a

warm and private environment, whilst delaying/avoiding cord clamping. Supportive ways to encourage the birth of the placenta (doing) were identified including gravity, position change, encouraging maternal effort, skin to skin and breast feeding, along with the controversial use of cord traction/easing the placenta out.

Theme Three: Individualised Care

The midwives provide individualised care, supporting woman's choice, and recognising that each situation is unique.

Upholding the Woman's Choice

Woman's choice was repeatedly stated as influencing the midwives' care and decision making. Kezia explains:

> *I guess my general thoughts…are that physiological placental birth follows physiological labour. That is really my preferred default approach and I discuss this with the woman antenatally. Her choice is paramount, however. (Kezia)*

Katie states that PPB is:

> *…always up for discussion if the woman wants. It's her decision so she needs the info from us and then decides. (Katie)*

While Olivia recognises that:

> *Whatever is going on or has gone on in the past needs to be considered in light of the woman's wishes. (Olivia)*

Unique Situation

Many participants acknowledged that they provide individualised care, as each situation is unique. Bridie articulates that:

> *Every situation is unique and must be carefully judged by a fully informed midwife and woman. A tired midwife should also discuss it with a colleague. (Bridie)*

While Becky surfaces the amalgamation of evidence informed practice, and an individualised woman-centred approach:

> *Also I do understand that research gave us data regarding risk factors, I still look at case by case, and I sometimes offer the option of physiological placental birth to my clients, mentioning the risk factors present, if that's still something clients are really into. More surveillance on my part is always done in those cases. (Becky)*

Theme Summary: Individualised Care

A foundational influence in the midwives providing individualised care for PPB was supporting woman's choice. In addition, the midwives recognised the need to assess each situation individually as each situation was acknowledged as unique.

Theme Four: Continuous Midwifery Assessment during Physiological Placental Birth

The midwives continuously assess the woman, utilising all their assessment skills, during PPB.

Holistic Approach

Participants have identified factors that were influential on decision making about supporting PPB based on previous history, current pregnancy factors and during labour. It is evident that they assess not only these influences but the 'big picture'.

Dianne describes her approach to antenatal education and information sharing which sets the scene for PPB.

> *I holistically assess the woman. I believe that the psychological affects the physical so the work in pregnancy where she understands her health and gets her Hb up, eats well in the last month in a diet higher in iron and Vitamin K. So she understands her responsibilities and how physiological birthing can be achieved. Also to understand Active 3rd stage, plus treatment of PPH. If a woman*

understands her body, then there's more of a chance of physiological being achieved. (Dianne)

Holly described her holistic approach which was presented earlier and repeated here:

Physiological third stage for me, is a wholistic evaluation I am doing as a midwife quietly and calmly, within giving space to allow the natural processes and communication between the mother and her baby to be awhi positively. This awhi supports everything, but I am mindful of the signs that I need to look for…for me, if I totally understand the physiology, then the abnormal clues declare themselves for me to change towards the medical interventions a woman may need to help her. (Holly)

Observation with Constant Reappraisal and On the Alert for Abnormal Clues

Participants often describe their role in supporting PPB as watchful or observant. They utilise their skills of observation to inform their decision making about PPB.

Mostly the midwifery care will involve watchful, mindful monitoring of mother and baby and support to facilitate the birth of the placenta in a timely manner. (Kezia)

I usually step to the side and do my note keeping at this stage. Usually the mum will say she is crampy or has back ache, and feels like pushing and there is the associated blood gush. This alerts me to attend her again. (Ella)

Participants described watching for signs of separation, and while some described incorporating palpating the uterus others specifically noted that they do not touch the uterus. Being alert to blood loss was described by most, as was assessing the woman (observations and overall health/exhaustion) including if the woman changed her mind about PPB. Being alert to pain or severe cramping was noted by some as an indication that something abnormal was occurring.

Bridie articulates her decision-making process when deciding to convert to using a uterotonic from a planned PPB:

> *If woman changed her mind about it. If collective risk factors made me uneasy about it. If any of the preceding complications that I marked as considerations were significant. It's a constant reappraisal – a fluid process of decision making. This is what the art of midwifery is. (Bridie)*

Theme Summary: Continuous Midwifery Assessment During Physiological Placental Birth

The holistic approach of the midwives, looking at the big picture, incorporating antenatal preparation, review of previous history, current pregnancy factors and the events during labour has been uncovered. The midwifery skill of watchful waiting has been highlighted by the midwives including observing for signs of separation, being alert to blood loss, as well as the objective and subjective assessment of the woman. The holistic approach and constant reappraisal of the situation influences the midwives' decision making about continuing to support PPB or converting to using a uterotonic or to actively managing the third stage.

Chapter Summary

Eighteen participants made up the expert panel, however participation dropped during the rounds with 14 completing the Round Three survey. The findings from this study generated 13 consensus statements about PPB, while four statements did not reach consensus. The statements that met the threshold for consensus included a definition of PPB, factors which should be present or should be avoided in PPB, ways to facilitate PPB and factors were identified which influence decision making about supporting PPB. In addition, from the qualitative text entries, four themes were generated using thematic analysis. These themes have been presented supported by quotes from the midwife participants. While there is crossover within and between themes, underpinning all of them is the midwives'

understanding and belief in normal physiology, a desire to support the woman and the physiological process, while recognising each situation as unique and therefore needing an holistic approach.

Discussion

> It is important to understand that there are other sources of evidence that impact on care in normal labour apart from medical evidence…Until midwives express clearly and confidently the thought processes behind specific practices like physiological management, practices in normality are not going to gain wide acceptance as being safe and effective (Kanikasamy, 2007, p. 425).

The study aim was to uncover how midwives in NZ facilitate physiological placental birth (PPB), adding to what is known about midwives' knowledge and decision making when supporting the practice. My interest was piqued about what was happening in NZ as there are more women experiencing physiological care compared with other countries. In this context, following spontaneous labour and a physiologic birth, the women with PPB had less blood loss and less need for manual removal of the placenta than those who had an actively managed third stage (Dixon et al., 2009; Dixon et al., 2013). Employing a Delphi methodology, the research question was "what do midwives in NZ do to facilitate physiological placental birth, following physiological labour and birth?".

The consensus statements generated by the Delphi process have described some of the factors the midwifery participants are cognisant of in relation to their practice of PPB. While this is not an exhaustive list it does provide some guidance about what midwives in NZ do to facilitate PPB and may be useful in the development of (or reconfirmation of) a guideline about PPB.

Terminology

One of the aims of this study was to settle on an agreed term for the third stage of labour. However, this objective has not been met with only 44% of participants selecting preference for the term *physiological birth of the whenua/ afterbirth /placenta***.**

So, it seems that the multitude of terms for PPB remains. This may lead to confusion for women and health professionals about what is being referred to, or it may reflect the different contexts that midwives are working within. For example, the inclusion of whenua in this term may reflect an understanding by the midwives of the significance of the whenua to Māori and the context of the study in NZ.

Definition

The definition these midwives arrived at '*the spontaneous birth of the placenta/whenua following the physiological birth of the baby'* is phrased positively in contrast to previous definitions, which have referred to the absence of the components of AM. It is a succinct definition, which does not include reference to environmental conditions and is not bound by the limitation of having a normal pregnancy, labour and birth, with two participants noting that PPB may follow a birth that was not completely physiological. Nor does the definition refer to the need for maternal effort, as eight of the participant midwives commented that maternal effort is not always required.

Current Guidelines

The agreeance with statements 2, 3, 4, 5 and 8 (see pages 58-61) which were generated, in part, from the NZCOM consensus statement on facilitating the birth of the placenta (NZCOM, 2013), affirms that midwives experienced in PPB support this guideline for practice. Undisturbed mother baby interaction, facilitating skin to skin contact and freedom of movement for the woman were some of the factors identified which support PPB in both the NZCOM guideline and my study.

Additionally, this group of midwives identified three signs of separation noted in the NZCOM statement; a gush of blood, lengthening of the cord and the woman's experience – cramping, sore back/bum, heaviness in vagina, and a desire to bear

down. However, this group of midwives did not recognise the uterus becoming smaller, rounder or rising in the abdomen as a sign of separation (Statement 15, see page 67). This may be due to not being taught about this as a sign, or not having this sign reinforced in the practice context. I suggest that it may also be more difficult to visualise this phenomenon now that over half of women giving birth in 2017 were identified as overweight or obese, and an upward trend in BMI seen between 2008 - 2017 (Ministry of Health (Manatū Hauora), 2019) thus making such an observation difficult.

The responses correlate with the findings in the MEET study (Begley et al., 2012) where participants spoke of how the woman's experience gave them the cue that the placenta had separated, whereas the 'separation bleed', lengthening of the cord and fundal height and position were secondary signs.

Gentle Cord Traction

Gentle cord traction was referred to by some of the participating midwives. The NZCOM consensus statement on facilitating the birth of the placenta (NZCOM, 2013) also includes reference to the possibility of the midwife applying gentle traction on the cord to guide the placenta out if it is in the vagina. This is presumably included in response to the findings from the MEET study (Begley et al., 2012) where midwives stated that they would sometimes ease gently on the cord to help lift out a placenta that was separated and sitting just inside the vagina. This practice is affirmed by the findings from my study where 82% of participants agreed in Round Two that *'Cord traction/easing the placenta out during physiological third stage is occasionally employed in my practice'* (Statement 11). The increase from Round One, where 72% agreed, may indicate that some of these midwives thought this was indeed a 'guilty secret', with Sophie noting that she felt "better knowing that 75% of my peers have also had success with their 'guilty secret'". However, others were adamant that it should not be or isn't a secret, with Bianca noting that she sees it as "like helping an elderly person step up on the

curb". Along with the current Cochrane review (Begley, 2012) acknowledging that some 'expert' midwives will use gentle traction on the cord once the placenta is seen to be in the vagina with good results, perhaps this will become more accepted practice. However, as Stojanovic acknowledges:

> Midwives who deviate from practices that are considered 'the norm' in the medicalised world of hospital, (where most births occur in Aotearoa New Zealand) may be the focus of hostility from members of both the obstetric and the midwifery workforce (Stojanovic, 2012, p.29).

Importantly, midwives must claim their knowledge about easing a placenta out once it is in the vagina and clearly articulate the distinction between this and controlled cord traction. In 'owning' this knowledge midwives can potentially move towards this technique becoming accepted as safe and effective.

Existing Models

There are many similarities between Stojanovic's model, Facilitation of Biological Processes and Optimal Hormonal Balance for Placental Birth (2012), and the findings of my study. Likewise, there is alignment with Hastie and Fahy's theory of Optimising Psychophysiology in Third Stage of Labour (2009). This is in part because both were referred to in the development of the statements as a way of testing the theories.

In Stojanovic's model, the woman is represented as the 'star', the focus of attention, and is in an upright position, skin-to-skin and breastfeeding her baby. She describes the dyad as being in a bubble, and if this bubble is broken, the hormonal dynamics will be disturbed (Stojanovic, 2012).

Similarly, the focus of Hastie and Fahy's concept of Midwifery Guardianship in relation to PPB is to support the woman to express the optimal genetic blueprint for birthing the placenta (Hastie & Fahy, 2009, p. 91). This occurring by optimising

the woman's reproductive psychophysiology. Thus, Midwifery Guardianship is depicted as:

> "midwives do not 'manage' third stage at all; instead we work with the woman to enable her to use her own inner power to simultaneously birth her placenta, love her baby and achieve sustained haemostasis" (Hastie & Fahy, 2009, p. 92).

The following sections will discuss some of my key findings in relation to key concepts in these models.

Upright Position

The woman is depicted in the upright position Stojanovic's model. This acknowledges that gravity facilitates the descent of the placenta from the uterus, while Hastie and Fahy (2009) suggest that the upright position may help the woman to feel the placenta coming down the birth canal. The MEET study (Begley et al., 2012) uncovered that the midwives 'let gravity do the work' in PPB. In Statement 7 of my study, *The midwife encourages the woman to adopt a comfortable position for her – preferably upright to aid descent of the placenta and observation of blood loss*, reached consensus, and was represented in Theme Two: Supporting physiology (awhi) in the sub-theme *Encouraging the birth of the placenta (Doing).* If we reflect on the impetus for the study, and the impact of my learning about the use of the birth stool to facilitate PPB, I agree that upright position is conducive to birthing the placenta.

Birthing in an upright position was once common practice (Priddis et al., 2012). In NZ, historically Māori women would birth most commonly in an upright position, kneeling or squatting, and sometimes using two vertical posts, which were constructed to assist her to brace against (Tikao, 2012; Wepa & Te Huia, 2006). In contemporary NZ, in a study comparing different birth settings in South Auckland, women were twice as likely to birth in a upright position when in

midwifery-led care, compared to a shared care tertiary facility (Farry et al., 2019). In their review of literature about birth positioning, Priddis et al. (2012) note that midwifery-led care is more likely to recognise the physiological advantages of women adopting any position that helps them to cope better with pain and to experience less intervention. It follows then that midwives in NZ may also recognise the physiological advantages of adopting upright positions for PPB.

However, the association between maternal position in the second stage and the impact on postpartum blood loss remains unclear (Priddis et al., 2012). Some studies do note increased blood loss greater than 500ml with the upright position (de Jonge et al., 2007; Gupta et al., 2017), which may be associated with accuracy of measuring blood loss, while others note no increase (Rogers et al., 1998). There is also speculation that perineal trauma, oedema or another biological mechanism (yet to be described) increases the risk of a PPH when in the upright position (de Jonge et al., 2007; Gupta et al., 2017; Priddis et al., 2012). However, in Stojanovic's model (2012) we can see that upright position is referred to as lessening the risk of the uterus distending with blood, and may therefore be seen as decreasing the risk, or aiding in early recognition, of PPH. The midwives in the current study did not identify concerns between upright position in third stage and increased blood loss.

However, it was intriguing that the upright position for PPB did not reach consensus (Statement 14, see page 67**),** with five midwives disagreeing that an upright position was essential or ideal. This is slightly perplexing as upright position was identified as part of the midwife encouraging adoption of a comfortable position (Statement 7, see page 60). It may be that the midwives saw that the woman's comfort superseded the need for an upright position.

The Role of Oxytocin

Oxytocin and its effect on neurophysiology is understood to play a significant role in birth. In their paper about the effects of the autonomic nervous system and oxytocin on reproductive neurophysiology, Saxton et al. (2014) surface the importance of optimising maternal/baby psychophysiology with skin-to-skin contact and breastfeeding at birth to optimise oxytocin synthesis and uptake in their physiologically based theory. These are key concepts in Stojanovic's model, Hastie and Fahy's theory and the findings of my study.

Parasympathetic dominance is required for the optimal functioning of the reproductive system during labour and birth, even though a stress response (relating to physical exertion) is occurring. Oxytocin binds to the a receptor site on the cell membrane in the myometrium (the middle layer of the uterus) and causes an action potential which increases intracellular calcium causing the muscle cell to contract (Saxton et al., 2014). If adrenaline is dominant it binds to the receptor site and prevents calcium from entering the cell and thus the muscle relaxes (Saxton et al., 2014). Saxton et al. (2014) conclude that fear is a major contributing factor to PPH because sympathetic stimulation disrupts uterine function.

Saxton (2014, p. 252) suggests that "how a woman feels profoundly influences her levels of oxytocin, concurrently her levels of oxytocin profoundly influences how she feels". Oxytocin is thought to create a sense of calm and promote nurturing behaviour (Saxton et al., 2014). However, exogenous oxytocin does not cross into the mother's brain and does not affect brain function in the same way as endogenous oxytocin (Uvnäs-Moberg et al., 2019). Further, there is speculation that exogenous administration of oxytocin, such as in active management, may disrupt hormonal systems in the baby, with potential for enduring biological, developmental and behavioural impacts (Buckley, 2015). Additionally, it is thought that exogenous oxytocin may impact on oxytocin receptor function through the body, or interfere with the normal endogenous release of maternal

oxytocin (Erickson et al., 2017). Therefore, avoiding unnecessary administration of synthetic oxytocin may avoid epigenetic sequelae for the baby and the mother (Buckley, 2015). However, as noted previously, Kroll-Desrosiers et al. (2017) suggests that the behavioural effects of oxytocin, both endogenous and exogenous and particularly the influence in the peripartum period, is an area for further investigation.

The midwives in the current study described the optimal positional and environmental conditions, which may enhance the release of oxytocin, that they aimed to facilitate to achieve a successful placental birth. Statement 2 (see page 58) identifies the factors that the midwives agreed should be present for the woman when supporting PPB, including the woman being well prepared, feeling safe and trusting in those that are supporting her. While Statements 4 and 6 (see pages 59 & 60) capture factors which have been suggested to enhance the release of oxytocin, including a warm, quiet, familiar and private environment, with an absence of technology and undisturbed maternal baby interaction.

These suggested oxytocin enhancing factors are represented in Stojanovic's model, except for 'the absence of technology'. Hastie and Fahy (2009) however address this as they do dissuade support people from calling to announce the birth of the baby until the completion of the third stage and note that the presence of medical equipment (such as the resuscitation trolley) can disturb some women.

A warm environment has also been recognised by Buckley (2015) and Odent (1998) as ideal, because if the woman is cool she may produce catecholamines, which are associated with blood loss. Likewise, low lighting, a quiet, private, familiar space with trusted support people is likely to enhance the release of optimal oxytocin levels. Both *Theme One (Understanding and trust in physiology)* and *Theme Two (Supporting physiology – awhi)* highlight the midwives' protection of the environment potentially promoting the release of oxytocin, with Ella noting:

> *This 4th stage of labour (sic) is extremely important to the dynamics of the mum and baby bonding and the release of hormones which are going to both aid in the placental separation, but also start the lactation process. (Ella)*

This is consistent with a finding from the MEET study (Begley et al., 2012) where a warm, safe environment was advocated as essential in the physiological and endocrine pathways of labour and birth (p. 736).

In Statement 5 (see page 59), the factors that have been identified as disrupting the normal process may disrupt the release of oxytocin, including immediate cord clamping, massaging the uterus, separation of mother and baby. All of the factors in Statement 5 are represented in Stojanovic's model (2012) by the two boxes at the base of the star: no emotional or intellectual disturbance of brain/hormone dynamics and no environmental conditions that interfere with hormonal dynamics.

In addition to the points in Statement 5, Hastie and Fahy (2009) recommend limiting questions, which provide prefrontal cortex stimulation (associated with sympathetic nervous stimulation and oxytocin metabolism), and suggest offering directions in a low tone, which does not stimulate the prefrontal cortex, in order to support the 'sanctum' needed for PPB.

Place of Birth

My study did not specifically investigate the influence of place of birth on PPB, nor did the findings surface any considerations regarding place of birth. However, it has been suggested that "Whilst it is theoretically possible to create safe spaces in any setting, the management of all the variables which contribute to the creation of a holistically safe environment may be facilitated with greater ease at home." (Miller, 2008, p. 16). Stojanovic (2012) concurs noting that homebirth can facilitate instinctive birthing. Hastie and Fahy (2009) agree that the home or birth centre

environment makes physiological birth more achievable. Midwives have a key role to play as they can positively influence a woman's external environment whether that be at home or in a facility (Saxton et al., 2014, p. 253).

The alignment of the concepts of upright position and methods of supporting oxytocin production and uptake, particularly supporting the woman's external environment, in the models described above give weight to the findings from my study.

Decision Making

The list in Statement 12 (see page 65-66) identifies the factors which influence midwives' decision making about PPB. However, they do not indicate that the midwives would not support PPB in view of these factors. Rather, they are a list of considerations. They include historical factors (such as previous PPH or retained placenta), current pregnancy factors (low haemoglobin, polyhydramnios), factors in labour (interventions such as induction, epidural or hormonal augmentation, and prolonged labour).

Hastie and Fahy (2009) provide a similar list of risk factors for PPH, both medically accepted and those based on midwifery theory, which they suggest would lead to a recommendation for AM. In contrast to the list above, their list contains reference to narcotic or other mind altering drugs such as cannabis, significant mental illness, as well as addressing the activities which stimulate the prefrontal cortex in the woman, and a lack of appropriate birth environment (Hastie & Fahy, 2009).

Theme Three: Individualised care recognises that the midwives provide care that is mindful of each unique situation, including review of these factors, in partnership with the woman. Becky commented:

> *Also I do understand that research gave us data regarding risk factors, I still look at case by case, and I sometimes offer the option of physiological placental birth to my clients, mentioning the risk factors present, if that's still something clients are really into. More surveillance on my part is always done in those cases. (Becky)*

The midwives did not agree that their decision making about supporting PPB would be influenced by a woman having a low-lying placenta or a low haemoglobin (below 110) (Statement 16, see page 68). However, these midwives did agree that a haemoglobin below 100 would influence decision making, and we may conclude that these midwives recognised a haemoglobin between 100 and 110 as normal.

Regarding the factors in labour which would influence decision making about supporting PPB, the midwives did not agree that artificial rupture of membranes (ARM) or birthing in a hospital setting were factors of influence. While birthing in a hospital may present additional challenges to providing a holistically safe environment, it seems that the midwives in this study have developed some strategies to facilitate this environment in the facility context. It is somewhat perplexing that ARM, an intervention, was not identified as influencing decision making. This is an area for further exploration.

This group of midwives seem to assess the 'big picture', taking a holistic approach to decision making. Consistent with this is the theme of 'planning ahead' which was surfaced in the MEET study (Begley et al., 2012), where the midwives chose AM or PPB based on the woman's history, antenatal progress and wishes (p. 737). Blackburn (2008) describes the role of the midwife in PPB as involving antenatal preparation, committed midwifery care to support physiology and diligent midwifery observations during the process, concluding that it is not a passive event (p. 68). The midwifery skills of 'watchful waiting' and 'alert vigilance' has been uncovered in other research about PPB (Begley et al., 2012). In Theme four: Continuous midwifery assessment, we see that this group of midwives enact this

by incorporating review of history, current pregnancy factors and the events of labour alongside skills of observation as influential in their constant reappraisal and decision-making about continuing to support PPB, converting to treatment or actively managing the third stage.

Supporting Physiology

In the responses in the present study, it was evident that the midwives understand the anatomy and physiology of placental birth, including the hormonal influences, and believe the process to be normal. The MEET study (Begley et al., 2012) also revealed that most of the midwifery participants believed in the normality and safety of physiological birth (p. 736).

Theme One: Understanding of and trust in physiology *(It's normal; Hormones)* is perhaps an unsurprising theme as this position reflects the midwifery Scope of Practice in NZ which states that 'the midwife understands, promotes and facilitates the physiological processes of pregnancy and childbirth.' (NZCOM, 2015, p.4). Aligned with this is the experience of women in the work of Reed et al. (2019), who explored women's decisions and experiences in relation to placental birth. Most of the women interviewed considered a physiological birth of the placenta to be an intrinsic element of natural birth (Reed et al., 2019). These women also had a trust in physiology.

The work of Reed et al. (2019) is the only research I have found in relation to women's experience of birthing the placenta and provides a starting point to address the need for future research on women's experience, perspective and understanding of normal physiologic birth.

The authors suggest that the women were aware that there were time limits surrounding PPB, but that these timeframes appeared to be different in a home setting (Reed et al., 2019). Women in this setting reported a lack of urgency, with

their midwives trusting their ability to birth their placenta (Reed et al., 2019). This is echoed in my study with many participants mentioning the importance of waiting and patience, irrespective of birthplace, with Katie saying:

> *WAIT Be calm, we are all where we need to be, not going anywhere at this time, no rush, relax. (Katie)*

The importance of patience is acknowledged in Theme Two: Supporting physiology – awhi - with many of the midwives referring to the importance of waiting *(Holding space – not doing).* Reed et al. (2019) also uncovers that the women reported the midwives managed the boundaries of time in PPB by intervening to encourage the birth of the placenta, with some employing upright positions (often the toilet in the homebirth setting), others acupressure and some gently tugging on the cord. The similarities between these descriptions from the women's perspective and the description of the midwives' practice in my study are evident, particularly in Theme Two: Supporting physiology – awhi (*Encouraging the birth of the placenta – doing).*

During the third stage, the women described being absorbed in their baby, and not thinking about the placenta (Reed et al., 2019), which has also been uncovered by Dixon et al. (2014) in their research about the emotional journey of labour. As we have established, midwives can support women in their connection to the baby, by supporting physiology.

The Influence of the NZ Context on Physiological Placental Birth

Informed choice is one of the guiding principles of the midwifery partnership in NZ and appears in the Code of Ethics (NZCOM, 2015) and the Code of Health and Disability Services Consumers' Rights (Health and Disability Commissioner Act 1994, 2020). Informed choice means that women are provided with information, and choices upon which to make an informed decision, through discussion, education and sharing of evidence and emphasises the autonomy of the individual

(Humphrey & Chiarella, 2019). This is clearly described in Theme Three: Individualised care (Upholding the woman's choice; Unique situation). Statement 9 *Cord clamping/cutting occurs after the cord has stopped pulsating* ***or*** *at the request of the woman or whanau,* ***or*** *after the birth of the placenta. Sometimes the cord will not be cut (when the woman/whanau has requested a lotus birth)* highlights the concept of informed choice and the NZ context, where whānau may be involved in decision making. The inclusion of whānau in this statement recognises the collectivist perspective of many Māori, and is referenced in the concept of 'whanaungatanga: the wahine and her whānau may involve others in her birthing programme', in the Turanga Kauapapa guidelines for cultural competence (NZCOM, 2015, p. 16).

The agreeance with Statement 10 *The cord may be tied with muka and cut with obsidian/pounamu/an instrument that has been appropriately prepared* also reflects acknowledgment of the customs and significance of the whenua to Māori. Taiatini (2011) states that whānau carry knowledge and it is important they share some of their knowledge pertaining to pregnancy and birth with Pākehā midwives so that they can provide appropriate support to whānau Māori, who wish to incorporate traditional Māori birthing practices into their birth plans (cited in Tikao, 2012, p. 91). With 89% of midwife participants in this study being NZ European or Non-NZ European, it seems that whānau knowledge may have been shared and welcomed by the midwives, who have incorporated some of these customs into their practice.

In addition, there is acceptance in NZ that the whenua is owned by the woman/baby. This is in contrast to other parts of the world where many women are not aware of this and there is often no discussion about what will happen to their placenta after birth (Edwards & Wickham, 2018). In retrospect, I could have created a statement about the burial of the whenua and the vessel to hold the whenua. I suspect this omission stemmed from acceptance of the custom of returning the whenua to the whenua in NZ.

Many of the midwives incorporated te Reo Māori (Māori language) in their responses, which may again reflect their respect for the culture and their understanding of the significance of the whenua for Māori. Turanga Kaupapa promotes the use of the language in the statement 'Te Reo Māori: the wahine and her whānau may speak Te Reo Māori' (NZCOM, 2015, p. 16) . Te Reo Māori is one of the three official languages in NZ, along with English and NZ Sign Language (Human Rights Commission New Zealand Government, 2020). As approximately 25% of women giving birth in NZ are Māori (Ministry of Health (Manatū Hauora), 2019), midwives may have recognised the need to show respect for the Māori language. As Tupara & Tahere (2019) acknowledge "A midwife who takes care in the use of another language demonstrates a respect for the culture to which the language belongs" (p. 180).

In the unique context of continuity of midwifery care in NZ, where midwives work in partnership with women, I suggest that this enables both the midwives and the women to express their individual philosophies, and, in the case of PPB, their belief in and trust in physiology. This may be why the rates of PPB are higher in NZ. In the Midwifery Partnership: A Model for Practice, Guilliland & Pairman (1995) first articulated this unique relationship between the woman and the midwife in the context of NZ. It identifies the midwifery partnership as a relationship of 'sharing' between the woman and the midwife, and this shared experience is based on trust, shared control and responsibility and shared meaning through mutual understanding (Guilliland & Pairman, 1995, p. 7). Continuity of caregiver is one of the supporting structures of the model and is defined as one midwife (and her back-up colleague) providing midwifery care throughout her entire childbirth experience (Guilliland & Pairman, 1995, p. 39). This model is supported by the NZCOM, MCNZ and is embedded within the Primary Maternity Services funding model (Maternity Services: Notice Pursuant to Section 88 of the New Zealand Public Health and Disability Act 2000, 2007).

Research suggests that there is a reduction in intervention, no adverse effects and an increase in maternal satisfaction in midwifery continuity of care models (Sandall et al., 2016). I contend that, in the context of continuity of midwifery care, midwives trust their knowledge of the women and women trust the midwives to support their choices and their physiology.

Strengths and Limitations

This research contributes the 'voices' of a group of midwives who are experienced in PPB. It has been suggested that the panel of experts should reflect the full range of stakeholders who have an interest in the outcome of the study to enhance credibility (Boulkedid et al., 2013). However, I was interested in the knowledge of midwives as the experts in PPB, so did not include obstetricians, who are the other stakeholders involved in maternity care in NZ. Of course, the other significant 'stakeholders' are the women who experience physiological placental birth. Within the confines of a master's study, I was unable to explore this area, however it is pleasing to see Reed et al.'s (2019) recent work on women's experience of placental birth.

There are similarities between the participants in this study and the demographics of the midwifery community in NZ. However, because of the nature of the Delphi technique, the findings are not generalisable to the wider population of midwives given the participants were chosen for their expertise and experience in PPB rather than to be representative (Mead & Moseley, 2001). It is acknowledged that the expert group self-identified as meeting the criteria, rather than having this confirmed by accessing their statistics, as occurred in the MEET study (Begley et al., 2012).

The method did allow the participation of midwives throughout NZ without the need for the participants or the researcher to travel. A strength of the study was the retention of participants across the rounds (14/18 participants, or 77%, in the

final round). The panel was large enough to generate rich data, but small enough to 'handle' the data, especially in view of the exploratory nature of the initial qualitative survey. Whilst there was consensus achieved on many of the statements, there was also diversity in responses.

I acknowledge that I may have influenced the findings of the study with the creation and presentation of the statements. Whilst I endeavoured to let the data drive the statements, I also referred to the existing models and guidelines about PPB as a way of 'testing' these. As acknowledged above, I have not captured/tested all the factors which disrupt the normal PPB process or the risk factors for PPH that were mentioned in these models or guidelines. Therefore, these are areas that could be explored in ongoing research.

The reliability of the Delphi method has not been determined (Hasson et al., 2000; Tanner, 2012) so it is not known if the results of the study would be the same with a different group of expert midwives. However, the four key features of a classical Delphi method have been met within this study: Anonymity of Delphi participants; Iteration; Controlled feedback; Statistical aggregation of group response.

There have been constraints to gaining a Māori midwifery perspective in the present study. The methodology is not one which can be completed kanohi ki te kanohi (face to face) and it was not feasible to complete a dual process (surveying Māori and Pākeha separately). There were two midwives who identified as Māori in the first round, however by the third round only one remained. Exploring the practice wisdom of Māori midwives specifically is identified as an area for further research, and I suggest that a Kaupapa Māori approach would be ideal.

Kanikasamy (2007) suggests that clinical governance approaches promote evidence over experience when informing practice, and basing decision-making on midwives' experience, as in this study, could be concerning. However, I

contend that this study adds to the evidence by capturing midwives' practice knowledge about PPB, which is influenced by their experience and their knowledge of the evidence.

The results of the present study were largely expected, with findings consistent with the models presented in the literature review and the findings of the MEET study. The elements and techniques described in this study add to what is known about PPB and the midwifery role in relation to PPB. Supporting physiology has been revealed as a key theme for these midwives. In this study, the midwives have an understanding and belief in normal physiology, plus a desire to support the woman and the physiological process, while recognising each situation as unique and therefore needing an individualised holistic approach.

> Crucially, practitioners who follow such an approach respect the fact that the physiology of birth is intricate, delicate and woven together throughout the woman's birthing journey. The birth of the placenta doesn't occur in isolation, but within the context of a woman's life journey, at the end of her pregnancy, following her labour and the birth of her baby. (Edwards & Wickham, 2018, p. 105).

Chapter Summary

This study adds to the body of evidence about PPB. Both Stojanovic's model and the NZCOM consensus statement on facilitating the birth of the placenta appear well aligned with the consensus statement findings of my study. This should give midwives in NZ confidence in the techniques advocated in the statement and the model, which support the normal physiological hormonal cascade and reflect the cultural context. The themes uncovered in my research also add to the understanding about midwives' decision making and underpinning philosophy in relation to PPB.

The final chapter will conclude this research, considering the implications of these findings and identifying areas for future research.

Conclusion and Recommendations

This final chapter will present the conclusions I have drawn on completion of the research. The research question posed was "what do midwives in NZ do to facilitate physiological placental birth, following physiological labour and birth?". The major findings are summarised, followed by conclusions drawn from this research. Lastly, I will provide recommendations based on these conclusions.

A Delphi process was the method employed in this study to explore midwives' practice wisdom about PPB and was based on the desire to honour the real-world expertise of midwives who are experienced in supporting PPB. I endeavoured to recruit 20 participants, who met the following expert inclusion criterion which was used in the MEET study (Begley et al., 2012):

> LMC midwives in NZ who provide PPB care for at least 30% of their caseload, and who have a postpartum haemorrhage rate of less than 4%.

Eighteen midwives participated in the first survey, 17 in the second survey and 14 in the third and final survey. As each round was returned, participants' responses were analysed using descriptive statistics and thematic analysis of the text was employed to develop the following survey.

The Delphi process has resulted in a succinct definition of PPB - '*the spontaneous birth of the placenta/whenua following the physiological birth of the baby*'. The findings from this study generated 13 consensus statements about PPB, while four statements did not reach consensus. In addition, four themes were generated using thematic analysis. Underpinning the four themes is the midwives' understanding and belief in normal physiology, a desire to support the woman and the physiological process, while recognising each situation as unique and therefore requiring a holistic approach. Gentle cord traction was identified as a technique that midwives may adopt to expedite the birth of the placenta when it has separated and sitting just inside the vagina. Upright positions and ways to

support physiology, especially by supporting the woman's external environment, were findings similar to those cited in the relevant literature. The midwives identified that continuing to support the birth environment in the period following the birth of the baby allows optimal physiologic function and this may enhance the release of oxytocin. In the context of continuity of midwifery care, midwives trust their knowledge of the women and women trust the midwives to support their choices and their physiology, which may result in the higher rates of PPB in NZ.

Findings from this study are not generalisable to the wider population, with the participants chosen for their expertise in PPB rather than being a representative sample of midwives. In addition, the reliability of the Delphi method has not been determined so it is not known if the results of the study would be the same with a different group of midwives who meet the same criteria. However, this research provided a mechanism to capture the 'voices' of a group of midwives who are experienced in PPB.

Recommendations for Practice/Policy

The research has captured detail about how midwives in NZ facilitate PPB and provides a base for further exploration on the topic. Findings are consistent with previously described and identified elements of PPB. This should give midwives and other health care practitioners in NZ confidence in the models and guidelines developed in this context. The consensus statements provide further guidance on providing PPB care.

I recommend that we incorporate education in the practice of PPB based on these models and the findings from this research. To begin, midwifery students could be introduced to these techniques for supporting PPB with the aim of improving care and choice for women in the third stage of labour. Secondly, developing education packages to update midwives about the practice of PPB is recommended as ten of

the 18 midwives in this study did not recall being taught the elements of PPB in their midwifery education. Likewise, in the MEET study just over half of the midwives had never been taught PPB.

Alongside these innovations, education packages could be developed with Tangata Whenua, using a Kaupapa Māori approach, regarding the significance of the whenua to Māori, alongside information about traditional Māori birthing practices.

The findings from this study will be disseminated to the midwife participants at the conclusion of the study. Further, the findings may be useful to midwives and other health professionals outside NZ, particularly in contexts where continuity of midwifery care is offered and where physiological birth is supported. In addition, presentation at national and international conferences plus publication in peer reviewed midwifery journals will further disseminate the findings from this study.

Recommendations for Further Research

Future research on placental birth should focus on:

- exploring women's experiences, perspectives and understandings of normal physiological birth (building on the work of Reed et al., 2019).
- the behavioural effects of oxytocin, both endogenous and exogenous in the peripartum period.
- human studies evaluating changes in oxytocin levels associated with behavioural and environmental factors during the third stage of labour.
- exploring factors which disrupt the normal PPB process.
- further exploration of the risk factors for PPH.
- the optimal timing of the administration of a uterotonic when employing active management, and the potential adverse effects of uterotonics, as well as the timing of cord clamping in active management. This

recommendation, while not focused on PPB, is based on aspects uncovered in the literature review.

In the NZ context research on placental birth could focus on:

- capturing contemporary practice in relation to care of the placenta and its burial in NZ.
- an ethnographic approach to uncover aspects of PPB that may not have been able to be uncovered by a survey approach.
- exploring the practice wisdom of Māori midwives, utilising a Kaupapa Māori approach.

Chapter Summary

This study adds to the body of evidence about PPB. The alignment between the findings of this Delphi study and the existing NZCOM consensus statement and Stojanovic's model on facilitating PPB, should give midwives in NZ confidence in the methods presented to support PPB. The themes uncovered in this research also add to the understanding about midwives' decision making and underpinning philosophy in relation to PPB, including a belief in normal physiology, a desire to support the woman and the physiological process, while recognising each situation as unique and therefore needing an holistic approach. Finally, recommendations for practice, including the dissemination of the findings to inform education packages for midwives, and future research in the NZ context and internationally have been offered.

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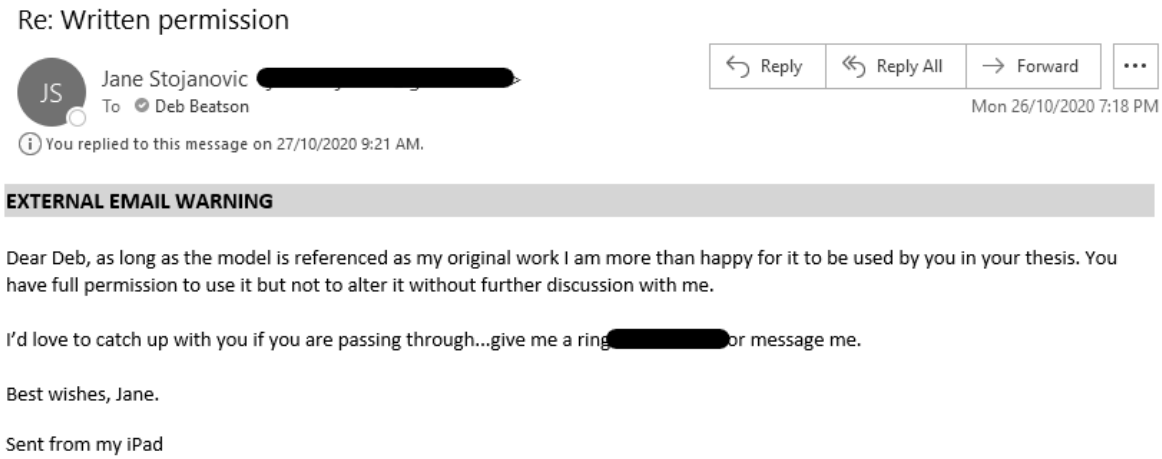
Appendix A: Permission to Use 'Theoretical Model of Factors Facilitating Optimal Physiological Placental Birth' Model.



Re: Written permission

JS

Jane Stojanovic [redacted]

To Deb Beatson

Reply | Reply All | Forward | ...

Mon 26/10/2020 7:18 PM

You replied to this message on 27/10/2020 9:21 AM.

EXTERNAL EMAIL WARNING

Dear Deb, as long as the model is referenced as my original work I am more than happy for it to be used by you in your thesis. You have full permission to use it but not to alter it without further discussion with me.

I'd love to catch up with you if you are passing through...give me a ring [redacted] or message me.

Best wishes, Jane.

Sent from my iPad

Appendix B: Invitation to Participate (Sent by NZCOM)

From: Lesley Dixon
To: Deb Beatson
Cc: Lesley Dixon
Subject: RE: Masters proposal
Date: Thursday, 30 May 2019 4:17:53 PM

Kia ora Deb,
Apologies it has been a little busy here! We have several communications with members planned and I needed to identify the best time to add your request into the mix. We could put your email out on Tuesday next week.

So the draft email would be as below. Please let me know if you want to make any changes etc.
Many thanks
Lesley

Dear Member

The following research study has been reviewed by the College Research Governance Committee who have agreed that the research request for participation can be forwarded to midwife members of the College of Midwives.

My name is Deb Beatson and I am completing a Master of Midwifery at Otago Polytechnic. I am undertaking a research project titled "Midwives' practice wisdom about physiological placental birth following physiological labour". In Aotearoa New Zealand, it is common for women to have physiological third stage of labour following a physiological birth. Birthing practices and the whenua (placenta) hold significant value for Māori, and this may have influenced midwifery practice in Aotearoa. It has been identified that the literature largely omits midwives' experiential knowledge on the physiological birth of the placenta. So, I would like to explore midwives' knowledge about this topic. This project has been reviewed and approved by the Otago Polytechnic Research Ethics Committee (#810).

This is an invitation to participate in my research. Should you agree to take part in this project you will be asked to complete 3-4 separate surveys over a period of up to 6 months. It is anticipated that each survey will take less than 30 minutes to complete. Survey questions may contain yes/no responses, scales, rank ordering, as well as some open-ended questions and space for comments.

The first survey will comprise open-ended questions about your experience and practice wisdom when facilitating the physiological third stage of labour. A second questionnaire will be developed in relation to the responses from the first questionnaire. This second survey will then be sent out to you, results collated and the next iteration developed. The process will be continued with a maximum of four surveys sent to participants, with the aim to reach group consensus about aspects of practice in relation to physiological placental birth.

I would like to hear from you if you meet the following criteria:

- *you are a Lead Maternity Carer midwife in New Zealand, and*
- *you provide physiological third stage care for at least 30% of their caseload, and*
- *you have a low postpartum haemorrhage rate (<4%) for physiological third stage.*

Please email me at deb.beatson@op.ac.nz if you would like to participate. I will send you a Participant Information Sheet and ask you to complete a Consent Form, and then you will be sent a link to the first survey.

Ngā mihi maioha
Deb Beatson

Appendix C: Participant Information Form

Participant Information Form

Project title
How do experienced midwives facilitate physiological placental birth?

General Introduction
Kia ora. My name is Deb Beatson and I am a midwife undertaking this research as part of my Master of Midwifery degree at Otago Polytechnic.

In Aotearoa New Zealand, it is common for women to have physiological third stage of labour following a physiological birth. Birthing practices and the whenua (placenta) hold significant value for Māori, and this may have influenced midwifery practice in Aotearoa. It has been identified that the literature largely omits midwives' experiential knowledge on the physiological birth of the placenta.

What is the aim of the project?
This proposal aims to explore experienced midwives' practice wisdom about physiological placental birth.

How will potential participants be identified and accessed?
Participants will be invited via email through the New Zealand College of Midwives networks asking for midwives who:

- are a Lead Maternity Carer (LMC) midwife in New Zealand, and
- provide physiological third stage care for at least 30% of their caseload, and • have a low postpartum haemorrhage rate (<4%) for physiological third stage. If you choose to participate you will be asked to complete a consent form electronically and then will be given a link to the first survey.

What will my participation involve?
Should you agree to take part in this project you will be asked to complete 3-4 separate surveys over a period of up to 6 months. It is anticipated that each survey will take less than 30 minutes to complete. Survey questions may contain yes/no responses, Likert scales, rank ordering, as well as some open-ended questions and space for comments.

The first survey will comprise open-ended questions about your experience and practice wisdom when facilitating the physiological third stage of labour. A second questionnaire will be developed in relation to the responses from the first questionnaire. This second survey will then be sent out

to you, results collated and the next iteration developed. The process will be continued with a maximum of four surveys sent to participants, with the aim to reach group consensus about aspects of practice in relation to physiological placental birth.

What are the risks?

We think the study will have little or no psychological or emotional risk to you. However, we would advise any participants experiencing psychological discomfort to make use of counselling sessions through their Employee Assistance Programme. Midwives are entitled to three confidential counselling sessions free of charge. Self-employed midwives can access the EAP through NZCOM.

How will your confidentiality be protected?

In order to maintain confidentiality, you will be assigned a code, with only the primary researcher having access to this code. Any identifying free-text data will be de-identified in any research outputs.

What data or information will be collected and how will it be used?

You may be surveyed up to four times over the course of the research. Only myself and my research supervisors will have access to your data during the data collection and analysis stages. Results of this project may be published in peer reviewed journals and presented at conferences nationally and internationally. You will not be identifiable in any published or presented material.

Data Storage

The data collected will be securely stored in a password protected file, and backed up on an external hard drive which will be kept in a locked filing cabinet. Only those mentioned above will have access to it. At the end of the project any personal information will be destroyed for any raw data on which the results are based. Data will be retained in secure storage for a period of seven years, after which it will be destroyed.

Can you change your mind and withdraw from the project?

You can decline to participate without any disadvantage to yourself of any kind. If you choose to participate, you may withdraw from the project at any time. Once responses have been submitted to individual surveys your data will be retained. You can also decline to answer any particular question.

Do you have any questions?

If you have any questions about the project, either now or in the future, please feel free to contact either:

Researcher: Deb Beatson

Email deb.beatson@op.ac.nz Phone 027 510 1351 or

Primary Supervisor: Suzanne Miller

Email suzanne.miller@op.ac.nz Phone 021 705 697 or

Co-Supervisor: Dr Jean Patterson

Email jean.patterson@op.ac.nz Phone 021 735 628

Appendix D: Consent Form

This research has been approved by the Otago Polytechnic Research Ethics Committee (Approval #810) and endorsed by the Otago Polytechnic Kaitohutohu Office.

Consent Form

Project Title: How do experienced midwives facilitate physiological placental birth?

I have read the information sheet concerning this project and understand what it is about. I have had the opportunity to ask questions. I understand that I am free to request further information at any stage.

I know that:

- □ my participation in the project is entirely voluntary and I am free to decline to answer any particular question
- □ I am free to stop participating at any time without giving reasons and without any disadvantage
- □ I can withdraw information I have supplied until the submission of each survey, as after this time my responses become part of the research data
- □ my data will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for seven years after which it will be destroyed
- □ the results of the project may be published in a peer reviewed journal or presented at an academic conference but my anonymity will be preserved
- □ I would like to receive a summary of the research findings at the completion of the project

I agree to take part in this project under the conditions set out in the Information Sheet.

Participant's name: ……

Date: ……

Participant's email address: ……

This project has been reviewed and approved by the Otago Polytechnic Research Ethics Committee (#810)

Appendix E: Ethics Approval Letter

17 April 2019
Deb Beatson

15 Sarjeant Street

Gonville

Whanganui 4500

Dear Deb

Re: Application for Ethics Consent

Reference Number: 810

Application Title: *Midwives' practice wisdom about physiological placental birth following physiological labour.*

Thank you for your application for ethics approval for this research project.

This letter is to advise that the Otago Polytechnic Research Ethics Committee review panel has approved your application.

We wish you well with your work and remind you that at the conclusion of your research to send a brief report with findings and/or conclusions to the Ethics Committee.

All correspondence regarding this application should include the project title and reference number assigned to it.

This protocol covers the following researchers: Deb Beatson.

Regards

Liz Ditzel

Dr. Liz Ditzel

Chair, Otago Polytechnic Research Ethics Committee

Otago Polytechnic
Forth Street
Private Bag 1910
Dunedin 9054
Freephone 0800 762 786
Phone +64 3 477 3014
Email: info@op.ac.nz
www.op.ac.nz

Appendix F: Consultation with the Kaitohutohu Office

From: Deb Beatson

Sent: Saturday, May 5, 2018 5:04:21 PM

To: Kaitohutohu

Subject: Research proposal

Kia ora koutou,

I am writing regarding a proposal I am developing for my Master of Midwifery. I have developed a proposal for this research which asks the question "*How do midwives, experienced in the technique, facilitate physiological placental birth?"*

Please find attached a brief overview of the proposal.

I have endeavoured to answer the questions that have been posed on the Student Research and Consultation with Kaitohutohu Moodle page:

Will the research involve Maori?

Yes, it is intended to have participants who identify as Maori. For this study, I suggest a maximum of 20 participants and will seek participants representative of the ethnic mix of the New Zealand midwives.

Is the research being conducted by Maori?

No

Are the results likely to be of specific interest or relevance to Maori?
Could the research potentially benefit Maori?

Beverly Te Huia has stated that the Midwifery Partnership Model of care in NZ, reflects the values of Maori and enables customary practice of Maori to continue (Nga Maia, 2016). This research aims to produce a guideline for practice about the facilitation of physiological placental birth. This may support Maori women to choose this practice, which has been identified as the customary way for Maori to birth (Stojanovic, 2015). Given the significance of the whenua for Maori, it will be important to include Maori midwives in this study about placental birth.

Thank you for your consideration of my proposal.
Nga mihi nui
Deb

Deb Beatson RM, BM, PGDip Mid, GCTLT
School of Midwifery | Senior Lecturer/ Kaiako/ Year 2 Coordinator, Based in Whanganui

Otago Polytechnic | Te Kura Matatini ki Otago
Forth Street, Private Bag 1910, Dunedin 9054, New Zealand
P +64 21 272 1255 | 0800 762 786 | **www.op.ac.nz**

From: Kaitohutohu

Sent: Friday, 11 May 2018 10:43 AM

To: Deb Beatson <Deb.Beatson@op.ac.nz>

Subject: Re: Research proposal

Kia ora Deb
Thank you so much for sending us your proposal
Please find attached some feedback from Kelli and keep in touch if there's anything else we can help with
Ka mihi
Tessa

UNLOCKING THE INNOVATION POTENTIAL OF MĀORI KNOWLEDGE, RESOURCES & PEOPLE

Office of the Kaitohutohu Māori Ethics Consultation Feedback

Date: 11 May 2018

Researcher name: Deb Beatson

Department: School of Midwifery

Project title: **How do midwives facilitate physiological placental birth?**

INDIGENOUS INNOVATION: Contributing to Māori Economic Growth	
TAIAO: Achieving Environmental Sustainability through Iwi & Hapū Relationships with the Whenua & Moana	
MĀTAURAKA MĀORI: Exploring Indigenous Knowledge	Māori customary birthing practices hold significant cultural and spiritual value for Māori. Māori midwives may very well hold alternative perspectives on this issue to their peers. The 'ultimate aim of designing best practice guidelines to support midwives to support women to achieve a PPB following physiological labour and birth' has not been explored in depth within this application. If this is one of the aims of the research, it is advised that Māori are involved in the development / co-development of kaupapa Māori best practice guidelines from the outset. This proposal seeks to achieve an agreed consensus for a standard definition of PPB, but this methodology can mask the voice of Māori as a minority. It is therefore suggested that a dual process is offered to gain the perspective from tangata whenua and tau iwi, in order to elicit two world views that are able to sit alongside and inform each viewpoint.

HAUORA / ORANGA: Improving Health & Social Wellbeing	If there is no agreed consensus reached, what is the proposed process to interview the participants? Will all participants then be interviewed? How will this happen? Via Skype / Zoom / or kanohi ki kanohi? Has the researcher considered potential questions that may be both culturally appropriate to ask Māori midwives and elicit a Māori world view? The Office of the Kaitohutohu would be happy to discuss proposed questions if required.
TO LIVE AS MĀORI: Kaitiaki to Ensure Māori Culture and Language Flourish	

Date: 11 May 2018

Name: Kelli Te Maihāroa

Position: Tumuaki: Rakahau Māori | Director of Māori Research

---

From: Deb Beatson

Sent: Thursday, February 14, 2019 10:04:22 AM

To: Kaitohutohu

Cc: Suzanne Miller

Subject: RE: Research proposal

Kia ora Tess and Kelli,

Thank you for your feedback on my proposal. My apologies for the delay in responding to you. Unfortunately, due to workload issues, and a change in supervisor (due to illness), my project has been on the back burner until now. I have considered your responses carefully and discussed them with my supervisor.

Regarding your feedback, in relation to the Matauraka Maori section, I have updated the wording of the proposal in relation to the 'ultimate aim' section. This has been changed to:
The main objective of this proposal is to uncover how midwives in NZ facilitate PPB. It is anticipated that consensus can be reached about what constitutes a PPB, and a definition agreed upon. Consensus may be reached on aspects of practice which support midwives to support women to achieve a PPB following physiological labour and birth.
Whilst a guideline may eventuate, your feedback helped me to clarify that this is not the main aim.

I agree that this methodology could mask the voice of Maori as a minority as it is likely that there will be a small number of Maori participants. Alternatively, because the Delphi methodology reduces the effects of group behaviour (as the surveys are completed individually and anonymously) this may allow the voice of Maori to be heard.

The Delphi process has been praised for promoting communication and debate about a clinical issue where there is a lack of evidence for practice (Falzarano & Pinto Zipp, 2013). It has advantages in that there is no need for participants to be face-to-face, which can allow involvement by participants from different geographical areas, and may be relatively inexpensive (Balasubramanian & Agarwal, 2012; Wagstaff, 2000). The effects of group behaviour can be decreased as there is 'subject anonymity' when utilising the Delphi approach (Balasubramanian & Agarwal, 2012). Unfortunately, because this is only a master's study, we don't feel that it is feasible to have a dual process for tangata whenua and tau iwi. This may be something to consider for a further study. There may be an opportunity to analyse the data separately for tangata whenua and tau iwi, howver.

It will be necessary to acknowledge within the findings of the study, that there have been constraints to gaining a Maori perspective. These will include that the methodology is not one which can be completed kanohi ki kanohi and that it was not feasible to complete a dual process. It will therefore be suggested that a study be completed to explore the perspective of tangata whenua with a te Ao Maori view, and ideally this would be completed by a Maori researcher.

Regarding the feedback in relation to the Hauora/Oranga section, the interview process will only be employed if consensus cannot be reached, and only those who are at distance from the mean will be interviewed. This would likely occur by phone or skype, rather than kanohi ki kanohi, as participants will be located throughout the country. This will be outlined more thoroughly within the ethics proposal.

I have created the questions for the first iteration of the survey and would welcome feedback on these, as suggested, to ensure that they are culturally appropriate to Maori midwives and to potentially elicit a Maori world view. Please find these attached. Note that they are in a draft form, with some notes to guide me.

I've also attached my proposal if you wish to read this in full, rather than the overview provided previously.

Nga mihi maioha

Deb Beatson

From: Kelli Te Maiharoa
To: Deb Beatson
Cc: Kaitohutohu
Subject: Survey questions for midwives
Date: Sunday, 10 March 2019 8:50:32 PM

Kia ora Deb,

Thanks for sharing the devlopment of your ideas with us. I had a look at your survey questions, but I am wondering if there is a lack of cultural questions, and also if you added some, if they might prompt midwives to consider exploring traditional birthing practices, such as karanga to bring the pepi into the world, tying the whenua off with muka (harakeke), cutting the cord with a pounamu tohi, and karakia throughout the birthing process? Some of these practices can be viewed in the following Waka Huia documentary:

https://www.facebook.com/WakaHuiaTV/videos/797142783976162/UzpfSTEwNDUxMDgzODM6MTAyMTYwNTkxMzAyMDQ3ODE/

I hope you enjoy watching it, and I am sure there are others on this special kaupapa.

Mauri ora

Na Kelli Te Maiharoa

From: Kaitohutohu

Sent: Monday, 11 March 2019 11:42 AM

To: Deb Beatson <Deb.Beatson@op.ac.nz>

Cc: Suzanne Miller <Suzanne.Miller@op.ac.nz>

Subject: Re: Research proposal

Kia ora ano Deb

Please find attached Kelli's feedback

Na Tessa

Whāia te pae tawhiti kia tata whāia to pae kiā maua Pursue the distant horizons so that they may become your reality

Office of the Kaitohutohu Research Consultation Feedback Date: 11 March 2019
Researcher name: Deb Beatson
Department: Master of Midwifery
Project title: *"How do midwives, experienced in the technique, facilitate physiological placental birth?"*

INDIGENOUS INNOVATION: Contributing to Māori Economic Growth	
TAIAO: Achieving Environmental Sustainability through Iwi & Hapū Relationships with the Whenua & Moana	
MĀTAURAKA MĀORI: Exploring Indigenous Knowledge	Thanks for sharing the development of your ideas with us. I had a look at your survey questions, bu questions, and also if you added some, if they might prompt midwives to consider exploring tradit the pepi into the world, tying the whenua off with muka (harakeke), cutting the cord with a pounc process? Or you could have a separate cultural component? Some of these practices can be view documentary: https://www.facebook.com/WakaHuiaTV/videos/797142783976162/UzpfSTEwNDU I hope you enjoy watching it, and I am sure there are others on this special kaupapa. Kelly Tikao at short film about traditional birthing practices and is completing her PhD thesis is this area.
HAUORA / ORANGA: Improving Health & Social Wellbeing	
TO LIVE AS MĀORI: Kaitiaki to Ensure Māori Culture and Language	

UNLOCKING THE INNOVATION POTENTIAL OF MĀORI KNOWLEDGE, RESOURCES & PEOPLE
Name: Kelli Te Maihāroa
Position: Tumuaki: Rakahau Māori | Director of Māori Research, Otago Polytechnic

From: Deb Beatson
To: Kaitohutohu
Cc: Suzanne Miller
Subject: RE: Research proposal
Date: Tuesday, 12 March 2019 5:58:00 PM

Kia ora Tessa & Kelli,

Thank you for taking the time to feedback on my questions. I had purposely left my final question open-ended in order to elicit responses I may not have anticipated from participants. Traditional birthing practices such as those you have described are commonplace in my midwifery context, and I had thought they would be uncovered without too much prompting. However, following your feedback I have decided to add a further open question: Are there additional practices you offer, or employ in relation to a request from the woman/family?

Thanks also for sharing the link to the Waka Huia article about Te Ru and Maata Wharehoka and their whanau. I hadn't seen this one. I'm familiar with Kelly Tikao's work, and have used this when working with students.

Once again, thank you for taking the time to review my proposal and survey questions. One final request – please could you resend the table, as I am unable to see all of the feedback (but gleaned it from Kelli's earlier email).

Nga mihi maioha
Deb Beatson

Appendix G: Round 1 Survey

Naumai, haere mai, welcome!

In Aotearoa New Zealand, it is common for women to have a physiological third stage of labour following a physiological birth. Birthing practices and the whenua (placenta) hold significant value for Māori, and this may have influenced midwifery practice in Aotearoa. It has been identified that the literature largely omits midwives' experiential knowledge on the physiological birth of the placenta.

Thank you for taking the time to participate in this survey.

Remember, all your responses are anonymous (except to the primary researcher) and will be kept confidential.

The questionnaire takes 15-30 minutes to complete.

Click the arrow to begin the survey.

0% 100%

→

What is your age?

20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years	50-54 years	55-59 years	60-64 years	66-69 years	70-74 years	75-79 years	80-84 years
○	○	○	○	○	○	○	○	○	○	○	○	○

How do you describe your ethnicity?

How many years have you been in practice?

1 - 5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	31-35 years	36-40 years	41-45 years	46-50 years	51-55 years	56-60 years	61-65 years
○	○	○	○	○	○	○	○	○	○	○	○	○

In which country did you receive your initial midwifery education?

In which countries have you practiced midwifery?

0% 100%

← →

Which term/s do you use to describe the physiological third stage of labour? i.e. expectant management, physiological management, physiological placental birth or any other.

0% 100%

← →

When did you first start supporting physiological third stage of labour?

What influenced this?

0% 100%

← →

What is your definition of physiological third stage of labour?

0% 100%

← →

Describe when cord clamping or cord cutting occurs with physiological third stage of labour in your practice.

0% 100%

← →

Do you employ cord traction/easing the placenta out during physiological third stage? If so under what circumstances?

What factors influence your decision to support/or not support a physiological third stage of labour with a specific woman?

Describe any additional practices, in relation to physiological third stage, you offer or employ in response to a request from the woman/family.

Has anything occurred to you in relation to physiological third stage that I have not asked about?

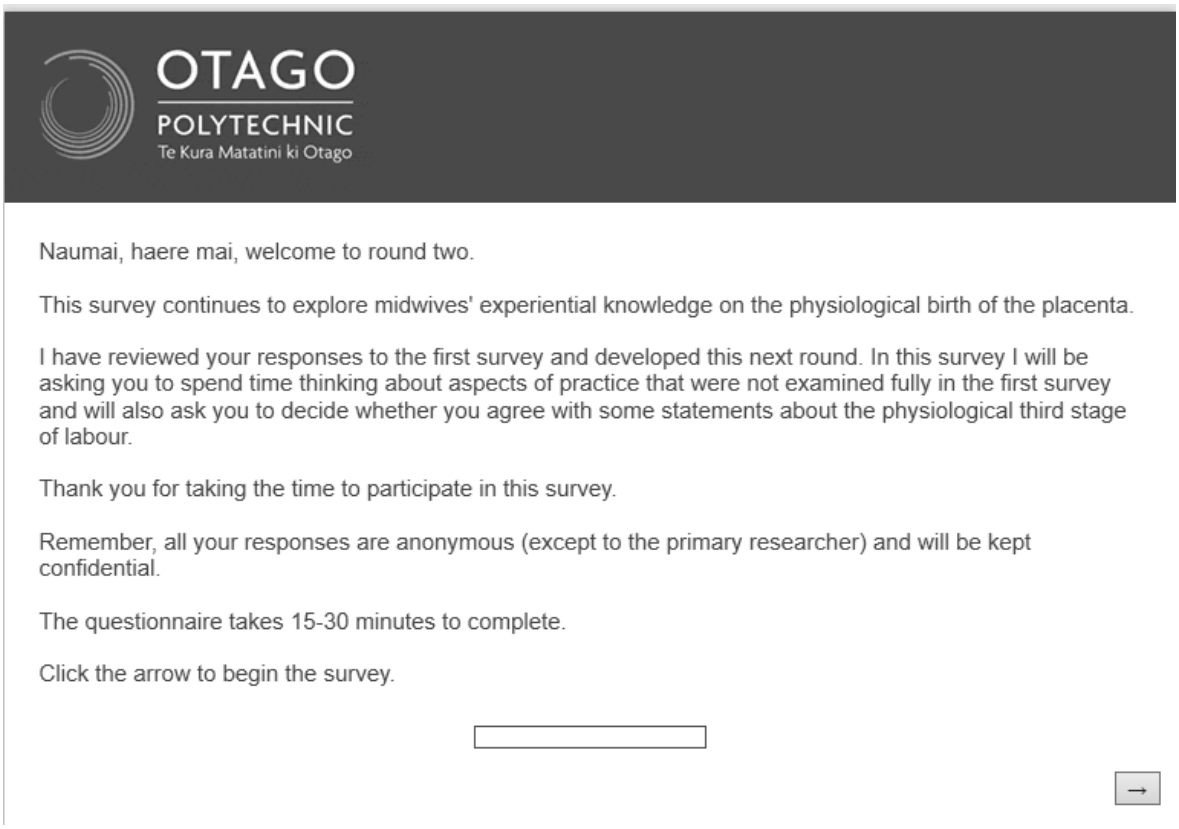
Ngā mihi nui, hei konā mai. Thank you, goodbye for now.

A link to the next version of the survey will be emailed to you once data analysis has been completed.

Please click the submit button when you are happy with your responses. You may move back to review your responses using the back arrow before submitting.

← Submit

Appendix H: Round 2 Survey



The following terms have been identified by participants and the researcher as terms used to describe *physiological placental birth*. I would like you to identify your preferred terms and those that you would not use.

Consider that:

- It would be useful to have one term, which is consistently used when talking intra and inter professionally, and with the woman and her whānau.
- Previous research (Dixon et al. 2012) has identified that physiology cannot be 'managed'.

Please drag and drop these terms into the relevant boxes - you do not need to allocate each term to a box.

Items
Physiological birth of the placenta
Physiological birth of the whenua/afterbirth/placenta
Physiological placental birth
Physiological third stage
Physiological third stage with maternal effort
Physiological management of third stage
Physiological care
Natural birth of placenta
Spontaneous placental birth
Undisturbed placental birth
Physiological whenua birth
Delivery of the placenta
Expectant management

My preferred term/s

Terms I would not use

←→

Please rate your level of agreement with the following statement (with 0=complete disagreement and 10=complete agreement):

Physiological placental birth is defined as "the spontaneous birth of the placenta/whenua by maternal effort, following the physiological birth of the baby".

Complete Disagreement 0 1 2 3 4 5 6 7 8 9 10 Complete Agreement

Level of agreement

Tell me about any aspects in the definition that you did not agree with, or think are missing.

←→

Tell me about what **you** do to facilitate the physiological birth of the placenta.

In this section, you will be asked to choose whether specific factors are essential, ideal or not essential in relation to the physiological third stage of labour. The factors listed were mentioned by midwives in the first survey or discussed in the literature. Please select an answer that best reflects your own perspective.

For the **woman**, the following factors should be present when supporting physiological placental birth:

	Not essential	Ideal	Essential
The woman is well prepared and understands that she is still in labour when the placenta is born.	○	○	○
Maternal confidence in physiological process.	○	○	○
Maternal perception of safety.	○	○	○
Freedom of movement.	○	○	○
Upright position.	○	○	○
Undisturbed mother baby interaction.	○	○	○
Early self-attachment of the baby at the breast.	○	○	○
Immediate and sustained skin to skin with the baby.	○	○	○
Time.	○	○	○
Access to food and drink as the woman desires.	○	○	○
An empty bladder.	○	○	○
The presence of a known midwife throughout.	○	○	○
Trust in the midwife/attendants.	○	○	○

For the **midwife**, the following factors should be present when supporting physiological placental birth:

	Not essential	Ideal	Essential
Midwife confidence in physiological process.	○	○	○

For the **birthing environment**, the following factors should be present when supporting physiological placental birth:

	Not essential	Ideal	Essential
A warm environment.	○	○	○
Low lighting.	○	○	○
A quiet environment.	○	○	○
Privacy.	○	○	○
Absence of technology e.g. mobile phones.	○	○	○
Familiar place.	○	○	○
Support people are trusted and confident.	○	○	○

← →

In this section, you will be asked to choose whether you agree or disagree that specific factors could interfere with physiological placental birth. The factors listed were mentioned by midwives in the first survey or discussed in the literature. Please select an answer that best reflects your own perspective.

The following factors disrupt the normal process when supporting physiological placental birth and should be avoided:

	Disagree	Agree
Immediate cord clamping.	○	○
Separation of mother and baby.	○	○
Massage of the uterus - leave the uterus alone.	○	○
An unsupportive environment - bright lights, cold room, lack of privacy, lack of supportive companions.	○	○
Emotional or intellectual disturbance of brain/hormone dynamics - any situation in which the mother feels threatened or unsupported.	○	○

← →

Do you agree with the following statement about midwives supporting physiological placental birth?

	Disagree	Agree
The midwife facilitates undisturbed maternal baby interaction, encourages skin to skin contact; keeps mother and baby warm	○	○

Please provide an explanation for your choice (or leave blank):

Do you agree with the following statement about midwives supporting physiological placental birth?

	Disagree	Agree
The midwife encourages the woman to adopt a comfortable position for her – preferably upright to aid descent of the placenta and observation of blood loss.	○	○

Please provide an explanation for your choice (or leave blank):

What additional supports do you employ?

← →

The following signs have been identified as 'signs of separation' in physiological placental birth. Select all that you agree with/utilise in your practice.

- ☐ Woman's experience - cramping, sore back, sore bum, heaviness in vagina, desire to bear down.
- ☐ Gush of blood - 'separation bleed'.
- ☐ Lengthening of the cord.
- ☐ Uterine shape changes - smaller, rounder, may rise in the abdomen.

Describe any additional signs of separation that you look for. Please provide as much detail as you can.

← →

Please rate your level of agreement with the following statements.
In physiological placental birth:

*Cord clamping/cutting occurs after the cord has stopped pulsating **or** at the request of the woman or whanau **or** after the birth of the placenta. Sometimes the cord will not be cut (when the woman/whanau has requested a lotus birth).*

Complete Disagreement — Complete Agreement

0 1 2 3 4 5 6 7 8 9 10

Level of agreement

The cord may be tied with muka and cut with obsidian/pounamu/an instrument that has been appropriately prepared.

Complete Disagreement — Complete Agreement

0 1 2 3 4 5 6 7 8 9 10

Level of agreement

← →

In the previous survey you were asked 'Do you employ cord traction/easing the placenta out during physiological third stage?'

- Over a quarter of participants responded **No**.
- Almost three quarters of participants responded **Yes** or **Sometimes**.

In the MEET study (Begley et al., 2012) midwives described occasionally employing a gentle easing of the cord when the placenta is in the vagina (which cannot lead to inversion as placental separation and descent has taken place). The midwives were clear that this was different from controlled cord traction and described it as *a gentle easing of the placenta down and out, or 'lift out', when they can see the insertion of the cord or the bulging of vaginal walls indicating that the placenta has descended into the vagina.* This was presented as a 'guilty secret' by many in the study. Like yourselves, the midwives in this study had experience in physiological placenta birth with low PPH and retained placenta rates.

Given this explanation, is this technique something that is occasionally employed in your practice?

	No	Yes
Please respond	○	○

Please tell me about why you selected yes or no.

← →

The following factors were identified by participants in the first survey as influencing their decision making about supporting physiological birth of the whenua. Please decide whether these factors would influence your decision making.

The woman has a previous history of:

	Not a consideration	Consideration	Absolute contraindication
PPH	○	○	○
PPH over 1000ml	○	○	○
Risk factor for PPH	○	○	○
Pre-existing bleeding issues	○	○	○
Placenta accreta	○	○	○
Incomplete or retained placenta	○	○	○

The woman has these current pregnancy factors:

	Not a consideration	Consideration	Absolute contraindication
Low lying placenta	○	○	○
Low haemoglobin (below 110)	○	○	○
Low haemoglobin (below 100)	○	○	○
Baby over 4.5kg	○	○	○
APH in current pregnancy	○	○	○
Polyhydramnios	○	○	○
Multiple pregnancy	○	○	○
Anything out of the nomal	○	○	○
Not showing commitment to physiological placental birth	○	○	○
Thrombin issues	○	○	○

The woman has experienced these factors during labour:

	Not a consideration	Consideration	Absolute contraindication
Interventions in labour	○	○	○
Induction	○	○	○
ARM	○	○	○
Epidural	○	○	○
Syntocinon/hormonal augmentation	○	○	○
Prolonged latent phase and a tired woman	○	○	○
Prolonged labour	○	○	○
Prolonged second stage	○	○	○
Maternal exhaustion	○	○	○
Shoulder dystocia	○	○	○
Birthing in a hospital setting	○	○	○

Are there any other factors that you can think of that influence your decision making to support a physiological third stage, or any comments you wish to make about your selection?

Describe any special considerations or additional things you do to facilitate physiological placental birth following a waterbirth.

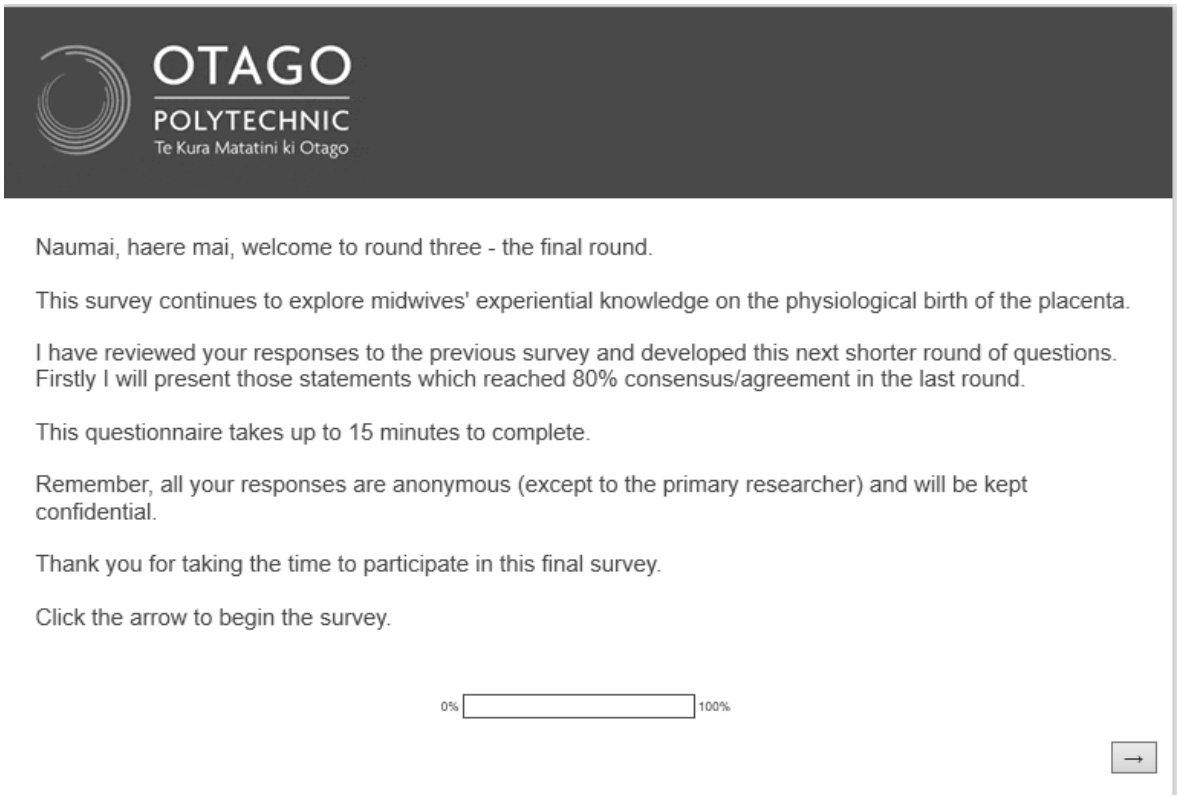
Describe when you would convert to using a uterotonic for a planned physiological third stage after a physiological labour and birth.

Ngā mihi nui, hei konā mai. Thank you, goodbye for now.

A link to the next version of the survey will be emailed to you once data analysis has been completed.

Please click the arrow when you are happy with your responses. You may move back to review your responses using the back arrow before submitting.

Appendix I: Round 3 Survey



OTAGO POLYTECHNIC
Te Kura Matatini ki Otago

Naumai, haere mai, welcome to round three - the final round.

This survey continues to explore midwives' experiential knowledge on the physiological birth of the placenta.

I have reviewed your responses to the previous survey and developed this next shorter round of questions. Firstly I will present those statements which reached 80% consensus/agreement in the last round.

This questionnaire takes up to 15 minutes to complete.

Remember, all your responses are anonymous (except to the primary researcher) and will be kept confidential.

Thank you for taking the time to participate in this final survey.

Click the arrow to begin the survey.

0% 100%

→

The following four pages contain the statements that met the threshold for consensus in Round 2:

Physiological placental birth is defined as "the spontaneous birth of the placenta/whenua by maternal effort, following the physiological birth of the baby".

For the woman, the following factors should be present when supporting physiological placental birth:

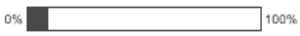
- The woman is well prepared and understands that she is still in labour when the placenta is born
- Freedom of movement
- Undisturbed mother baby interaction
- Maternal perception of safety
- Immediate and sustained skin to skin with the baby
- Time
- An empty bladder
- The presence of a known midwife throughout
- Maternal confidence in physiological process
- Trust in the midwife/attendants
- Early self-attachment of the baby at the breast

For the midwife, the following factor should be present when supporting physiological placental birth:

- Midwife confidence in physiological process

For the birthing environment, the following factors should be present when supporting physiological placental birth:

- A warm environment
- Low lighting
- A quiet environment
- Privacy
- Absence of technology e.g. mobile phones
- Familiar place
- Support people are trusted and confident



← →

The following factors disrupt the normal process when supporting physiological placental birth and should be avoided:

- Immediate cord clamping
- Separation of mother and baby
- Massage of the uterus – leave the uterus alone
- An unsupportive environment – bright lights, cold room, lack of privacy, lack of supportive companions
- Emotional or intellectual disturbance of brain/hormone dynamics – any situation in which the mother feels threatened or unsupported

The midwife encourages the woman to adopt a comfortable position for her - preferably upright to aid descent of the placenta and observation of blood loss.

The midwife facilitates undisturbed maternal baby interaction, encourages skin to skin contact, keeps mother and baby warm.

← →

The following signs have been identified as 'signs of separation' in physiological placental birth:

- Gush of blood – 'separation bleed'
- Lengthening of the cord
- Woman's experience – cramping, sore back, sore bum, heaviness in vagina, desire to bear down

Cord clamping/cutting occurs after the cord has stopped pulsating **or** at the request of the woman or whanau, **or** after the birth of the placenta. Sometimes the cord will not be cut (when the woman/whanau has requested a lotus birth).

The cord may be tied with muka and cut with obsidian/pounamu/an instrument that has been appropriately prepared.

Cord traction/easing the placenta out during physiological third stage is occasionally employed in my practice.

The following factors were identified as influencing decision making about supporting physiological placental birth:

The woman has a previous history of:
- PPH
- PPH over 1000 ml
- Risk factor for PPH
- Pre-existing bleeding issues
- Placenta accreta
- Incomplete or retained placenta

The woman has these current pregnancy factors:
- Low haemoglobin (below 100)
- Baby over 4.5kg
- APH in current pregnancy
- Polyhydramnios
- Multiple pregnancy
- Anything out of the ordinary
- Not showing commitment to physiological placental birth
- Thrombin issues

The woman has these current pregnancy factors:
- Low haemoglobin (below 100)
- Baby over 4.5kg
- APH in current pregnancy
- Polyhydramnios
- Multiple pregnancy
- Anything out of the ordinary
- Not showing commitment to physiological placental birth
- Thrombin issues

The woman has experienced these factors during labour:
- Interventions in labour
- Induction
- Epidural
- Syntocinon/hormonal augmentation
- Prolonged latent phase and a tired woman
- Prolonged labour
- Prolonged second stage
- Maternal exhaustion
- Shoulder dystocia

← →

The statements that did not reach consensus are presented on this page.

For the woman, the following factors shoud be present when supporting physiological placental birth:

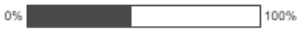
- Upright position (29%)
- Access to food and drink as the woman desires (23%)

The following signs have been identified as 'signs of separation' in physiological placental birth:
- Uterine shape changes – smaller, rounder, may rise in the abdomen (35%)

The following factors were identified as influencing decision making about supporting physiological placental birth:

The woman has a previous history of:
- Low lying placenta (71%)
- Low haemoglobin (below 110) [76%]

The woman has experienced these factors during labour:
- ARM (59%)
- Birthing in a hospital setting (25%)



← →

Now, I have 3 final questions to ask.

← →

The following terms have been identified by participants and the researcher as terms used to describe *physiological placental birth*. I would like you to identify your **preferred term** from this list of 8 (that 80% identified they would use in the previous survey).

- ◯ Physiological birth of the placenta
- ◯ Physiological third stage
- ◯ Physiological birth of the whenua/ afterbirth /placenta
- ◯ Natural birth of placenta
- ◯ Physiological whenua birth
- ◯ Physiological placental birth
- ◯ Physiological third stage with maternal effort
- ◯ Spontaneous placental birth

← →

In the previous survey you were asked to rate your level of agreement with the following statement: Physiological placental birth is defined as *"the spontaneous birth of the placenta/whenua by maternal effort, following the physiological birth of the baby"*.

While 82% of participants rated their level of agreeance as 7 or above, 8 participants made comments about maternal effort not being needed in physiological placental birth. Therefore I have updated the definition and would ask you to rate your level of agreement with the following statement (with 0=complete disagreement and 10=complete agreement):

Physiological placental birth is defined as *"the spontaneous birth of the placenta/whenua following the physiological birth of the baby"*.

Complete Disagreement — Complete Agreement

0 1 2 3 4 5 6 7 8 9 10

Level of agreement

← →

Are there any final comments you wish to make in relation to physiological placental birth?

← →

Please click the arrow below when you are happy with your responses. You may move back to review your responses using the back arrow before submitting.

I appreciate the time and effort taken to engage with the three surveys. I will share my findings with you once analysis is complete.

Ngā mihi nui, noho ora mai. Thank you, and goodbye.