HOW IS DECISION MAKING BY WHĀNAU ALTERED WHEN THE BIRTH PLAN IS REPEAT CAESAREAN SECTION?

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A thesis submitted for a Master’s Degree in Medical Science

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…to conduct Māori health research that produces knowledge that changes our lives for the better and to broaden and deepen Māori health research through the expression of rangatiratanga and mātauranga.

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ABSTRACT

This research sought to explore whether delivery by repeat caesarean section altered decision making by whānau. Qualitative research in a Kaupapa Māori framework (Māori based framework) was used to explore whānau (family/families) decision-making especially regarding delivery by repeat caesarean section or caesarean hysterectomy. This provided knowledge-rich information that was unlikely to result from other medical research methods and methodologies.

Ministry of Health (MoH) statistics provided a background for this research and when compared to data for Total New Zealand Women reveal how Māori women feature in NZ maternity data, although the purpose was not comparative.

These quantitative data and international research describe indications, risk factors and complications for caesarean section when indicated for Māori women, with a focus on statistics most pertinent to the women in this qualitative research. During this research process limitations in government maternity data collections were identified. This inhibited their resourcefulness when identifying data specific to Māori women, however the risks and indications for caesarean section for Māori women are closely related to findings in international literature on this subject. High risk vaginal deliveries were represented in descriptive tables to explore whether overall lower rates of caesarean section for Māori women but higher rates of emergency caesarean sections could be correlated.

By taking part in this research, participating whānau provided knowledge for other whānau about the risks and implications of repeat caesarean section, and for clinicians and health professionals about how this mode of delivery alters whānau decision-making. In particular, this research has identified the attributes within whānau that enable their decision making, then it has identified factors that alter decision making by whānau. Findings are also represented in the collective narratives from each whānau, which help us to explore how decision making is altered when delivery is by caesarean section within the Māori Health Framework, Te Whare Tapa Whā.
The research findings fulfil Māori Treaty of Waitangi obligation to its partner (the Minister of Health and Ministry workforce) and motivates both partners to participate in improving obstetric services for Māori, reducing barriers to optimal obstetric care for Māori, and enabling obstetrics teams to engage in optimal care for Māori women and their whānau. In particular, this research increases our awareness of decision-making by Māori women and their whānau regarding caesarean delivery. As research in this area is limited, this study adds to the current knowledge base.
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CHAPTER ONE - INTRODUCTION

Caesarean section is a surgical procedure performed on a daily basis and involves the obstetrics and anaesthetics teams, theatre staff, midwives, auxiliary staff, and trainees. Also, it is the delivery of a woman’s baby, whose first breath is a significant life and whānau event, and the continuation of whakapapa (genealogy).

Tihei mauri ora (the breath of life)

For a woman and her whānau this event occurs only a few times in their combined lifetimes. Birth is momentous, a product of fertility. At the same time, caesarean section is a common clinical procedure carried out in a sterile environment.

This thesis responds to a question arising during an evening shift at a tertiary level care hospital in New Zealand’s South Island, where I was a second year obstetrics and gynaecology registrar training with the Royal Australian and New Zealand College of Obstetricians & Gynaecologists (RANZCOG).

I had received a telephone call from a rural GP who discussed one of his patients with me. Rose (not her real name), a Polynesian woman, was 21 weeks pregnant in her fourth pregnancy. This was her first contact for care during this pregnancy. She had three previous caesarean deliveries of live singletons; the first two babies were conceived for her sister and brother-in-law who were unable to bear their own children.

Rose presented to the rural GP with a history of vaginal bleeding throughout her pregnancy and she suspected that it was not progressing normally. The GP arranged an ultrasound scan at the rural hospital and he telephoned me to discuss the results and Rose’s management plan.

The scan reported a live baby and abnormal placentation. The placenta had implanted to the inner wall of the uterus (womb), which was normal placentation, however the placenta had also implanted through the wall of the anterior uterus, invading the space between the uterus and bladder and it was also embedded in the posterior wall of the bladder. The term for this is placenta percreta. Placenta percreta
has an association with repeat caesarean section (Hamid and Arulkumaran, 2006; RCOG, 2011).

Rose had recurrent vaginal bleeding in this pregnancy. She was at risk of miscarrying and might have required a blood transfusion(s) if she were to bleed heavily, which was unavailable in her rural area.

Rose was asked to present to our tertiary hospital for further evaluation and management. She arrived that evening once her husband finished work and could drive her to our hospital with their two-year-old daughter.

I admitted Rose and provided her husband with a medical certificate so that he could care for their daughter. Our plan was that Rose would stay in our tertiary hospital because of the risk of miscarriage and possibility for heavy bleeding. We advised Rose and her husband that we did not intervene to save pregnancies shorter than 24 weeks’ gestation.

With financial assistance, Rose’s daughter went to their nearest relatives in Auckland, and who she was unfamiliar with. Rose was visited by her husband once a week as this was within their budget. Rose delivered by caesarean hysterectomy at 30 weeks gestation: a risks versus benefits decision. She stayed in our hospital while recovering from surgery and then because her premature new-born was in the neonatal intensive care unit. Her daughter remained with relatives in Auckland until the new-born baby and Rose were discharged from hospital approximately ten weeks later.

While Rose was an in-patient in the antenatal ward, we visited her each morning during the ward round, advising her not to leave the hospital grounds. One evening I asked Rose how many children she and her husband hoped to have? She replied that other than the two that they had given to her sister and brother-in-law, six to eight children. I asked her whether she had been advised that the number of children she could bear may be limited by caesarean deliveries. She had not.

This raised my research question:

*How is decision making by whānau altered when the birth plan is repeat caesarean section?*
I decided to investigate this question using qualitative research in a Kaupapa Māori framework.

**SIGNIFICANCE**

Childbearing is an important event for women, couples, whānau, hapū (sub-tribe), iwi (tribe) and for whānau outcomes. It also ensures continuation of ethnic groups. Therefore the number of children born and the contribution of childbearing to the extended family can be seen as individual and collective rights.

Childbearing is surrounded by historical ritual and tradition that give meaning to life and that differ from the medical standpoint where the focus is based on improving and preventing perinatal and maternal mortality and morbidity.

Caesarean section is a surgical procedure undertaken in a secondary or tertiary hospital to deliver a live born baby and it is an essential interventional mode of delivery that, when indicated, is best practice for mother and baby. Unlike most surgery, it involves two patients.

Modern medicine has successfully reduced perinatal and maternal mortality and morbidity; however compulsory surgical procedures retain certain levels of mortality and morbidity. Adhesions from prior surgery, scarring and changes to normal anatomy increase a woman’s risk of morbidity. When a surgical procedure is more difficult, the risk of complications increases.

When a woman has a history of two or more caesarean deliveries, maternity carers advise her that all future pregnancies require caesarean delivery and that there is a risk of uterine rupture\(^2\) in labour, or that the placenta may embed abnormally. If these risks are evident, a woman is advised to deliver by caesarean section before labour, and in some cases preterm delivery\(^3\) is indicated.

The complications arising from repeat caesarean sections, which are less common after one caesarean section, are:

---

\(^2\) A full thickness separation of the uterine wall and the overlying serosa results in life-threatening maternal and fetal compromise.

\(^3\) Preterm delivery: less than 37+0 weeks gestation.
Placenta praevia
Placenta accreta
Placenta percreta
Caesarean hysterectomy
Complications negating further pregnancies.

These complications may require intensive antenatal and obstetrics input. Some complications require the woman to have prolonged admissions to a tertiary hospital antenatal ward, or that a woman temporarily lives in close proximity to a tertiary hospital. Should pre-term delivery be indicated then this may include the newborn requiring neonatal intensive care in a tertiary hospital. The last two complications listed above result in no further pregnancies for the woman.

These complications can change the focus of decision-making, which in turn may contribute to altering day-to-day decisions, traditions, and cultural practices for whānau.

AIMS
Obstetricians have a duty to provide the best possible care to women, and health services have a duty to observe the Treaty of Waitangi.

The Treaty keywords most referred to within health care services are: participation; protection; partnership.

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4 Placenta praevia: A placenta implanted near or over the internal os of the cervix. There are differing grades ranging from the placental edge being 1cm from the cervix to the placenta completely covering the cervix. At the time of delivery, if undiagnosed, the placenta precedes the baby. There is a risk that the placenta will shear when the lower segment of the uterus is developing.

5 Placenta accreta: The abnormal adherence of the chorionic villi (a vascular part of the placenta) to the myometrium (the muscle of the uterus). Normally there is tissue intervening between the chorionic villi and the myometrium but in placenta accreta, these vascular processes of the chorion grow directly in the myometrium.

6 Placenta percreta: Placenta accreta can progress to placenta percreta. A placenta that invades the uterine wall. In placenta percreta, the vascular processes of the chorion (chorionic villi) may invade the full thickness of the myometrium. This can cause an incomplete rupture of the uterus. The chorionic villi can go right on through both the myometrium and the outside covering of the uterus (serosa), causing complete and catastrophic rupture of the uterus.

7 Caesarean hysterectomy: The removal of the uterus at the time of a planned or unplanned caesarean delivery. The reason is uncontrolled hemorrhage that has failed to respond to uterotonics and other measures.

8 Complications that indicate that uterine rupture in a future pregnancy is likely. The risks of caesarean delivery outweigh the benefits of pregnancy.
At its outset this research sought to create a partnership between the researcher and whānau where both participated in, and were protected by, the research process, working collectively toward positively changing maternity settings where whānau make significant decisions.

Qualitative research and Kaupapa Māori methodology were applied to explore whānau knowledge about repeat caesarean section, for example, number of caesarean sections allowable; conditions associated with a higher risk of caesarean section; complications related to caesarean delivery; and whether decisions from preconception through the postpartum period were altered (or not) by repeat caesarean section. It also aimed to increase Māori awareness of the implications of repeat caesarean delivery and improve clinicians’ understandings of this mode of delivery’s impact on whānau decision-making, thereby improving obstetric services for Māori. It provides an opportunity to disseminate information within Māori communities and to support decision-making within whānau when whānau interact at the tertiary level of health care.

This research aims to give doctors the knowledge to be able to provide general advice to Māori women and whānau about future decision-making that may be required when birth is by repeat caesarean section.

**OBJECTIVES**

Specifically, this research seeks:

- To identify the factors that increase the risk of caesarean delivery for Māori women
- To identify which of these are modifiable
- To explore women’s and whānau knowledge of the factors that increase the risk of caesarean delivery
- To explore women’s and whānau knowledge of the complications of repeat caesarean delivery
- To identify whether repeat caesarean section alters whānau decision-making
- To identify how decision-making by whānau is altered by repeat caesarean delivery.
• To contribute to the knowledge base with regards to caesarean section delivery and Māori women.

This research supports caesarean delivery as a necessary mode of delivery should vaginal delivery be contraindicated.

The Benefits Of Conducting Qualitative Research At A Tertiary Level Of Care

Māori health disparities are evident at primary, secondary, and tertiary levels of care and within health policies (Cormack and Robson, 2010; MoH, 2002). Non-Māori see the effects of these disparities in health statistics (Sadler et al., 2002; Anderson et al., 2012; PMMRC, 2012). Māori see these in the health of those closest to us.

Clinical researchers, at the tertiary level of care, who are interested in hospital-related outcomes, use statistics-oriented quantitative methods and methodologies formulated in health science tertiary institutions and prioritised by level of evidence.

Research pursued in the surgical sciences emphasises experimental research, randomised controlled trials, or other acceptable quantitative approaches with questionable track records in improving health disparities between Māori and non-Māori. Within this context, very little research exists about Māori women and obstetrics. Māori women have significantly lower caesarean section rates than non-Māori women (Harris et al., 2007b) for reasons yet unclear. The factors that may explain the significant differences between Māori and non-Māori caesarean section rates are whether:

• Māori women’s pregnancies and labours favour vaginal delivery;
• Māori women who have caesarean sections are under-reported;
• Māori women may be experiencing high risk vaginal deliveries;
• Suboptimal antenatal care and/or restricted access to antenatal care may prevent identification of indications for caesarean section in the antenatal period,⁹
• Evaluation for caesarean delivery did not occur during the pregnancy.

⁹ Example 1: a pregnant woman with poorly controlled diabetes has an increased risk of delivering a large-for-dates baby. In this situation, with optimal antenatal care, a caesarean section may be offered to prevent shoulder dystocia vaginal delivery (obstetric emergency) or to prevent a third or fourth degree tear to the perineum, which could result in future faecal incontinence. Example 2: breech presentation.
Disparities have been identified in obstetrics (Sadler et al., 2002), however non-Māori clinical health researchers (Sadler et al., 2002) propose ‘non-clinical’ causes outside the clinical or hospital setting. Although such factors have yet to be established (or proven), it is claimed these are likely causes for disparities at a tertiary level of care (Sadler et al., 2002; Smylie et al., 2006) and seem to exonerate clinical researchers from clinical responsibility for these disparities and validating their methods and methodologies as more scientific and better suited for clinical and hospital settings.

Quantitative researchers recognise that qualitative research may shed light on incomplete findings from quantitative research (Sadler et al., 2002). However, despite this admission, their research world view seems to be a defensive, closed rationale that celebrates the clinical researcher and considers the patient incidental (Marie and Haig, 2006; Pope and Mays, 1993).

Māori are fully aware of why solutions put forward by tertiary level care researchers have little effect on health disparities (Cormack and Harris, 2009a; Rumball-Smith, 2009; Cormack and Harris, 2009b). Māori do not differentiate between clinical or non-clinical problems (Durie, 2004), nor between clinical and non-clinical research methods (Workman, 2006).

Whereas Western scientific concepts of evaluation, measurement, categorisation, and the universal approach (Ahuriri-Driscoll et al., 2012a) undermine the Māori patient’s existence, Kaupapa Māori and qualitative research methods span the clinical/hospital and non-clinical settings and therefore validate the Māori patient.

Qualitative research need not be the antithesis of quantitative research (Pope and Mays, 1995) and can augment its results, making outcomes more effective for patients, practice, and policy in hospital and clinical settings (Pope and Mays, 1993).

Pope and Mays (1995) argue that if qualitative research preceded quantitative research then the need, the approach, and the applicability of the latter could be determined.
The Benefits Of Kaupapa Māori Research At A Tertiary Level Of Care

Obstetricians generally belong to two age-based cohorts. A policy of training new obstetricians to replace those that have reached retirement has created one aged cohort and another increasingly young and inexperienced cohort (MacLennan and Spencer, 2002; AMWAC, 2004; Douglas, 2012).

Furthermore, many tertiary level clinicians are neither Māori nor New Zealand-born and have limited experience with the New Zealand bicultural education system introduced in the 1980s (Smith, 2003). Their exposure to whānau situations are restricted by where they work and they typically only interact with whānau in the clinical settings. Therefore, one of the strategies for this research is to provide the clinician with an understanding of Kaupapa Māori research that challenges the deficit approach to Māori Health which quantifies Māori with ‘deficit’ statistics focussed on Māori disadvantage and dysfunction and that privileges non-Māori health models. This approach to indigenous people is not unique to New Zealand (Pholi et al., 2009) and consists of government targeting policies to correct statistical deficits. When statistical improvements can be demonstrated, indigenous health and wellbeing are said to have improved.

The deficit approach contradicts what New Zealand students in the health sciences are taught: that Māori wellbeing cannot be measured by statistics alone.

While Kaupapa Māori Research also analyses disparities, it focuses on problem solving. Māori research focuses on the strengths of Māori as individuals and collectives and views Māori as the best people to identify the problems that cause health disparities and to provide the solutions, and is recognised as ‘best practice research for Māori’ (The Putaiora Writing Group, 2010). It has no generic framework; there are stable core concepts. The framework is determined by the research pātai (question) and kaupapa (topic).

Linda Smith (2006) explains the application of Kaupapa Māori research, subsequent analysis of the findings produced, and the questions that the research addresses, stating that these are undertaken by reflecting the way Māori see the world, organise themselves in it, the questions Māori ask, and the solutions that Māori seek.
A review of Decision Theory and Māori Philosophy reveals different Māori health frameworks that outline best practice healthcare for Māori within the New Zealand Health System and discloses environmental influences on each framework's potential such as colonisation and politicisation as variables that may condition their application (Workman, 2006). According to Workman (2006), an environment determined by colonisation and politicisation generally has set parameters that restrict the tikanga and kaupapa of Māori health frameworks.

Notwithstanding such restrictions, *Te Whare Tapa Whā* (Durie, 1998) and *Te Pae Mahutonga* (Durie, 2004) are Māori health frameworks resourced from Te Ao Māori (Māori world) which can be interpreted and understood by New Zealand health professionals. While these do not provide the depth of knowledge existing in the Māori world on the subject of Māori health, they can be successfully applied in restrictive environments. Similarly, as I developed my research methods, I identified Te Ao Māori principles appropriate for the research environment.

The following section provides a background for clinicians on the framework that safely positions my research at the tertiary level of care and which is also part of the ethics guidelines issued by the New Zealand Health Research Council.

**Te Ara Tika – The Right Path (The Putaiora Writing Group, 2010)**

*Te Ara Tika* is a Māori Ethical Framework for Researchers and is considered the ‘right path’ for researchers and ethics committees, its guidelines cross-reference to the MoH Operational Standard for Ethics Committees. It was created by the Group on behalf of the Health Research Council and the following illustration taken from these guidelines outlines three different levels of ethical commitment to Māori: Kaupapa Māori, Māori-centred, and mainstream ethical practices.
Figure 1: Te Ara Tika Māori Ethical Framework – The Different Levels Of Engagement & Responsibilities

The tikanga (customs/protocols) in the Te Ara Tika framework bring together four principles – Tika (correct or right), Manaakitanga (hospitality or kindness), Whakapapa, and Mana (power or authority), each applicable to the three different levels of ethical research practice.

The outer circle represents mainstream research practice and provides a guideline for researchers and ethics committees maintaining a certain level of commitment to Māori where the minimum standard for every researcher who submits research for ethics approval should demonstrate a minimum commitment to consultation with Māori (i.e. Ngāi Tahu Research Consultation Group, University of Otago).

The second circle represents good practice exemplified by Māori-centred research and requires certain engagement with Māori.

Finally, the inner circle represents Kaupapa Māori research, or best practice.

These guidelines enable the research to move through a process that may be tapu (restricted) to achieve a position where the process is noa (unrestricted) (The Putaiora Writing Group, 2010: 29).
**Tika – Research Design** (The Putaiona Writing Group, 2010: 28)

*Te Ara Tika* also provides research design guidelines. To be best practice research, my framework needed to be designed, conducted by, consist of, and be of benefit to Māori. The *Tika* approach to research design acknowledges the importance of ‘what is right and what is good for a particular situation’ and is related to the ‘validity of the research’. If these guidelines are observed, the research outcomes are more likely to be accomplished.

Best practice acknowledges ‘partnerships and the responsibilities of Māori to ensure that the project delivers its intended outcomes to Māori communities’, encouraging research that frames Māori kaupapa as the primary interest of the project, involves Māori as co-constructors (The Putaiona Writing Group, 2010: 2.3.56), supports Kaupapa Māori theory (The Putaiona Writing Group, 2010: 2.4.61) and uses Māori research methodologies as appropriate (The Putaiona Writing Group, 2010: 2.0.23; Appendix 28:383).

The Tikanga For This Research

Māori research is committed to answering questions initiated by Māori. My clinical exposure to obstetrics and the situation faced by Māori that led me to formulate this inquiry are the foundations for this investigation. As Māori doctors we are in a unique position to identify factors affecting whānau from a clinical perspective, and to promote research for a community affected by the same clinical situation from within that community.

The tikanga for my research process is positioned within appropriate boundaries as illustrated in the framework above; at best practice level, this means that my commitment to this process, my responsibilities, and the relationships within are cloaked in the concept of kaitiakitanga (guardianship).

Undertaking Kaupapa Māori research means that the research design, methods, methodology, outcomes, and dissemination of the results are initiated, guided, and centred by Māori ensuring autonomy and tino rangatiratanga (self-governance).

Members of the local Ngāi Tahu community with an interest in my research have provided support, consent, and approval for research design, methods, and methodology. Reference people with varied expertise have assisted at different stages of my research. I am guided by my supervisor who oversees Māori health
education and Māori health research, I have a mentor through the Te ORA Māori doctors’ association, I belong to the University Māori postgraduate student group and attended Māori research writing group hui during this research, I regularly participate in a te reo (Māori language) group and provide support for Māori medical students, on an informal basis, in Dunedin.

My self-positioning as a Māori health researcher, clinical researcher, first time researcher, Māori doctor, and obstetrics and gynaecology trainee is best described by Melinda Webber’s definition of an ‘edgewalker’ from her book ‘Walking the Space Between’ (Webber, 2008): someone who is both Pākehā and Māori in the Māori world. This definition applies to me in terms of the challenges and reflections posed by the various roles I fulfil within this research and the various audiences that I am responsible to.
CHAPTER TWO – LITERATURE REVIEW

In this chapter I review the literature pertaining to:

- Whānau
- Māori women & caesarean sections
- New Zealand Ministry of Health (MoH) Maternity documents.

A grounded theory (Strauss and Corbin, 1990) approach was applied to the literature review where reading parallels the development of the project. Literature is explored as required by the research process then it is treated as another source of data to be subjected to comparative analysis once categories have emerged and conceptual development is underway, thus avoiding the pre-study review (Strauss and Corbin, 1990).

In keeping with this theory, as the research proceeded literature searches were required that further developed the preliminary literature review topics that supported this inquiry, or that sought out literature specific to the material arising from this inquiry. The progress of the literature review continues in this thesis as part of Chapters Three, Four, Five and Appendix One and which include:

- New Zealand maternity statistics
- literature relevant to Māori women and caesarean delivery (*Chapter Three Maternity Data Relevant to this Research*)
- risks and indications for first and repeat caesarean sections and caesarean hysterectomy (*Chapter Three Maternity Data Relevant to this Research* and the associated Appendix One)
- Kaupapa Māori research methods and methodology in medicine (outlined in *Chapter Four Methodology* and *Chapter Five Methods*)
- Decision making for whānau in the area of health (outlined in *Chapter Four Methodology* and *Chapter Five Methods*).
PRELIMINARY LITERATURE REVIEW

A preliminary literature search, refer to Appendix Nine (page 218), during the research proposal stage (October 2010) revealed no papers specific to the research question. A search of the Cochrane Database of Systematic Reviews from 2005 to August 2010 using the keywords 'indigenous' and 'caesarean section' resulted in five papers, none relevant to the combined keywords. The keywords ‘Māori and caesarean’, ‘Māori and antenatal’, ‘Māori and maternity’ also gave no results.

A search of Medline 1996 To The Present Day gave 9 results for ‘caesarean and indigenous’; 3 results for ‘caesarean and Māori’ of which 2 were useful; 0 results for ‘caesarean’ and ‘hysterectomy’ and ‘indigenous’; 0 results for ‘caesarean and placenta’ and ‘accreta’ or ‘percreta’ or ‘praevia’ or ‘hysterectomy’ and ‘indigenous’. A search for ‘caesarean’ and ‘hysterectomy’ produced 1009 articles of which approximately 40 warranted further analysis after a review of their abstracts. A search for ‘whānau’ produced 34 papers. Sixteen discussed Māori research and health practices and were useful broad references; 2 results from keywords ‘indigenous and vaginal and caesarean’ repeated previous search results and were not useful.

A further search of Medline 1950 to present with the keywords ‘caesarean section’, ‘decision-making or health services’, and ‘indigenous’ resulted in 339 papers of which nine were possibly useful for analysing delivery choices after caesarean section, however none were indigenous specific.

A search of British Medical Journals produced two South American papers comparing caesarean section rates and private health insurance.

A Google Scholar search produced more relevant papers. Three New Zealand articles discussed caesarean sections and ethnicity and these will be discussed later in this chapter.

WHO IS WHĀNAU?

The definition of whānau is much debated. Cram & Kennedy (2010) create the following qualifiers for whānau: traditional, contemporary, kaupapa, sole household and multi household. Smith (1996) describes whānau as a persistent way of living in and organising the social world. The MoH publication He Korowai Oranga: Māori
Health Strategy Report 2002 describes whānau as the foundation of Māori society, a source of strength, support, security and wellbeing, central to Māori collective and individual wellbeing.

Durie (2003; Durie, 1997), Metge (1995), Cunningham (2005) and Walker (2006) differentiate between whakapapa-base, kaupapa, statistical, and kōhanga (preschool) whānau, while Cunningham aptly describes whānau as a self-defined unit. Similarly, the Māori household survey (Te Hoe Nuku Roa) for whānau participating in research allows participants to define whānau.

WHĀNAU AND HEALTH DECISION MAKING

Cunningham, Stevenson and Tassell prepared a report for the Ministry of Education published in May 2005 Analysis of the Characteristics of Whānau in Aotearoa to create a picture of whānau in terms of common characteristics, access to networks and support, and diversity, and incorporating data from another Cunningham and Stevenson report: Te Hoe Nuku Roa: Best Outcomes for Māori, a longitudinal study for Māori households commencing in 1994.

Cunningham et al. (2005) strengthen their report with vignettes from four invented whānau created from typical data about whānau households. Similarly, my research involved co-construction and participation with four whānau who have experienced caesarean delivery and collective vignettes from whānau members provided a profile for each whānau.

Māori Health Research Council representatives held a writing group at the Dunedin Polytechnic Institute in Dunedin in 2011, providing the most relevant references for my research, referring me to Hope Tupara’s (2009b) PhD thesis on whānau decision processes in the health research ethics and genetic testing context. She provided a survey for her participants based on Te Hoe Nuku Roa taking into account each participant whānau’s unique kōrero (speak).

Tupara explored Māori research traditions and basic Western beliefs by placing her research at the interface of Western and whānau decision-making practices. She found that although the latter were collective and made mainly in hui (Māori gathering or meeting), they also valued individual autonomy. Key people’s attributes, authority, and control were central to decision-making processes, which in turn were informed
by information, role modelling, values, beliefs, and fears. These processes were also crucial to maintaining whānau integrity and ensuring whānau benefitted from the decisions made. Tupara’s decision framework included hui, rangatiratanga, manaakitanga, and kotahitanga (unity).

Other specific references for my research were Kennedy & Cram’s Researching with Whānau Collectives (2010) and Jones & Crengle’s research Tikanga Guiding The Hauora Tāne (Male, Husband) Project (2006). Like mine, Jones & Crengle’s work was gender focused.

MĀORI WOMEN AND CAESAREAN SECTIONS

Māori are tāngata whenua in Aotearoa (people of the land), approximately one in four women giving birth are Māori (MoH, 2012). As such, Māori have a vested interest in the maternity environment in New Zealand not only because of the high birth rate and increasing population but also because Māori women represent 39% of maternal deaths (during the 2006-2010 period)(PMMRC, 2012).

Despite this, Māori and Pasifika women have lower obstetrics intervention rates. The first report to raise concerns about this was the Ministry of Health Obstetric Procedures Report 1999 for the period 1988/89-1997/98.

The Guidelines for Consultation with Obstetricians and Related Medical Services Referral Guidelines 2012: Code 3020 lists high risk pregnancy indicators intended to guide midwives and GPs when they refer women to obstetricians, underlining the importance that lead maternity carers differentiate low risk from high risk pregnancies and guiding maternity carers in making appropriate and timely referrals to ensure best possible outcomes for mother, baby and whānau. These indicators do not guarantee that caesarean section is inevitable; however its probability may increase according to the diagnosed condition.

The following two articles also raise the question: if Māori women have higher risk pregnancies and more health problems, then why does the data show a lower rate of obstetrics intervention, when a higher rate would be expected?

Sadler, McCowan & Stone (2002) tested the association between maternal characteristics, obstetric risk factors and ethnicity for NZ women at two points: one,
initiation of labour; and two, delivery; adjusting for age and these variables: parity (nulliparous or multiparous), smoking, gestation at booking, caregiver, transfer of care, hypertension, diabetes, antepartum haemorrhage, preterm, post-term, and small for gestational age (BMI data was unavailable at the time). Their unadjusted analyses showed lower obstetrics intervention rates for Māori and Pasifika women, and in line with the MoH Obstetrics Procedure Report. However, adjusted analyses showed no difference in caesarean section rates between Māori and Pasifika women and other New Zealand women. However Māori and Pasifika women had lower rates of induction of labour, pre-labour caesarean sections, and operative (assisted) vaginal deliveries, and less epidural analgesia and Māori women had more emergency caesarean deliveries.

Sadler (2002) suggests that qualitative research may help explain this disparity because non-clinical factors may be at work and recommend that such research focus should be: women who make decisions that lead to increased interventions without proven benefits. These women would be unrepresentative of Māori or Pasifika women because, as stated in the 1999 MoH Obstetric Procedures Report, Māori and Pasifika women exhibit lower obstetric intervention rates.

An alternative approach would be to invite women with lower obstetric intervention rates to participate in qualitative research to ascertain factors, including protective factors, which contribute to a lower obstetrics intervention rate for some women in New Zealand. This group is more likely to include Māori and Pasifika women. Whether higher risk pregnancies result from lower intervention rates during the antenatal period, rather than from lower obstetrics intervention rates during labour and delivery could also be explored.

Sadler (2002) also identified:

Significant associations between ethnicity and: age, parity, smoking, gestation at booking, booking caregiver, transfer of care, small for gestational age at birth, hypertensive disease, diabetes, antepartum haemorrhage, gestation at delivery and birth weight… Māori [and Pacific] women are less likely to have an epidural.

The authors promote a more comprehensive prospective national perinatal data collection that they propose would result in more informative presentation of national data.
Harris (2007b) presented a national review of differences between Māori and non-Māori caesarean section rates, highlighting that women in higher deprived areas may also have lower caesarean section rates. If this was so, higher intervention rates would also be expected for this group of women also. They remind readers that Māori are more likely to reside in the highest deprived areas. Their study showed significant differences between Māori and non-Māori for caesarean section after controlling for deprivation, age, multiple births, fetal presentation, gestation at delivery, hypertension, APH, and diabetes (BMI data was unavailable for this report). However, they acknowledge that deprivation is not the only reason for the difference and, like Sadler et al. (2002), suggest that non-clinical factors might be influencing these rates.

Harris et al. (2007a) imply that the following non-clinical factors contribute to the differences between Māori and non-Māori caesarean section rates: patient factors such as maternal request, patient preferences and expectations, provider practice, patient-provider interaction, access to information and care, and differential management. They also discuss the accuracy of NZ ethnicity data collection and its impact on Māori health research.

**NON-CLINICAL FACTORS**

The factors that make a pregnancy ‘high risk’ are not restricted to medical or pregnancy related conditions. Historically Māori, like most indigenous people who live in their country after colonisation, suffer poverty of health (AHRQ, 2009; Cormack and Harris, 2009a; Pholi et al., 2009; Rumball-Smith, 2009; Smylie et al., 2006) which could be considered a breach of the Treaty of Waitangi. Pregnant Māori women and their new born babies are not exempt from intergenerational poverty of health caused by inequities between indigenous and non-indigenous people (AHRQ, 2009; PMMRC, 2012). Kōrero from whānau will provide an insight into this.

In the video *Birth Rites* (Gherardi, 2002), maternity carers for Aboriginal women in isolated areas of Australia explain that although Aboriginal women birth normally, poor nutrition and anaemia due to poverty increase the risk around their pregnancies.

The video explores indigenous family views on maternity care in rural communities in Halls Creek, Australia and Puvirnituq, Canada (Gherardi, 2002). Elders interviewed
in the video emphasise the importance of local maternity services and proximity to family when a woman is transferred from her community to a tertiary hospital.

Their concern was the breakdown in the cultural knowledge associated with preparing for a new family member when a woman is removed from her community, also the breakdown of respect between generations in a family. Separating a woman from her family at this time can destroy the family value framework. Conversely, elders explained that less abuse occurs in the community when the family is involved in the birth process and that birth is a healing process for family that strengthened family ties. Daily cultural activities could continue within the community unit when all family members were present. However when moved to a centralised unit and the birth taken from the family, some women felt angry and violated, and others experienced depression and vulnerability when separated from their children and worried about who would care for their children.

Although indigenous people may be present at the centralised area, these are countries where there can be 400-600 different indigenous language groups and commonality cannot be assumed. Women are therefore more likely to decline antenatal care that may include a transfer out of the community which would disrupt their connectedness with the land and the associated positive feelings.

On the other hand, doctors view these smaller communities as undesirable due to the lack of support and relief provided and the fear that a shortage of maternity staff will increase litigation against them.

Aboriginal and Inuit women’s experiences (Gherardi, 2002) probably parallel those of Māori and Pasifika women.

REVIEW OF MINISTRY OF HEALTH MATERNITY DOCUMENTS AND AN OVERVIEW OF THE NEW ZEALAND MATERNITY ENVIRONMENT

A number of reports are produced for the Ministry of Health for Perinatal and Maternity Statistics (PMMRC reports, Maternity Clinical Indicators Report). These are constantly evolving and a new report was published, the New Zealand Maternity Clinical Indicators Report 2009, after I enlisted two senior analysts at the Ministry of Health for this research in November 2010.
I have written a chapter (not included in this thesis) on these documents and their relationship with other maternity data collection for Māori and I have compared the reports with international literature. This work will be used for future research articles. However, for this research question, I was interested in gathering data from the reports for Māori women, Māori babies, caesarean sections and high risk vaginal deliveries to provide the setting for this thesis where Māori women were the focus in the NZ maternity setting. The government maternity reports and documents were disappointing resources for this inquiry.

I had assumed that there would be a specific report containing data for perinatal mortality, morbidity and maternity clinical indicators for Māori women and Māori babies that would be a resource for Māori health researchers and Māori doctors. What I found was totally different and I was surprised especially considering that the Minister of Health has requested that Maternity health care providers and committees who oversee perinatal and maternity outcomes make it their priority to improve outcomes for Māori women and babies (PMMRC, 2007) and as outlined in the duties and responsibilities of these committees.

**PERINATAL MORTALITY AND MORBIDITY REVIEW COMMITTEE REPORTS**

The duties and responsibilities of the Perinatal Mortality and Morbidity Review Committee members are that:

24.8. *Members must operate in a culturally appropriate, sensitive, and responsive manner.*

24.9. *All members of the Committee shall ensure that issues concerning Māori mortality and morbidity are considered and prioritised.*

I acknowledge the work of the members of the Māori caucus who act as reference people for the PMMRC. What I feel is missing is a Māori committee presenting relevant information in reports for whānau, Māori researchers, Māori doctors, and Māori health care providers. What we have are non-Māori focussed committees presenting Māori information filtered through many reports and documents in a scattered nature which means identifying trends for Māori women and Māori babies between different committee reports and maternity clinical indicator documents is difficult.
The PMMRC has two Māori members: a GP and women’s health researcher; and a Māori health researcher. These two people can be on more than one of the maternity review committees. The two working groups who have produced reports that are important to Māori are the Maternal Mortality Working Group (MMWG makes reference to input from a Māori Caucus) and the Neonatal Encephalopathy Working Group (NEWG).

Prior to the MMWG 2010 report, the group only reported ‘direct’ pregnancy-related deaths. ‘Direct’ maternal deaths are, (as defined by the United Kingdom Confidential Enquiry in Maternal and Child Health classification system):

*those resulting from obstetric complications of the pregnancy state (pregnancy, labour or puerperium), from interventions, omissions, incorrect treatment or from a chain of events resulting from the above.*

‘Indirect’ maternal deaths are defined as:

*those resulting from previous existing disease or disease that developed during pregnancy and was not due to direct obstetric causes but which was aggravated by the physiologic effects of pregnancy.*

The MMWG reported that indirect maternal deaths account for at least 50% of deaths in each year from 2006 to 2010, and that the most common causes for maternal death were suicide, amniotic fluid embolism and pre-existing medical disease. As some of these are not ‘direct deaths’ these were not reported. In 2009 and 2010, contributory factors and indirect deaths were included in the MMWG reports on maternal deaths. This is relevant to Māori women in our maternity setting and as stated in the 2010 MMWG report: contributory factors more common with Māori perinatal related deaths were health service organisation and management; personnel; environment; barriers to access; and engagement with care.

The legal gestation for obstetrics intervention to save a pregnancy and that may result in a live baby is 24 weeks plus 0 days. The MMWG report includes grouped data for pregnancies that are less than 24 weeks gestation. This makes analysis difficult for pregnancies greater than 23+6 weeks gestation where inquiry into intervention to save a baby at an early, but legal gestation is grouped with gestations that are below the legal gestation for intervention.

For the purposes of research in obstetrics, grouping the gestation of pregnancies from 24 weeks onward would help to identify which pregnancies could have had, and were influenced by, obstetric intervention.
Nonetheless, the 2010 PMMRC report, in a separate section from the Maternal Mortality Review Working Group Report, under the section Perinatal Mortality, Figures 18 & 19 have provided the following gestation groups: 20-23 weeks, 24-27 weeks, 28-36 weeks, 37 weeks and greater.

From this set of groups, it is possible to identify which neonatal deaths occurred when intervention could legally occur, i.e. greater than 23+6 weeks gestation.

Streamlining the reports from the review working groups and PMMRC with regards to grouped gestational categories would make identification of trends and comparisons easier, for example between maternal deaths in one report and neonatal deaths in another when comparing antepartum haemorrhage or hypoxic induced encephalopathy.

After reading these reports the most relevant information within these reports for Māori are:

**Maternal And Perinatal Deaths**

Although maternal deaths are rare and the clinical focus is changing to identifying ‘near misses’ and how these can be avoided, maternal deaths are still significant for Māori, as Māori women accounted for 39% of maternal deaths (2006 to 2010). Māori babies account for 32.6% of perinatal deaths. Māori women’s babies account for 26.8% of the total perinatal related deaths.

**Antepartum Haemorrhage Is A Significant Predictor Of Poor Outcomes For Either Māori Women Or Māori Babies**

I was interested in any association between APH and high risk vaginal deliveries or APH and caesarean sections for Māori women and Māori babies. This information is not available in one government database nor gathered for MoH Maternity Reports or Documents.

The *United Kingdom Green Top Guideline No.63*\(^\text{10}\) defines antepartum haemorrhage (APH) as:

\(^\text{10}\) UK Green Top Guideline No.63 1st Edition, November 2011
Bleeding from, or into, the genital tract, occurring from 24+0 weeks of pregnancy and prior to the birth of the baby.

According to these guidelines, APH complicates 3-5% of pregnancies and is the leading cause of perinatal and maternal mortality worldwide. One fifth of very preterm babies are born in association with APH. Obstetric haemorrhage (APH and PPH) are the most important causes of severe morbidity in all ‘near miss’ audits.

The Green Top Guidelines state that the causes of APH are placenta praevia, placental abruption, unexplained APH, recurrent APH, and local causes (vulval, vaginal, cervical). The New Zealand 2010 PMMRC report defines APH as: placental abruption, placenta praevia, vasa praevia, other APH, or APH of undetermined origin.

What is known from the PMMRC reports is that perinatal related deaths that reported antepartum haemorrhage as the primary obstetric cause accounted for 13.5% of stillbirths, 15.2% of neonatal deaths, and 11.1% of total perinatal related deaths. APH as a cause for perinatal death has increased from 2007 to 2010 (9-11%).

**Māori Babies and Hypoxia Induced Encephalopathy (HIE)**

Hypoxic-ischaemic encephalopathy (HIE) is a subgroup of neonatal encephalopathy (NE) where there is convincing evidence of intrapartum hypoxia (reduced oxygen supply to the baby during labour). Neonatal encephalopathy is *the presence of metabolic acidosis in the new born, where the new born has a gestation of 34 weeks or greater.*

No ethnicity data is provided in the *Neonatal Encephalopathy Working Group Report* and therefore caesarean section, ethnicity and neonatal encephalopathy are not discussed together in this report. High risk vaginal deliveries are not considered as a definition or category in the NEWG report.

In the 2009 PMMRC report, it was stated that contributory and avoidable factors were thought to be present in almost 50% of hypoxic peripartum deaths.

In another section of the PMMRC 2010 report, Page 45, Figure 24: ‘Perinatal Death Classification Specific To Perinatal Related Death Rates By Ethnicity 2007-2010’ illustrates that babies born to Māori and Pasifika peoples have the highest rate of hypoxic peripartum death.
A recent Irish study (Walsh et al., 2013) reports that neonatal encephalopathy is more likely with emergency caesarean sections when a woman is in labour at full dilatation and with assisted (forceps, vacuum, ventouse applications) vaginal deliveries.

Māori women have more emergency caesarean sections than elective caesarean sections and more emergency caesarean sections compared with non-Māori women.

THE NEW ZEALAND MATERNITY CLINICAL INDICATORS REPORT 2009

The New Zealand Maternity Clinical Indicators 2009: revised June 2012 is a new report.

The first report for NZ Maternity Clinical Indicators was published twenty months after my research proposal and ethics application, and one year into my research.

The 2009 report (revised June 2012) is based on the 2008 and 2011 Australian Council of Healthcare Standards. This report provides twelve maternity clinical indicators based on data for a group of women termed Standard Primiparae.

Included in this report are the statistics for third and fourth degree tears during vaginal delivery. I was interested in whether Māori women had lower caesarean section rates but higher rates of lacerations to the perineum, specifically third or fourth degree tears.

This is the first report to the Ministry of Health that reports statistics on degree of tear to the perineum during delivery. In the 2007 Maternity Hospital Events Report, episiotomy was the sole classification for trauma to the perineum during delivery. The percentage of episiotomies in 2007 was 12.6%.

The 2009 NZ Maternity Clinical Indicators Report reports an extremely low rate of third and fourth degree tears reported from primary maternity facilities compared with secondary and tertiary maternity facilities (most primary maternity facilities report no third or fourth degree tears to the perineum). Clinically visible anal sphincter injuries are estimated at 0.5-18% (Fenner et al., 2002) of all anal sphincter injuries.
This information is important when more Māori women deliver at a primary birthing facility. This report, *New Zealand Maternity Clinical Indicators 2009*, does not specifically address data for Māori women.

The statistics in this Report resulted from data collected from the same databases used by the senior analyst at the MoH contracted for this research.

**The Use Of The Term ‘Standard Primiparae’ And Whether This Has Any Relevance To Improving Outcomes For Māori Women And Māori Babies**

The standard primiparae is a unit of measurement for low risk pregnancies with low intervention rates. The definition for a standard primipara is:

>a woman aged between 20 and 34 at delivery, delivering in a hospital or birthing unit with no record of any previous delivery event in a New Zealand hospital whose delivery is at term, outcome of delivery is a singleton, presentation is cephalic and the pregnancy has had no recorded obstetric complications that are indications for specific obstetric intervention.

This means that birthing units that have higher intervention rates with higher risk non-standard groups of women can be identified and then these units are compared to identify if these higher intervention rates are similar for the standard group of women (Cleary and Beard, 1996).

Standard primiparae account for only 16% of all births nationally. The data for standard primiparae is compared to other primiparae. All primiparae account for 41% of deliveries.

Māori women either become standard primiparae if they fit the definition above, or they become part of the ‘other’ category if they do not fit the definition i.e. not standard primiparae. Ethnicity is not considered in the definition, therefore the relevance of collecting data to improve outcomes for Māori women and Māori babies may not be best represented by this type of standardisation of pregnant women.
OTHER REPORTS FOR THE MINISTER OF HEALTH

There are two reports that are currently being undertaken for the Ministry of Health:

- *Maternity Clinical Indicators Report 2010* (most recent report 2009 which was revised in June 2012);
- *Maternity: Maternal and Newborn Information* (most recent 2004).

ETHNICITY DATA COLLECTION

The inaccuracy of ethnicity data collection and its impact is discussed within government documents and reports. I have also discussed the qualifiers for this research data prior to its presentation, which includes ethnicity (and certain conditions). The qualifiers negate the true representation of women in the New Zealand maternity environment.

Recommendations from the *PMMRC Fourth Annual Report* (2008) with regards to collection of ethnicity data were repeated word for word in the *PMMRC Sixth Annual Report* (2012):

*The PMMRC should undertake further analysis and discussion on the ways of reporting ethnicity and perinatal deaths.*

*Clinicians and Lead Maternity Carers (LMC) should be encouraged to collect accurate ethnicity details at the time of booking. New legislation should enable Births, Deaths & Marriages to accept National Health Index (NHI) data and update the routine NHI dataset with regards to ethnicity.*

Progress on this recommendation was that:

*A meeting would be organised between the National Health Board and members of the PMMRC to progress this item*

At the time of writing this thesis I am unsure if any progress has been made after the Sixth Annual Report with regards to improvement of ethnicity data collection.

SUMMARY

The New Zealand Government is in a partnership with Māori, overall Māori health is poorer than its partner’s health, yet specific information to analyse the differences between Māori and non-Māori so that we can address the issues of inequity between
these partners is not provided in an easy-to-find format and is also scattered throughout the different PMMRC working group reports.

The Ministry of Health documents that were reviewed in this chapter were meant to be a resource for providing the background data for this research. However, the obstetrics setting in New Zealand that I intended to provide for this research could not be fully represented by the existing statistics in government maternity documents.

Inaccuracy of ethnicity data has been identified in this research for this particular area of health and inaccuracy of ethnicity data is acknowledged in reviewed literature as an ongoing issue for data collection and reporting. Maternity statistics for Māori were disjointed which made trends and connections between different maternity documents difficult to detect. Authors from reviewed literature also recommend more comprehensive maternity and perinatal data collection in New Zealand (PMMRC, 2007; Sadler et al., 2002). For the purpose of data collection, gestational groups should be uniform across maternity reports and documents; and a demarcation at 24+0, which is the legal gestation for intervention to save a pregnancy.

Literature specific to this research question was limited and medical literature databases did not hold resources pertaining to Māori women and caesarean sections. The literature reviewed supports that where there are gaps in knowledge about Māori women and caesarean delivery that this could be filled by the findings from qualitative research, and that non-clinical factors may be part of the reason for lower caesarean section rates for Māori women.

Māori health websites; Google Scholar; references within the small amount of literature available which included articles where Māori health researchers were working with whānau; and kaupapa Māori theses provided the best sources of information.

Literature review from indigenous sources report that birth can be an opportunity for a healing process for the family; that loss of knowledge around childbearing occurs when women are removed from their communities during pregnancy and birth; and that removing a woman from the proximity of her children and family can be destructive to family cohesion. Although not specific to delivery by caesarean section, these changes no doubt impact on decision making within indigenous families.
Chapter Three Maternity Data Relevant To This Research and its associated Appendix One endeavour to provide a picture of New Zealand obstetrics with Māori women in the forefront.
CHAPTER THREE – MATERNITY DATA RELEVANT TO THIS RESEARCH

My literature review highlighted the scarcity of articles and research for Māori women and obstetrics, and a lack of focus on Māori women and Māori babies despite the disparities in health outcomes. An example of this is that the PMMRC has no Māori Working Group Report, although one group seeks input from a Māori caucus, and two committee members are Māori.

This chapter with its associated Appendix One: High Risk Vaginal Deliveries (page 171) has dual purposes. First, New Zealand MoH data for Perinatal and Maternal Events were reviewed to provide a background for NZ obstetrics. Second, I wanted to identify the risks and indications for caesarean section for Māori women in New Zealand from MoH data.

Two senior MoH analysts were contracted to provide specific data not already available from MoH maternity reports; their data is presented here and in Appendix One (page 171). Only a small amount of data was sourced from the local tertiary hospital as this source was found to be an unsafe method of data collection for the researcher and research process.\textsuperscript{11} I am unable to elaborate on this but I feel that it is worth mentioning as I suspect Māori researchers may have similar experiences in this environment. Local statistics were extracted from national health databases.

The research objectives that required MoH Maternity Data were:

- Identify factors that increase the risk of caesarean delivery for Māori women
- Identify risk factors for caesarean delivery that are modifiable
- Contribute to the knowledge base with regards to caesarean section delivery and Māori women.

I obtained these data in order to better describe the maternity context for Māori women giving birth in New Zealand. A brief summarised paragraph for each table

has been provided, however it is outside the purview of this research to statistically analyse these data.

Māori researchers look at statistics from a Māori health viewpoint, differing markedly from how data is collected and collated in national official databases. We are dedicated to providing relevant answers for Māori, encapsulated in the aroha for our people, our commitment to mana Māori and to providing fair and just outcomes for Māori. I noticed this point of difference when requesting data specific to Māori women and maternity care, and maternity outcomes for Māori women. To me, there seemed to be a lack of focus on representing Māori statistics relevant to Māori.

Official government databases did not collect data specifically identifying indications and risk factors for caesarean section. Therefore it was not possible to identify whether these indications or risk factors were also associated with high risk pregnancies or high risk vaginal deliveries for Māori women and whether these deliveries should have been caesarean deliveries. This also meant that risks and indications for Māori women delivering by caesarean section could not be directly identified via government maternity databases.

Data sourced directly from the MoH is filtered through many databases and is not highly accurate, resulting in a somewhat fragmented and disjointed report on Māori women in NZ’s maternity environment. Handling and producing this data is a chapter in itself, however that is not part of the research objectives.

My request for data specific to indications and risk factors for caesarean delivery and ethnicity was difficult to complete. Many factors complicated collection of these data, and I outline some below:

• Prior to 2002, Maternity Data Collection (MAT) was incomplete. The National Minimum Dataset was complete prior to 2002. Including data prior to 2002 (comparisons between 2000 and 2010) would probably result in inaccuracies. Most tables in this thesis are for the period 2005 to 2010.

• The Maternity Collection does not hold explicit data on indications for caesarean sections in a single field which is likely to be available but scattered across a number of different fields and not explicitly tied to an indication for caesarean section. I was required to provide a definitive list of indications for caesarean section. I was hoping to obtain the definitive list from the MoH national data
collections as this would be representative of New Zealand women. I provided a list of indications and risk factors sourced from foreign literature.

- Smoking and Body Mass Index (BMI) at first LMC registration has only been collected since 2007, when it was poorly populated in 2007, only recently reaching 82-87% completeness. Some values are described as ‘outrageous’. 2011 data is provisional only.

- Data were too inaccurate to provide explicit information on IUGR (intrauterine growth restriction) and any association with indications for caesarean section.

- Terminology for a particular maternal condition differs regarding the term that may be used by a health professional in an obstetrics setting and the term used for the same condition in MoH Maternity Data Collection which applies to IUGR. ‘Diabetes in Pregnancy’ is another example. Clinically we differentiate between Type I, Type II and gestational diabetes for a pregnant woman. The terminology used in Maternity Data Collection is ‘Diabetes Mellitus in Pregnancy 024’ which does not differentiate the different types of diabetes. Attempting to differentiate these conditions using the MoH Maternity Data reduces the accuracy of captured data.

- Diabetes, as a diagnosis, relates to any time period during a woman’s life, not necessarily coinciding with her pregnancy. She may have been pregnant in 2005; however she may have been diagnosed with diabetes in 2009. The maternity data provided for this woman would show both that she had been pregnant and that she had a diagnosis of diabetes leading to an assumption that she had diabetes in pregnancy. The search for diabetes captures any indication of Type I or Type II diabetes in the NHI System for all years. The data for Gestational Diabetes is the most accurate for diabetes in pregnancy and still captures Type I and Type II diabetes within its dataset. It is also noted, that data may list Type I, Type II and Gestational Diabetes for one woman. The approximate percentages for each diabetes type is: Type I or Type II Diabetes Mellitus in Pregnancy, 0.15%; Gestational Diabetes Mellitus, 0.85%.

- I was interested in ascertaining whether Māori women from rural areas had different caesarean section rates to those from urban areas. Theoretically, government health and maternity databases would record rural and urban
residency; however the MoH data warehouse had problems gathering this information which would inflate values for the ‘unknown’ category.

- Also, I was interested in determining whether mode of delivery, in particular caesarean delivery reduced family size; however the MoH does not hold information that specifically gathers information for family size in its national data collections.

The descriptive data displayed in the tables for this thesis mostly group women as New Zealand Māori women or Total New Zealand women.

The interviews with Māori women and their whānau highlighted the impact that the first caesarean section had on each whānau, motivating me to explore the indication and risk factors for the first caesarean section. The indication for the first caesarean section may also be the indication for the woman’s future caesarean sections.

The maternity booking form completed for each pregnant woman in New Zealand includes information on previous pregnancies, miscarriages, terminations and deliveries, as well as the mode of deliveries, gestation at time of the deliveries, baby gender and weight, and indications and any risk factors for previous deliveries. All this information would provide adequate background statistics for perinatal and maternal research if provided to the MoH. The booking form also includes the father, mother and baby’s ethnicities.

Despite maternity health providers being motivated by funding incentives to provide data to the MoH, upon reviewing the hospital files of women in this research, maternity booking forms were frequently found to have incorrectly recorded ethnicities.

1. RISK FACTORS FOR PERINATAL MORBIDITY AND MORTALITY FOR MĀORI

The known risk factors for Māori perinatal morbidity and mortality are:

- High BMI;
- Smoking;
- Hypertension;
- Low birth weight;
Preterm delivery;
IUGR (intrauterine growth restriction);
Maternal age <20;
Social deprivation;
Mental health issues;
Slow progress in labour;
Antepartum haemorrhage (APH).

From this list a possible association between BMI, smoking, IUGR, and mental health issues/suicide with caesarean delivery for Māori women cannot be explored due to the aforementioned data inaccuracies.

An area that needed further exploration with regards to Perinatal Mortality and Morbidity for Māori Women and Māori babies was whether Māori women have fewer caesarean deliveries because they have higher risk vaginal deliveries. I explored this issue as part of the research objective to provide a background setting with Māori women at the forefront of the NZ maternity environment. This inquiry is explored in Appendix One (page 171).

2. RISKS & INDICATIONS FOR CAESAREAN SECTION FROM INTERNATIONAL LITERATURE

I explored the data available for the above risk factors specific to Māori women and Māori babies to search for an association with caesarean section. As NZ statistics did not provide specific data on the risks and indications for caesarean section, I referred to international literature and ICD-10 codes as reference points.

I searched the international literature to obtain risks and indications for caesarean section in other countries. The Avon Longitudinal Study of Parents and Children (Patel et al., 2005) reports that the risks are: non-cephalic presentation, extremes of neonatal weight, increased neonatal head circumference, increased maternal age, and diabetes mellitus. Also, there was an increased risk associated with emergency caesarean sections for epidural analgesia. A decreased risk for caesarean section was associated with increased parity, a live child born from the last delivery, and for emergency caesarean section only, preferred labour position.
A recent South Australian study (Kennare et al., 2007) reported the indications for a first caesarean section were: failure to progress, fetal distress, non-cephalic presentation, hypertension, APH (antepartum haemorrhage), IUGR and 10% of indications are unknown.

The 2009 Report for Pregnancy Outcomes in South Australia (Chan et al., 2011) states that the risk factors for all caesarean sections are: previous caesarean section, failure to progress in labour, cephalopelvic disproportion, fetal distress, malpresentation, hypertension, antepartum haemorrhage (APH), multiple pregnancies, IUGR, and 20% other causes. The report states that the risk factors for emergency caesarean section are: failure to progress in labour or cephalopelvic disproportion, fetal distress, previous caesarean section, malpresentation, hypertension, APH, multiparity and 10% other causes.

A further study (Stafford, 1991) discusses clinical factors increasing the likelihood for caesarean section and non-clinical factors that increase the likelihood of vaginal delivery after a first caesarean section. The clinical factors that increase the likelihood of a further caesarean section are: cephalopelvic disproportion, non-cephalic presentation and multiple births. The report stated that the non-clinical factors increasing the likelihood of a vaginal delivery after caesarean section (VBAC) are: hospitals with the most formalised teaching programmes (hospitals with the least formalised teaching programmes had the same VBAC outcomes as non-teaching hospitals); public hospitals; and hospitals with a higher number of deliveries. Admission of the neonate to the intensive care unit and socioeconomic status were not predictors for VBAC.

Kennare et al. (2007) report that the risks associated with repeat caesarean section are: placenta praevia, APH, non-cephalic presentation, prolonged labour, emergency and elective caesarean section, uterine rupture, placenta accreta (83% went on to have a hysterectomy), and unexplained stillbirth greater than 40 weeks gestation. This research is supported by United States research (Silver et al., 2006).

The intraoperative complications for multiple repeat caesarean sections are: hysterectomy, tubal ligation, myometrial haematoma, uterine scar fenestration, adhesions to omentum and bladder, bladder repair, drainage placed in-situ, placental abruption, and placenta praevia (Gedikbasi et al., 2010).
These studies do not include third or fourth degree tears sustained in a prior delivery as an indication for caesarean section.

One of the objectives for this research was to identify caesarean section risk factors for Māori women and then identify which were modifiable. The following are modifiable risk factors for caesarean section found in overseas literature that is outlined above:

- Extremes of neonatal weight
- Optimising management of Diabetes in Pregnancy
- Increased awareness about the risk of caesarean section according to maternal age
- Formalised teaching programmes in birthing & obstetric units.

3. RISKS & INDICATIONS FOR CAESAREAN SECTION FOR MĀORI WOMEN

This section discusses the indications and risk factors for caesarean section in New Zealand according to World Health Organisation ICD-10 codes.\(^\text{12}\) The International Classification of Diseases, ICD-10 codes, is the standard diagnostic tool for epidemiology, health management and clinical purposes. As well as referring to overseas literature, New Zealand MoH ICD-10 codes were examined to search for risks and indications for caesarean section. The selected codes were matched to Māori women or the Total Number of New Zealand women, and caesarean deliveries.

Caesarean sections were identified by the following MoH procedure codes: 1652000, 1652001, 1652002, 1652003 [Block 1340]. The following ICD-10 codes for diagnoses were selected from Chapter XV of the code – Pregnancy, Childbirth and the Puerperium (000-099): 010-016, 020, 024-026, 028, 030-036, 040-046, 048, 060-071, 073, 075, 082, 090, 094, 098, 099 (ICD-10-AM-I).

Two groups of data were collected: first, the diagnostic ICD-10 codes associated with the hospital admission for caesarean delivery; and second, the diagnostic ICD-10 codes associated with the hospital admission for the caesarean delivery and any antenatal hospital admission associated with a caesarean delivery. When comparing

\(^{12}\) http://apps.who.int/classifications/apps/icd/ICD-10online2007/htm
these two groups, there were slight changes in the order of the ten most common ICD-10 codes, however no codes other than the ten most common appeared. A comparison of whether the ten most common ICD-10 diagnostic codes were the same for Māori women and total NZ women showed that although the ten most common ICD-10 codes were in fact the same, the order varied.

The following evaluates diagnoses from the ICD-10 coding system relating to: hospital admission for caesarean section; and any related hospital admissions during the antenatal period prior to a caesarean section.

A complete list of the ICD-10 codes related to pregnancies resulting in a caesarean section delivery for Māori and all New Zealand women for the period 2005 to 2010 can be found in Appendix Two (page 188).
Tables 1 and 2 below illustrate the ten most common ICD-diagnostic codes related to pregnancies that result in caesarean section.

Table 1: The Ten Most Common ICD-10 Diagnostic Codes Relating To All Hospital Admissions For Māori Women Where Delivery Is By Caesarean Section, For The Period 2005 - 2010

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<tbody>
<tr>
<td>034</td>
<td>Maternal care for known or suspected abnormality of pelvic organs (includes previous caesarean section scar)</td>
<td>1026</td>
<td>1230</td>
<td>1229</td>
<td>1239</td>
</tr>
<tr>
<td>068</td>
<td>Labour and delivery complicated by fetal distress</td>
<td>770</td>
<td>843</td>
<td>823</td>
<td>818</td>
</tr>
<tr>
<td>099</td>
<td>Other maternal diseases classifiable elsewhere but complicating pregnancy, childbirth and puerperium</td>
<td>925</td>
<td>1163</td>
<td>1072</td>
<td>1071</td>
</tr>
<tr>
<td>064</td>
<td>Obstructed labour due to malposition and malpresentation of foetus</td>
<td>551</td>
<td>629</td>
<td>568</td>
<td>560</td>
</tr>
<tr>
<td>036</td>
<td>Maternal care for other known or suspected fetal problems (does not include fetal distress during labour)</td>
<td>423</td>
<td>482</td>
<td>489</td>
<td>444</td>
</tr>
<tr>
<td>063</td>
<td>Prolonged labour</td>
<td>275</td>
<td>345</td>
<td>302</td>
<td>551</td>
</tr>
<tr>
<td>060</td>
<td>Preterm labour</td>
<td>325</td>
<td>335</td>
<td>366</td>
<td>402</td>
</tr>
<tr>
<td>062</td>
<td>Abnormalities of forces of labour (excludes dystocia)</td>
<td>351</td>
<td>375</td>
<td>388</td>
<td>212</td>
</tr>
<tr>
<td>032</td>
<td>Maternal care for known or suspected malpresentation of fetus (includes during labour)</td>
<td>404</td>
<td>421</td>
<td>394</td>
<td>332</td>
</tr>
<tr>
<td>042</td>
<td>Premature rupture of membranes</td>
<td>296</td>
<td>313</td>
<td>346</td>
<td>326</td>
</tr>
</tbody>
</table>

Table 2: The Ten Most Common ICD-10 Diagnostic Codes Relating To All Hospital Admissions For New Zealand Women Where Delivery Is By Caesarean Section, For The Period 2005 – 2010

<table>
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<tbody>
<tr>
<td>034</td>
<td>Maternal care for known or suspected abnormality of pelvic organs (includes previous caesarean section scar)</td>
<td>6026</td>
<td>6652</td>
<td>6938</td>
<td>6366</td>
</tr>
<tr>
<td>099</td>
<td>Other maternal diseases classifiable elsewhere but complicating pregnancy, childbirth and puerperium</td>
<td>4930</td>
<td>5324</td>
<td>5493</td>
<td>4858</td>
</tr>
<tr>
<td>068</td>
<td>Labour and delivery complicated by fetal distress</td>
<td>3674</td>
<td>3937</td>
<td>3936</td>
<td>3737</td>
</tr>
<tr>
<td>064</td>
<td>Obstructed labour due to malposition and malpresentation of foetus</td>
<td>2885</td>
<td>3131</td>
<td>3195</td>
<td>3028</td>
</tr>
<tr>
<td>036</td>
<td>Maternal care for other known or suspected fetal problems (does not include fetal distress during labour)</td>
<td>2275</td>
<td>2464</td>
<td>2563</td>
<td>2103</td>
</tr>
<tr>
<td>032</td>
<td>Maternal care for known or suspected malpresentation of fetus (includes during labour)</td>
<td>2469</td>
<td>2572</td>
<td>2469</td>
<td>2063</td>
</tr>
<tr>
<td>063</td>
<td>Prolonged labour</td>
<td>1939</td>
<td>2046</td>
<td>1790</td>
<td>3032</td>
</tr>
<tr>
<td>062</td>
<td>Abnormalities of forces of labour (excludes dystocia)</td>
<td>1631</td>
<td>1754</td>
<td>2031</td>
<td>1210</td>
</tr>
<tr>
<td>042</td>
<td>Premature rupture of membranes</td>
<td>1477</td>
<td>1672</td>
<td>1755</td>
<td>1686</td>
</tr>
<tr>
<td>060</td>
<td>Preterm labour</td>
<td>1395</td>
<td>1499</td>
<td>1614</td>
<td>1574</td>
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</table>

Shoulder dystocia or Dystocia is not among the twenty most common diagnostic codes related to caesarean delivery. However 15% of Māori women receive the
dystocia diagnostic code relating to a caesarean delivery outcome. The term ‘dystocia’ in the ICD-10 codes includes many protracted definitions for dystocia and should probably be re-evaluated. Shoulder dystocia should probably be a separate code.

Previous Caesarean Delivery is the most common diagnostic ICD-10 code that is associated with an outcome for caesarean delivery.

Pre-Existing Medical Conditions and Psychiatric Conditions is the second most common ICD-10 code for all New Zealand women, including Māori women, that is associated with admissions that resulted in delivery by caesarean section.

Four of the most common diagnostic codes relating to caesarean delivery as an outcome relate to abnormal labour or fetal distress.

Extremes in fetal weight is the 5th most common ICD-10 code relating to caesarean delivery as an outcome, however it includes: small for gestational age, large for gestational age babies, poor fetal growth, intrauterine death, fetal hypoxia, fetal problem unspecified, and other diagnoses.

Premature Rupture of Membranes is a diagnostic code relating to caesarean delivery that is not commonly mentioned as a risk or indication for caesarean delivery in international literature; however it is one of the ten most common diagnostic codes associated with a caesarean delivery within NZ.

Post-dates (when a woman remains pregnant past her estimated delivery date), Diabetes in Pregnancy, and Conditions Related to Pre-eclampsia were ranked 11th, 12th & 13th respectively as ICD-10 codes related to a caesarean delivery as an outcome.

As mentioned, these statistics are presented in this thesis to provide a background to the Maternity Environment in New Zealand with Māori women at the forefront. Diagnostic codes need to be further explored and examined, and that includes singular diagnoses that are possibly masked within groups (e.g. shoulder dystocia/dystocia).
4. HOW DOES THIS DATA COMPARE TO INTERNATIONAL DATA?

The results in Tables 1 and 2 above confirm overseas studies for the risks and indications associated with caesarean and repeat caesarean deliveries, except for the association with increased maternal age (Māori women are more likely to have children at a younger age) and caesarean section for premature rupture of membranes (a diagnosis associated with caesarean section for all New Zealand women).

The risks and indications for caesarean section identified in international studies also occur in the twenty most common New Zealand ICD-10 codes listed above, but only when antenatal hospital admissions that are related to an outcome of caesarean delivery are calculated with the hospital admission for a caesarean delivery. For example, antepartum haemorrhage (APH) is not among the twenty most common diagnostic codes associated with caesarean delivery when only the hospital admission for a caesarean delivery is counted. However, 20% of Māori women who had a caesarean section had associated APH.

Another example is a diagnosis for hypertension in pregnancy where Māori women account for 15% of women in New Zealand who have hypertension in pregnancy with a caesarean delivery outcome.

The most common ICD-10 codes associated with a caesarean section outcome for Māori women are: repeat caesarean delivery, labour & delivery complicated by fetal distress, maternal medical conditions including psychiatric conditions, obstructed labour due to malposition or malpresentation of baby, suspected fetal problems not including fetal distress, prolonged labour, preterm labour, abnormal forces of labour not including dystocia, malpresentation of baby including during labour, premature rupture of membranes, diabetes in pregnancy, and antepartum haemorrhage.

Māori women have more emergency caesarean sections: the 2009 Report for Pregnancy Outcomes in South Australia states that the risk factors for emergency caesarean section are: failure to progress in labour, cephalopelvic disproportion, fetal distress, previous caesarean section, malpresentation, hypertension, APH, multiparity and 10% other causes.

The risks and indications for caesarean section from international literature are: previous caesarean section, non-cephalic presentation, extremes of neonatal weight,
increased maternal age, and diabetes mellitus (Patel et al., 2005). For repeat caesarean sections, the risks and indications are: placenta praevia, antepartum haemorrhage, non-cephalic presentation, prolonged labour, emergency and elective caesarean section, uterine rupture, placenta accreta, unexplained stillbirth postdates (Chan et al., 2011).

The risk factors or indications for caesarean section that have been identified in international literature which are also the risk factors or indications for caesarean section for Māori women are: malpresentation, repeat caesarean section, extremes of weight, diabetes in pregnancy, antepartum haemorrhage, and prolonged labour. The one non-clinical factor that favours vaginal delivery, mentioned in international literature and which is common for Māori women is public hospitals.

The data reviewed in this thesis for the risks and indications for caesarean section for Māori women is similar to those from international literature. As mentioned previously, premature rupture of membranes is associated with Māori women and caesarean delivery, and increased maternal age is not. Modifiable factors are management of diabetes in pregnancy, prolonged labour, and extremes of weight.

The conditions related to both the ICD-10 codes with an outcome of caesarean delivery (including antenatal admissions) and the most common risk factors for perinatal morbidity and mortality for Māori women are: preterm labour, APH, small for gestational age and IUGR, and mental health issues including suicide. This does not imply a relationship between caesarean section and conditions associated with morbidity and mortality for pregnant Māori women, however, it may warrant further exploration.

The MoH has many databases; my attempt to collect and combine data from these has proven to be a cumbersome method to explicitly define the common indications and risk factors for caesarean section in New Zealand for Māori women.

---

13 The most common risk factors for perinatal morbidity and mortality for Māori women are: BMI >30, BMI >35, APH, smoking, pre-term delivery, IUGR, low birth weight, Maternal Age <20, social deprivation scale, mental health issues/suicide.
5. TABLES ILLUSTRATING MATERNITY DATA FOR MĀORI WOMEN

Introduction

MoH statisticians provided raw data in Excel format. These were simplified into tables where too large to process. The Ministry defines a year, as a financial year (July to June). Most data reported in the following table are for the five year period 2005 to 2010. The MoH stated that its data was:

Sourced from its own National Maternity Data Collection (MAT) 2011, which provides statistical, demographical and clinical information about selected publicly-funded maternity services up to nine months before and three months after a birth.

Tables with data collected from women receiving primary maternity services provided under Section 88 of the New Zealand Public Health and Disability Act 2000. This information is sourced from Lead Maternity Carer (LMC) claims for payment.

Claims-sourced primary maternity services information for 2010 covers around 85% of known births nationally. Due to a funding change DHB-employed midwifery teams no longer submit claims to the MoH for the primary maternity services they provide. Coverage differs significantly by DHB of service.

These data are provisional until published by the MoH.

I received the final data for this thesis, 450 days after my request. The MoH Report on Maternity 2010 was published on-line on 30 November 2012, 365 days after my request for data. The tables that accompany the MoH Report on Maternity 2010 provide similar data to the data produced for this thesis.

The data presented in this chapter were sourced from the National Health Index (NHI) and National Maternity Collection (MAT). However, the NHI database was deemed more accurate for complex searches.

My understanding had been that the cohort was identified by reviewing all deliveries recorded in MAT over a specific period. This was also the dataset used to identify prioritised ethnicity for previous tables. I incorrectly assumed that prioritised ethnicity reported to MAT would be consistent across multiple deliveries for one person. In fact, some five thousand mothers in the cohort have different prioritised ethnicities recorded for different deliveries (some up to three), inflating numbers across the board in the initial maternity summaries provided by the analyst. Therefore, the
approach to identify prioritised ethnicity was revised. Instead of reviewing MAT, which can record conflicting prioritised ethnicities for different deliveries, the NHI was used with only one version of the ‘truth’ recorded against the master NHI, thereby removing duplicates unintentionally featured in previously provided maternity summaries. Although this lowered numbers, the analyst assured me that the trends across relevant years remained the same.

Table 3: Number Of Babies Born By Ethnicity and Year Of Birth 2001 - 2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Māori</th>
<th>Pacific</th>
<th>Asian</th>
<th>European</th>
<th>MELAA*</th>
<th>Not stated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>11816</td>
<td>5860</td>
<td>3606</td>
<td>31601</td>
<td>478</td>
<td>3107</td>
<td>55468</td>
</tr>
<tr>
<td>2002</td>
<td>11379</td>
<td>5844</td>
<td>3546</td>
<td>30430</td>
<td>468</td>
<td>4469</td>
<td>55555</td>
</tr>
<tr>
<td>2003</td>
<td>11843</td>
<td>5876</td>
<td>4647</td>
<td>31119</td>
<td>601</td>
<td>3882</td>
<td>57968</td>
</tr>
<tr>
<td>2004</td>
<td>13324</td>
<td>6042</td>
<td>5204</td>
<td>32082</td>
<td>695</td>
<td>1644</td>
<td>58991</td>
</tr>
<tr>
<td>2005</td>
<td>14077</td>
<td>6051</td>
<td>5078</td>
<td>32666</td>
<td>815</td>
<td>695</td>
<td>59982</td>
</tr>
<tr>
<td>2006</td>
<td>14539</td>
<td>6242</td>
<td>5200</td>
<td>33528</td>
<td>865</td>
<td>648</td>
<td>61064</td>
</tr>
<tr>
<td>2007</td>
<td>15336</td>
<td>6815</td>
<td>5510</td>
<td>34526</td>
<td>937</td>
<td>304</td>
<td>64832</td>
</tr>
<tr>
<td>2008</td>
<td>15432</td>
<td>7113</td>
<td>6113</td>
<td>34708</td>
<td>1046</td>
<td>845</td>
<td>65257</td>
</tr>
<tr>
<td>2009</td>
<td>15208</td>
<td>7151</td>
<td>6485</td>
<td>34264</td>
<td>1063</td>
<td>525</td>
<td>64684</td>
</tr>
<tr>
<td>2010</td>
<td>15226</td>
<td>7323</td>
<td>7020</td>
<td>33885</td>
<td>1193</td>
<td>307</td>
<td>64934</td>
</tr>
</tbody>
</table>

* MELAA-Middle Eastern, Latin American/Hispanic and African
Source: National Maternity Collection (Ministry of Health)

Table 4: Number Of Women Giving Birth By Ethnicity And Year Of Birth 2001 - 2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Māori</th>
<th>Pacific</th>
<th>Asian</th>
<th>European</th>
<th>MELAA*</th>
<th>Not Stated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>12547</td>
<td>5913</td>
<td>3669</td>
<td>32360</td>
<td>523</td>
<td>913</td>
<td>55925</td>
</tr>
<tr>
<td>2002</td>
<td>12324</td>
<td>5998</td>
<td>4321</td>
<td>31799</td>
<td>528</td>
<td>792</td>
<td>55697</td>
</tr>
<tr>
<td>2003</td>
<td>12897</td>
<td>6077</td>
<td>4858</td>
<td>32021</td>
<td>671</td>
<td>778</td>
<td>57362</td>
</tr>
<tr>
<td>2004</td>
<td>14013</td>
<td>6350</td>
<td>5269</td>
<td>31702</td>
<td>752</td>
<td>294</td>
<td>58386</td>
</tr>
<tr>
<td>2005</td>
<td>14740</td>
<td>6858</td>
<td>4973</td>
<td>31300</td>
<td>856</td>
<td>63</td>
<td>58790</td>
</tr>
<tr>
<td>2006</td>
<td>15441</td>
<td>7188</td>
<td>5131</td>
<td>31843</td>
<td>926</td>
<td>40</td>
<td>59571</td>
</tr>
<tr>
<td>2007</td>
<td>16409</td>
<td>7871</td>
<td>5895</td>
<td>32570</td>
<td>1003</td>
<td>55</td>
<td>64204</td>
</tr>
<tr>
<td>2008</td>
<td>16059</td>
<td>7687</td>
<td>6097</td>
<td>33060</td>
<td>1106</td>
<td>80</td>
<td>64629</td>
</tr>
<tr>
<td>2009</td>
<td>16469</td>
<td>7444</td>
<td>6373</td>
<td>32739</td>
<td>1105</td>
<td>54</td>
<td>64244</td>
</tr>
<tr>
<td>2010</td>
<td>18328</td>
<td>7533</td>
<td>6965</td>
<td>32310</td>
<td>1265</td>
<td>49</td>
<td>64480</td>
</tr>
</tbody>
</table>

* MELAA-Middle Eastern, Latin American/Hispanic and African
Source: National Maternity Collection (Ministry of Health)

Babies and Women Giving Birth who are recorded with Asian and MELAA ethnicities have more than doubled in number from 2001 to 2010 within New Zealand. Māori babies and Māori women giving birth have increased by one quarter and one third respectively, from 2001 to 2010, within New Zealand. European babies and
European women giving birth have remained static in New Zealand in the period from 2001 to 2010. The number of women and babies delivered where ethnicity has not been stated has reduced within this time period.

**Types of Delivery**

The MoH also provided ‘prioritised’ deliveries by emergency and elective caesarean section ensuring deliveries were only counted once; and not recorded under more than one ‘delivery type’. Data entry for one delivery could include more than one delivery type, for example: forceps, caesarean section, breech extraction.

By providing prioritised deliveries, the following data entry error due to ‘delivery type’ heading was identified. Normal vaginal deliveries were given a delivery type heading ‘normal’, however data had also been entered under the ‘normal’ heading for prioritised elective caesarean sections with more than one recorded delivery type (e.g. ventouse, breech extractions, as above). The person who entered the data would have intended to indicate a ‘normal’ elective caesarean section. However, the delivery type heading ‘normal’ was intended for normal vaginal deliveries. Nearly 50% of elective caesarean sections with more than one delivery type entered were classified under ‘normal’ delivery. This problem also occurred with prioritised delivery by emergency caesarean section.

In Tables 5, 6, & 7 below, the ‘Vaginal Breech’ mode of delivery includes the following MoH defined ‘Delivery Types’: breech extraction, spontaneous breech, assisted breech. Individual results for these vaginal breech deliveries in Table 6 are: 83, 249, 139 respectively.
In Table Five, the total number of women giving birth in New Zealand has increased over the period 2001 to 2010 by 14%. Delivery by caesarean section has increased by 22%, normal deliveries by 9%, assisted and breech deliveries by 6%. The number of women that delivered where the mode of delivery was unstated or unknown increased by 39% which again raises the issue of accurate maternity data collection even though maternity carers receive remuneration from the MoH which is linked to specific data entries into maternity databases.

### Table 5: Number Of Women In NZ Giving Birth By Delivery Type & Year Of Birth For The Period 2001 - 2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Caesarean section</th>
<th>Normal</th>
<th>Assisted and Breech</th>
<th>Unknown/Not stated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>11932</td>
<td>36265</td>
<td>5559</td>
<td>2169</td>
<td>55925</td>
</tr>
<tr>
<td>2002</td>
<td>12123</td>
<td>35740</td>
<td>5086</td>
<td>2748</td>
<td>55697</td>
</tr>
<tr>
<td>2003</td>
<td>12667</td>
<td>36670</td>
<td>5177</td>
<td>2788</td>
<td>57302</td>
</tr>
<tr>
<td>2004</td>
<td>13088</td>
<td>36402</td>
<td>5396</td>
<td>3431</td>
<td>58386</td>
</tr>
<tr>
<td>2005</td>
<td>13428</td>
<td>36987</td>
<td>5339</td>
<td>3036</td>
<td>58790</td>
</tr>
<tr>
<td>2006</td>
<td>14475</td>
<td>37447</td>
<td>5413</td>
<td>3236</td>
<td>60571</td>
</tr>
<tr>
<td>2007</td>
<td>14909</td>
<td>40020</td>
<td>5742</td>
<td>3533</td>
<td>64204</td>
</tr>
<tr>
<td>2008</td>
<td>14975</td>
<td>40775</td>
<td>5481</td>
<td>3398</td>
<td>64629</td>
</tr>
<tr>
<td>2009</td>
<td>15249</td>
<td>39849</td>
<td>5620</td>
<td>3526</td>
<td>64244</td>
</tr>
<tr>
<td>2010</td>
<td>15220</td>
<td>39802</td>
<td>5839</td>
<td>3529</td>
<td>64450</td>
</tr>
</tbody>
</table>

Source: National Maternity Collection (Ministry of Health)
Table 6: Number Of Deliveries By Delivery Type For Māori Women In 2010 & For The Five Year Period 2005 - 2010

<table>
<thead>
<tr>
<th>Delivery Type</th>
<th>2010</th>
<th>2005 - 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>11712</td>
<td>57883</td>
</tr>
<tr>
<td>Vaginal Breech</td>
<td>116</td>
<td>471</td>
</tr>
<tr>
<td>Vacuum</td>
<td>509</td>
<td>2561</td>
</tr>
<tr>
<td>Forceps</td>
<td>276</td>
<td>1392</td>
</tr>
<tr>
<td>Forceps &amp; Vacuum</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Emergency c/s</td>
<td>1738</td>
<td>8315</td>
</tr>
<tr>
<td>Elective c/s</td>
<td>1106</td>
<td>4931</td>
</tr>
<tr>
<td>Not stated</td>
<td>1071</td>
<td>5104</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16530</strong></td>
<td><strong>80679</strong></td>
</tr>
</tbody>
</table>

Source: National Maternity Collection (MAT) Ministry of Health 2011

Table 7: Number Of Deliveries By Delivery Type For Non-Māori Women In 2010 & For The Five Year Period 2005 - 2010

<table>
<thead>
<tr>
<th>Delivery Type</th>
<th>2010</th>
<th>2005 - 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>28456</td>
<td>138820</td>
</tr>
<tr>
<td>Vaginal Breech</td>
<td>215</td>
<td>1092</td>
</tr>
<tr>
<td>Vacuum</td>
<td>2899</td>
<td>14054</td>
</tr>
<tr>
<td>Forceps</td>
<td>1789</td>
<td>8163</td>
</tr>
<tr>
<td>Forceps &amp; Vacuum</td>
<td>23</td>
<td>178</td>
</tr>
<tr>
<td>Emergency c/s</td>
<td>6754</td>
<td>34041</td>
</tr>
<tr>
<td>Elective c/s</td>
<td>5734</td>
<td>26737</td>
</tr>
<tr>
<td>Not stated</td>
<td>2492</td>
<td>11729</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>48346</strong></td>
<td><strong>234814</strong></td>
</tr>
</tbody>
</table>

Data from Tables 6 & 7 indicate that 71% of the total number of Māori women giving birth had normal deliveries; 5% of the total number of Māori women had vaginal breech or assisted deliveries; and 6% of the total number of Māori women giving birth had an unstated mode of delivery. Māori women who gave birth in 2010 represented approximately 25% of women delivering in NZ. Māori women when placed in the forefront of NZ women that delivered in 2010 represented 29% of normal deliveries in NZ; 15% of vaginal breech or assisted deliveries in NZ; and 30% of deliveries where the mode of delivery was unstated. Māori women when placed in the forefront of NZ women that delivered by assisted delivery or vaginal breech in 2010 represented...
34% of vaginal breech deliveries in NZ; 13% forceps deliveries in NZ; 15% of women who delivered in NZ by ventouse/vacuum delivery; and 8% of NZ women who delivered with an assisted delivery involving both forceps and ventouse/vacuum delivery.

From these data it would appear that Māori women are over-represented when delivery is vaginal breech, which is a high risk vaginal delivery. This number may be higher as Māori women are also over-represented when the mode of delivery is unstated.

**Caesarean Deliveries As Represented in Tables 5, 6, & 7**

**July 2005 to June 2010**

The total number of births for all women during this period was 315,781. The total number of caesarean sections was 74,063, 23.5% of total deliveries. Of these, 31,779 (43%) were elective caesarean sections and 42,384 (57%) were emergency caesarean sections.

Māori women underwent 13,246 caesarean deliveries (16% of all deliveries for Māori women), of which 8,497 (63%) were emergency caesarean deliveries, and 6,841 (37%) were elective caesarean deliveries.14

Māori women represented 20% of emergency caesarean deliveries and 16% of deliveries by elective caesarean section during this five year period.

**July 2009 to June 2010**

Māori women underwent 1,738 emergency caesarean deliveries, 20.4% of total emergency caesarean deliveries for all New Zealand women for the one-year period. Māori women accounted for 1,106 elective caesarean deliveries; this figure represents 16% of the total number of elective caesarean sections for all New Zealand women for this period.

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14 The data in this paragraph differs from the Tables. Two data sets were used: one from MAT, and one from NHIs. This was from two separate periods of the research project.
Table 8: Number Of Women In NZ Who Delivered By Caesarean Section, Māori Women & Total NZ Women, For The Five Year Period 2005 - 2010

<table>
<thead>
<tr>
<th>Prioritised Ethnicity</th>
<th>2005/06</th>
<th>2006/07</th>
<th>2007/08</th>
<th>2008/09</th>
<th>2009/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Māori</td>
<td>1,976</td>
<td>2,193</td>
<td>2,160</td>
<td>2,219</td>
<td>2,329</td>
</tr>
<tr>
<td>Total</td>
<td>13,788</td>
<td>14,516</td>
<td>14,797</td>
<td>14,755</td>
<td>15,198</td>
</tr>
</tbody>
</table>

Table 9: Number Of Women In NZ Who Had Their First Caesarean Section, Māori Women & Total NZ Women, In The Five-Year Period, 2005-2010

<table>
<thead>
<tr>
<th>Prioritised Ethnicity</th>
<th>2005/06</th>
<th>2006/07</th>
<th>2007/08</th>
<th>2008/09</th>
<th>2009/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Māori</td>
<td>1,240</td>
<td>1,388</td>
<td>1,350</td>
<td>1,305</td>
<td>1,388</td>
</tr>
<tr>
<td>Total</td>
<td>9,195</td>
<td>9,618</td>
<td>9,634</td>
<td>9,407</td>
<td>9,783</td>
</tr>
</tbody>
</table>

Source: National Minimum Dataset (NMDS), 2012, Ministry of Health. Data is sourced from publicly funded hospital discharges.

Note: caesarean sections were identified by the following procedure codes: ICD-10-AM-I (2000 onwards): any procedure code in 1652000, 1652001, 1652002, 1652003 [Block 1340] ICD-9-CMA-II (1988-1999): any procedure code in 74.0-74.2, 74.4-74.9.

Note: if the same woman had more than one caesarean section in a single financial year, she was counted once in that financial year. Note: if the same woman had multiple caesarean sections across multiple financial years, she was counted once in each relevant financial year.

Data obtained from Tables 8 & 9 illustrate that delivery by caesarean section for Māori women has increased from 2005 to 2010 (increase by 16%). When Māori women are placed in the forefront of this data, delivery by caesarean section for Māori women has remained static (14-15%) as part of the total NZ women population. There has been an increase of 11% from 2005 to 2010 when the first delivery for a Māori woman is by caesarean section; however when Māori women are represented as part of the total NZ women population first delivery by caesarean section remains static at 13-14%.

Māori Women, Parity & Caesarean Delivery

One inquiry of this research was whether parity for Māori women decreased with caesarean delivery.

Tables 10 & 11 compare the parity (the number of babies a woman has delivered) between women that delivered by caesarean section, women that delivered vaginally, and women that delivered by both caesarean and vaginal deliveries in New Zealand, for the periods 2005 & 2010.
Table 10: A Comparison Of Parity Between Women Who Delivered By Caesarean Section & Women Who Had Vaginal Deliveries, Māori Women And Total NZ Women, 2005 & 2010

<table>
<thead>
<tr>
<th></th>
<th>Vaginal deliveries only</th>
<th>Caesarean deliveries only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FY2005/06</td>
<td>FY2010/11</td>
</tr>
<tr>
<td></td>
<td>Māori</td>
<td>Total population</td>
</tr>
<tr>
<td>1st delivery</td>
<td>3,446</td>
<td>19,054</td>
</tr>
<tr>
<td>2nd delivery</td>
<td>2,533</td>
<td>11,921</td>
</tr>
<tr>
<td>3rd delivery</td>
<td>1,603</td>
<td>5,193</td>
</tr>
<tr>
<td>4th delivery</td>
<td>915</td>
<td>2,087</td>
</tr>
<tr>
<td>5th delivery</td>
<td>474</td>
<td>900</td>
</tr>
<tr>
<td>More than 5</td>
<td>399</td>
<td>690</td>
</tr>
<tr>
<td>Total</td>
<td>9,370</td>
<td>39,845</td>
</tr>
</tbody>
</table>
Table 11: Parity Of Women Who Delivered By Both Vaginal & Caesarean Section, Māori Women & Total NZ Women, 2005 & 2010

<table>
<thead>
<tr>
<th></th>
<th>FY2005/06</th>
<th></th>
<th>FY2005/06</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Māori</td>
<td>Total population</td>
<td>Māori</td>
<td>Total population</td>
</tr>
<tr>
<td>1st delivery</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2nd delivery</td>
<td>376</td>
<td>2,307</td>
<td>439</td>
<td>2,526</td>
</tr>
<tr>
<td>3rd delivery</td>
<td>351</td>
<td>1,368</td>
<td>364</td>
<td>1,477</td>
</tr>
<tr>
<td>4th delivery</td>
<td>230</td>
<td>616</td>
<td>250</td>
<td>669</td>
</tr>
<tr>
<td>5th delivery</td>
<td>114</td>
<td>284</td>
<td>132</td>
<td>300</td>
</tr>
<tr>
<td>More than 5</td>
<td>104</td>
<td>201</td>
<td>172</td>
<td>278</td>
</tr>
<tr>
<td>Total</td>
<td>1,175</td>
<td>4,776</td>
<td>1,357</td>
<td>5,250</td>
</tr>
</tbody>
</table>

The data in Tables 10 & 11 indicate that parity is reduced when Māori women give birth by caesarean section or when their deliveries include both vaginal delivery and caesarean section. This is compared with the parity of Māori women who give birth solely by vaginal delivery.

From these data, the total number of deliveries in this time period for Māori women was 80,679, of which 2825 were repeat caesarean sections, 3.5% of all deliveries by Māori women. Repeat caesarean sections accounted for 19% of caesarean sections for all New Zealand women in this period.

The current data collection method does not distinguish whether subsequent deliveries by Māori women were by emergency or elective caesarean section. This information is recorded in a woman’s maternity booking form but is currently not collected for national maternity statistics.

**Peripartum Hysterectomy/Caesarean Hysterectomy**

One whānau in this research experienced a peripartum hysterectomy and below I present New Zealand MoH data on caesarean hysterectomy and peripartum hysterectomy. To note, peripartum hysterectomy may be the outcome after vaginal delivery or caesarean delivery.

Whilst requesting this data, I discovered that no specific coding for peripartum hysterectomy or caesarean hysterectomy existed in MoH data collection. A database search for women who had a caesarean section and hysterectomy on the same day was suggested however NZ maternity databases do not accurately record these
procedures. The local District Health Board (DHB) maternity database does not have a coding for caesarean hysterectomy, nor is it easy to identify in the DHB gynaecology database for hysterectomies.

Searching for data by ‘caesarean’ and ‘hysterectomy’ on the same day does not capture all cases for peripartum hysterectomy. Whether the associated delivery was an emergency or elective caesarean section would be useful information.

Hysterectomy after caesarean section has been known to occur ten days after delivery. Elective hysterectomy after caesarean section may occur up to 42 days postpartum. Some clinicians may opt to keep the placenta within the womb after caesarean delivery when there is a diagnosis of placenta percreta, and a hysterectomy is then performed later in the postnatal period. Therefore, requesting data for caesarean section and hysterectomy for the same hospital admission would under represent the number of peripartum hysterectomies.

A total of 309 NZ women underwent caesarean hysterectomy on the same day as delivery over the twelve-year period 2000 to 2011, 67 were Māori women. Two Māori women had a total number of five deliveries before hysterectomy and 43 Māori women had a total number of four deliveries before hysterectomy.

In the six-year period 2005-2010, 146 caesarean hysterectomies were performed on the same day as delivery, 0.19% of total caesarean sections for this time period, while 0.21% of Māori women who delivered by caesarean section in the period underwent a caesarean hysterectomy.

Māori women accounted for 20% of all caesarean hysterectomies performed on the same day as delivery between 2005 and 2010 and 18% of total caesarean sections in the same period.

In Table 13, Māori women readmitted after a caesarean section and who underwent a hysterectomy in the period 2005 to 2010 ranged from 25% to 50% of total NZ women readmitted for hysterectomy after caesarean section.

In Table 14, when hysterectomies are totalled for the same day as the caesarean section delivery and up to 21 days after delivery, in the period 2005 to 2010 the percentage for Māori women as part of total NZ women ranged from 13% to 29%.
## Table 12: Number Of Women Who Underwent A Caesarean & Hysterectomy On The Same Day, For The Twelve Year Period 2000 - 2011, Māori Women & Total NZ Women

<table>
<thead>
<tr>
<th>Year of delivery</th>
<th>Māori or Not Māori</th>
<th>Total</th>
<th>%Māori</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>Māori</td>
<td>3</td>
<td>12.5%</td>
</tr>
<tr>
<td></td>
<td>Non-Māori</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>Māori</td>
<td>3</td>
<td>23.1%</td>
</tr>
<tr>
<td></td>
<td>Non-Māori</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>Māori</td>
<td>5</td>
<td>20.0%</td>
</tr>
<tr>
<td></td>
<td>Non-Māori</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>Māori</td>
<td>6</td>
<td>30.0%</td>
</tr>
<tr>
<td></td>
<td>Non-Māori</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>Māori</td>
<td>3</td>
<td>12.0%</td>
</tr>
<tr>
<td></td>
<td>Non-Māori</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>Māori</td>
<td>6</td>
<td>22.2%</td>
</tr>
<tr>
<td></td>
<td>Non-Māori</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>Māori</td>
<td>9</td>
<td>29.0%</td>
</tr>
<tr>
<td></td>
<td>Non-Māori</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>Māori</td>
<td>7</td>
<td>25.9%</td>
</tr>
<tr>
<td></td>
<td>Non-Māori</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>Māori</td>
<td>5</td>
<td>13.5%</td>
</tr>
<tr>
<td></td>
<td>Non-Māori</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>Māori</td>
<td>5</td>
<td>13.9%</td>
</tr>
<tr>
<td></td>
<td>Non-Māori</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>Māori</td>
<td>3</td>
<td>20.0%</td>
</tr>
<tr>
<td></td>
<td>Non-Māori</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>Māori</td>
<td>7</td>
<td>24.1%</td>
</tr>
<tr>
<td></td>
<td>Non-Māori</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td><strong>Total Māori</strong></td>
<td></td>
<td>62</td>
<td>20.5%</td>
</tr>
<tr>
<td><strong>Total Population</strong></td>
<td></td>
<td>309</td>
<td></td>
</tr>
</tbody>
</table>

Source: National Minimum Dataset, 5 March 2012

## Table 13: The Number Of Readmissions Resulting In A Hysterectomy After A Caesarean Section (Up To 21 Days) For The Six Year Period 2005 - 2011

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Māori</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Non-Māori</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 14: The Number Of Caesarean Sections & Hysterectomy (Same Day To 21 Days After Delivery) For The Six Year Period 2005 - 2011

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Māori</td>
<td>9</td>
<td>11</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Non-Māori</td>
<td>31</td>
<td>18</td>
<td>33</td>
<td>29</td>
<td>25</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>29</td>
<td>40</td>
<td>36</td>
<td>31</td>
<td>26</td>
</tr>
</tbody>
</table>

Notes:
1. Caesarean sections were identified by the following procedure codes: any procedure code in 1652000, 1652001, 1652002, 1652003 [Block 1340] (ICD-10-AM-I).
2. Hysterectomies were identified by the following procedure codes: 3565300, 3565301, 3565302, 3565303, 3566100, 3567000, 3566700, 3566400, 3565700, 3575000, [Blocks 1268-1269] (ICD-10-AM-I) 3575600, 3567300, 3567301, 3575300, 3575301, 3575600, 3575602, 3566701, 3566401.
3. These numbers include hysterectomies that were performed as part of the same hospitalisation as the caesarean section and hysterectomies done as part of publicly funded hospitalisations where admission date is within 21 days of the caesarean section discharge date.

Wong (2011) reported that the incidence for peripartum hysterectomy over ten years at Christchurch Public Hospital was 0.4 per 1000 deliveries. He reported an international incidence ranging between 0.2 to 5 per 1000 deliveries (Flood et al., 2009; Gomes et al., 1999; Kennare et al., 2007; Lau et al., 1997; Turner, 2010; Wong, 2011) and listed the causes for postpartum haemorrhage that preceded caesarean hysterectomy as: invasive placental adhesion – accreta, increta, percreta (63%), uterine atony (16%), placenta praevia (10.5%) and uterine tear with atony (10.5%).

Forna et al. (2004) compared caesarean delivery and postpartum hysterectomy between 1990 and 2002 in Atlanta USA reporting an incidence of peripartum hysterectomy of 0.8 per 1000 deliveries. Uterine atony was the most common indication for peripartum hysterectomy (56.4%), followed by placenta accreta (20%). The caesarean section rate for that hospital was 14.2%. The overall peripartum hysterectomy rate internationally has dropped, however it has risen with repeat caesarean section (Flood et al., 2009).

Wong (2011) found a significant association between abnormal placentation and previous caesarean section or curettage for all cases (19). Previous caesarean section has the most significant association with abnormal placentation and this agrees with international findings.

The New Zealand maternal booking form records previous pregnancies. It would be helpful if pregnancies that resulted in a termination or miscarriage stated whether the
management included curettage, then this data can be analysed to determine the extent of the problem that previous uterine surgery has on abnormal placentation in future pregnancies, and in turn, which mode of delivery was required in following pregnancies. This information would then be useful during the consent process for women who require uterine curettage.

An accurate method for recording the causes for hysterectomy would be to record precipitating factors for postpartum haemorrhage identified pre- and post- caesarean section and resulting in a hysterectomy to determine exact cause(s) for direct deaths and near misses. While maternal deaths are rare, monitoring maternal morbidity, such as peripartum hysterectomy, can indicate which conditions might lead to maternal mortality.

The AMOSS survey for caesarean hysterectomy did not include gathering data on whether a hysterectomy was performed due to surgical error during the caesarean section (e.g. severed uterine artery). Recording the level of experience of the surgeon would have been helpful for analysing surgical error during caesarean section that resulted in hysterectomy.

Gilles et al. (2011)\(^{15}\) found that ethnicity was a risk factor for the progression from severe maternal morbidity to death. Two whānau in this research experienced postpartum haemorrhage requiring multiple blood transfusions, on more than one occasion for one whānau, despite raising concerns about the history of postpartum haemorrhage to maternity carers during the antenatal period and prior to delivery. For this reason, I examine post-partum haemorrhage statistics for Māori women who delivered vaginally and by caesarean section in the associated Appendix One: High Risk Vaginal Deliveries (page 171).

Appendix One includes data relating to third and fourth degree tears (lacerations to the perineum), diabetes in pregnancy, large for gestational age babies, shoulder dystocia/dystocia during delivery, antepartum & postpartum haemorrhage, and neonatal encephalopathy.

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\(^{15}\) Gilles et al. (2011) is located in Appendix Nine - Preliminary Literature Review (page 218).
SUMMARY

This chapter has discussed the possible risks and indications for caesarean section for Māori women and descriptive tables have been provided that illustrate data for Māori Women in New Zealand’s maternity environment. Government maternity databases did not provide specific information on the risks and indications for caesarean section and the maternity data collection provided has a degree of inaccuracy acknowledged within the Ministry of Health. Risks and indications were based on references provided by overseas literature and sourced from NZ ICD-10 maternity codes.

The findings in this chapter for the indications and risk factors for caesarean section are similar to international literature. Premature rupture of membranes (PROM) has been identified as a diagnostic code associated with caesarean section in New Zealand and which is uncommon in international literature. How PROM is diagnosed and what happens from the time of PROM to delivery needs further exploration. PROM ranks higher than postdates, pre-eclampsia and diabetes as a diagnosis associated with caesarean section by ICD-10 codes. Antepartum haemorrhage does not rank in the top twenty ICD-10 diagnostic codes associated with caesarean section; however 20% of Māori women who have a caesarean section have this diagnostic code. Age may be a factor that reduces the number of caesarean deliveries seen in the Māori women population, as Māori women on average give birth at a younger age and caesarean section is associated with older pregnant women.

Māori women have more emergency caesarean sections than elective caesarean sections and are more likely to have a repeat caesarean section as an emergency caesarean section. Māori women are more likely than other NZ women to have emergency caesarean sections. Māori women are over-represented in vaginal breech deliveries which are regarded as high risk vaginal deliveries, and Māori women are over-represented in the group where mode of delivery is unstated.

The number of Māori women undergoing caesarean section and hysterectomy needs to be further explored. The number of Māori women readmitted for hysterectomy after delivery indicates that Māori women are over-represented in this group. Data entry for caesarean hysterectomy, whether it be the same day of delivery or for a
number of weeks after delivery, need to be improved. Recording the level of skill of the surgeon at the time of the caesarean section and subsequent hysterectomy, or caesarean hysterectomy, may help toward identifying all risk factors for peripartum hysterectomy.

Historically, when colonialists came to Aotearoa, the impact of their settlement placed Māori on the verge of extinction. Parity is very important to the survival of the Māori population, and for the Māori population to continue to increase. The impact that caesarean section has on parity for Māori women and on the overall total Māori population coupled with issues such as a concerted effort by maternity units to provide long-term contraception for women at the time of discharge from hospital after delivery; and the desire by the Ministry of Health to reduce teenage pregnancies and reduce single mother status all need to be explored further according to the relevance these issues have for Māori and decision making for whānau and the cultural importance of sibling order and sibling relationships within whānau.

The next two chapters outline the Methodology (Chapter Four) and Methods (Chapter Five) for this research. Then qualitative research in a Kaupapa Māori framework will focus on the decision-making by whānau when the birth plan is repeat caesarean section.
CHAPTER FOUR - METHODOLOGY

HISTORY

Kaupapa Māori research entered the tertiary institutions of Aotearoa due to a number of developments such as movements to increase indigenous self-determination over land, culture and language (Glover, 2002); a greater commitment to the Treaty of Waitangi; and more extensive collaboration and sharing of research skills between Māori and non-Māori, and greater protection of Māori data and participants (Powick, 2003; Walker et al., 2006).

Graham Smith and Linda Tuhiwai Smith,16 two founders of Kaupapa Māori research in Aotearoa’s tertiary institutions, define it as being Māori and connected to Māori philosophy and principle, taking for granted Māori validity and legitimacy, and recognising the importance of Māori language and culture, and affirm its relationship with the struggle for autonomy over cultural wellbeing (Smith, 1997). Tuhiwai Smith (2006), states that if indigenous people are researchers rather than the researched, this transforms research by framing questions, ranking priorities and defining problems differently. Pihama17 (2004) states that the analysis of power and societal structures is intrinsic to Kaupapa Māori theory, aligning it with critical theory which exposes assumptions that conceal power relationships, such as the construction of common sense and facts by dominant groups to maintain inequalities and oppression of Māori.

16 Linda Tuhiwai Smith 2007 Pro vice chancellor (Maori) at University of Waikato. Professor Kathy Irwin, Ngati Porou, Ngati Kahungunu, Rakaipaaka. Kathy specializes in Māori education, research and advancement at Massey University and Te Whare Wananga o Awanuiarangi. Russell Bishop, Assistant Dean of Maori Education, University of Waikato. Russell leads the Maori Educational Research Unit (MERU) at the Wilf Malcolm Institute of Educational Research. Graham Smith, Ngāti Apa, Ngāti Kahungunu, Ngāi Tumupuhia. Graham’s academic background is within the disciplines of Education, Social Anthropology and Cultural and Policy Studies. More specifically, his academic work has centred on developing theoretically informed transformative strategies related to intervening in Māori cultural, political, social, educational and economic crises. 17 Leonie Pihama. Te Atiawa, Ngā Māhanga a Tairi, Ngati Māhanga. Leonie is the mother of six children. Leonie completed (June 2011) a Fulbright Scholarship at the Indigenous Wellness Research Institute, University of Washington. Leonie completed her Doctorate exploring Mana wahine as a Kaupapa Māori theoretical framework. She is now an independent researcher after working as a senior lecturer in Māori education at The University of Auckland, teaching in the fields of policy analysis, Māori women, and the politics of representation of indigenous people. Leonie was Director of the International Institute for Māori and Indigenous Education for four years.
MAORI HEALTH FRAMEWORKS

Māori research represents the Māori worldview and its own philosophical and intellectual conventions guided by tikanga. Māori researchers enlist Māori health frameworks that are applicable to their research, or that have derived from their research. The frameworks are intended to guide change in health practice and policy to produce better outcomes for Māori. An existing framework may be suitable, or a framework may be developed for that particular research or health development proposal. It is not within the scope of this thesis to discuss the frameworks\(^\text{18}\) that have been produced by Māori Health researchers and that were explored during the proposal period.

My research was oriented by tikanga research processes, health and birthing (Ahuriri-Driscoll et al., 2012b; Hudson, 2004; Jones et al., 2006; King, 1992; Mead, 2003; Shirres, 1997; The Putaiona Writing Group, 2010), and during the process I considered whether I could apply a Māori health framework or whether a unique framework would emerge from the process.

Māori health frameworks and their principles undergo a degree of transformation when translated to become acceptable for university institutions. Tupara (2009b) explains that:

*Comparing and contrasting western and whānau decision processes according to differential terms of reference is problematic. The Western framework to a word such as rangatiratanga would require linguistic deconstruction of the word. This would cause a deconstruction of the ideas imbedded in the word and separate examination of those ideas followed by a re-interpretation. This is not a Māori intellectual tradition.*

*Te Whare Tapa Whā* (Durie, 1998) is a universal Māori Health framework often employed to assist health professionals to understand Māori health concepts and which is taught in New Zealand Medical Schools.

Te Whare Tapa Whā\(^{19}\) represents a whare (house) with ‘strong foundations and four equal sides’: tinana (physical), hinengaro (mind, consciousness), wairua (spiritual), and whānau and should one of the four dimensions be missing or damaged in some way, a person or a collective, may become ‘unbalanced’ and subsequently unwell.

The following definition for tinana in relation to Te Whare Tapa Whā is provided on the Ministry of Health website (Durie and MoH, 2012):

\[
\text{The capacity for physical growth and development. Good physical health is required for optimal development. Our physical ‘being’ supports our essence and shelters us from the external environment. …this cannot be separated from the aspect of mind, spirit and family.}
\]

In his doctoral thesis, Carl Mika (2005) endeavours to find a place for tinana in the medical sciences without continuing to elevate medical science to sovereign status. As he puts it: ‘… finding a place in the Other’s reality for the Māori body…’.

He gives a deeper understanding of tinana as resisting narrow definitions and not one fixed reality but rather one where the physical being is located in the past, present and future located as part of the Universe (and related to whakapapa).

‘Tinana’ in western health constructs would be considered a person’s physical health. Interestingly, there is no definition for physical health in the Oxford Dictionary, which defines physical as ‘relating to the body’ and health as ‘the state of being free of disease or injury’; and the body as ‘the physical structure, including the bones, flesh and organs, of a person or an animal’.

**METHODOLOGY FOR THIS RESEARCH**

The kaupapa of this research was set in place when the research protocol was produced during the period of ethics approval. I identified similarities in methodology and methods between the reviewed literature and my proposal and became aware of how unique this kaupapa and its position within Māori health inquiry would become.

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\(^{19}\) Mason Durie - Rangitane, Ngati Kauwhata, Ngati Raukawa. Mason went to school in Hawkes Bay at Te Aute College. He is a University of Otago graduate. He specialises in psychiatry. Mason was appointed to the Royal Commission of Social Policy from 1986-1988. He has spent 40 years at the forefront of a transformational approach to Maori health and he champions for higher education for Maori and to build the Maori health workforce. In 2001 Mason Durie was made a companion of the NZ order of Merit. In 2010 he was given a knighthood.
Ngāi Tahu oral history recounted by local Māori at four marae during health-related hui over my fourteen years of tertiary study and clinical work in Dunedin; and Hana O’Regan’s book Ko Tahu, Ko Au (2001) were valuable resources regarding Ngāi Tahu’s history to the present day. Ngāi Tahu’s world view is important to my research because Ngāi Tahu health researchers provided experience in the locality where my research is based.

I became increasingly aware that the research process was incongruent with my surgical specialty. The irony of subjectivity and objectivity and its meaning to the clinician was always present. The methodology I was harnessing focused on subjectivity, understanding and analysing the aspects of whānau experiences became the unit of analysis (Polkinghorne, 2005) whereas in the tertiary hospital environment the doctor’s objectivity is privileged and all-binding.

According to Rennie, D (1994):

*Qualitative research, human science, focuses on subjectivity and stresses the achievement of understanding as opposed to the demonstration of truth; it stresses collaboration with participants rather than a subject-object dualism; and it emphasises holism in contrast with fragmentation.*

While Pope & Mays (1995) add:

*The prevalence of the distinction between qualitative and quantitative methods tends to obscure the complexity of the problems that face us and threatens to render our decisions less effective than they might otherwise be….Methods and methodology for health research should include pluralism so as not to oversimplify complex issues…. Qualitative research allows inquiry into why randomised controlled trials are often difficult to apply in day to day practice and also allows inquiry to include questions around the organisation and culture of those who provide healthcare. …*

I had one ethical commitment to the institutions and another grounded in Te Ao Māori. Both were sufficiently rigorous to safely guide my research process, but which was more suitable, and which would be acceptable to my specialty? This is a dilemma many Māori researchers face: to frame the research according to the commitment, responsibility and expectation of the research community, or to frame the research for academic requirements. This situation forces Māori researchers to trade-off, because academic institutions do not fully understand Māori researchers’ commitment to their research community, and because institutional rigidity overrides best practice for research with Māori. (Barnes, 2008)
THE REFERENCE POINT

Kaupapa Māori Research is nourished by Te Ao Māori. In New Zealand institutions its academic roots are in education but it has made headway in health, economics, law and the environment. To my knowledge, this research is the first application of kaupapa Māori research to the surgical sciences.

Despite being a first time researcher from an institutionalised environment – the medical and surgical sciences, I have challenged myself to produce Kaupapa Māori research on a previously unstudied topic. Kaupapa Māori research is the reference point for my research and as such does not have to be sourced or connected to any other type of method, methodology, researcher or philosophy (Workman, 2006) as it provides its own references. Kaupapa Māori research has been practiced in New Zealand long before colonial academic institutions arrived. For example: Rongoā (medicine) and Tātai Arorangi (astronomy). My literature review and sources of information have been shown as a whakapapa in the following table (Table 15).
Table 15: Literature Review & Reference Point - The Genealogy Of This Research

<table>
<thead>
<tr>
<th>Guides of Kaupapa Māori Research</th>
<th>Leaders in Kaupapa Māori Research</th>
<th>Leaders in Kaupapa Māori Research - Hauora Māori</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paptuanuku = Ranginui me o nga uri</td>
<td>Apirana Ngata</td>
<td>Maui Pomare</td>
</tr>
<tr>
<td>Tāne = Hinerauamoa</td>
<td>Graham Smith</td>
<td>Te Rangi Hiroa</td>
</tr>
<tr>
<td>Hine te iwaiwa</td>
<td>Linda Tuhiwai Smith</td>
<td>Mason Durie</td>
</tr>
<tr>
<td>Traditional Healers</td>
<td>Charles Royal</td>
<td>Rose Pere</td>
</tr>
<tr>
<td>Hirini Mead</td>
<td>Moana Jackson</td>
<td>Te ORA Māori Doctors’ Association</td>
</tr>
<tr>
<td>Manuka Henare</td>
<td>Russell Bishop</td>
<td>Te Rōpū Rangahau a Eru Pōmare</td>
</tr>
<tr>
<td>Te Putiaora Writing Group</td>
<td>Melinda Webber</td>
<td>Paparangi Reid</td>
</tr>
<tr>
<td>Te Ara Tika</td>
<td>Janice Workman</td>
<td>Rhys Jones</td>
</tr>
<tr>
<td>Whānau o Otakou Marae</td>
<td>Helen Barnes</td>
<td>Donna Cormack</td>
</tr>
<tr>
<td>Ko Tahu, Ko Au</td>
<td>Leonie Pihama</td>
<td>Bridget Robson</td>
</tr>
<tr>
<td>Hana O’Regan</td>
<td>Carl Mika</td>
<td>Fiona Cram</td>
</tr>
<tr>
<td></td>
<td>N. Te Awekotuku</td>
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<td>Hui Whakapiripiri</td>
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<td>Walker, Eketone, Gibbs</td>
<td>Hope Tupara</td>
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The classical and contemporary works of these people, ngā tāngata o Te Ao Māori, provide confirmation and guidance for my research process. They are positive role models for both my clinical and research mahi (work).

The whakapapa of this research also includes my own whakapapa and where I stand in this world.


Once I established my reference point, I made minimal reference to qualitative research resources. Interviewing techniques, coding and themes were areas of qualitative research that I continued to reference (Crabtree and Miller, 1999; Kvale
and Brinkmann, 2009; Seidman, 2005). While I referred to qualitative techniques, the predominant research process was Kaupapa Māori research.

The Foundation Principles For The Methodology

The Kaupapa Māori methodological principles identified during the development of the research protocol and which I refer to as the foundation principles for this research, are:

- Te Ao Māori (Cram, 2001); I ngā wā ō mua (traditional world views)
- Tikanga guided research (Mead, 2003)
- Karakia (Whānau Kaokao) (Eruera, 2010)
- Hononga
- Reciprocity
- Whakawhitihiti kōrero (a framework that facilitates the contributions of all those involved) (Jackson, 1996)
- Kaitiakitanga
- Kawa
- Whānau taonga tuku iho (management and control mechanisms in a whānau, the collected wisdom of ages) (Bishop, 1999)
- Whakawhānaungatanga (establishing relationships) (Bishop, 1999)
- Whānau (Bishop, 1999; Cram and Kennedy, 2010; Cunningham et al., 2005; Eruera, 2010)
- Research involving day-to-day reality (Cram, 2001)
- Kanohi ki te kanohi (face-to-face encounters) (Jones et al., 2006)
- Informal conversations
- Treaty of Waitangi

Although these principles are distilled into a single word or a few words, and a definition of each is provided in the Appendix Ten - Glossary of Māori Words (page 223), each is complex, with its own whakapapa, tikanga and narrative and these can also have iwi specific applications.

Developing the foundation principles ensured that I was aware of my responsibility to everyone involved in my research. Safety became a paramount consideration in the research preparation, documentation and research communications.
Kaupapa Māori Research Framework

The aspects of each foundation principle became more apparent as the research progressed; their different facets gradually took shape as I followed the steps of the research process, and their meaning acquired greater depth. In this way, key features of kaupapa Māori research methodology also became the ‘pou’ for this research. The same principles were found in whānau kōrero and these findings cloaked the foundations. On the other hand, a relevant health framework for presenting the findings arose only once the kōrero from whānau members were placed together in a collective whānau narrative based on the decision-making around caesarean delivery that occurred in each whānau. The finished product is true to the kaupapa of this research.

Treaty Of Waitangi

This research acknowledges the vision of the Health Research Council, Māori Health Committee, Ngā Pou Rangahau 2010-2015:

…to conduct Māori health research that produces knowledge that changes our lives for the better and to broaden and deepen Māori health research through the expression of rangatiratanga and mātauranga.

In particular, Ngā Pou Kōrero (Goals) 2, 3, 4, and 5.20

The Treaty of Waitangi provides for Māori researchers to be members of primarily non-Māori surgical research teams. It also provides for Māori to carry out their own research within the surgical sciences and Te Ao Māori under the principle of self-determination. Similarly, as is inherently Māori, respect is given by Māori to non-Māori researchers pursuing their research goals in the surgical sciences. Non-Māori researchers have the responsibility to reciprocate this respect to Māori researchers according to the Treaty of Waitangi and the New Zealand Health & Disability Act. Research in the surgical sciences providing outcomes for Māori (including whānau and their experiences) should be considered as important as research with non-Māori outcomes.

20 Goal 2: Enhancing the application of Māori methodologies to health research; Goal 3: Translating research into Māori health gains; Goal 4: Promoting Māori ethics processes and good practice; Goal 5: Extending the Māori health research workforce and promoting a culture of research.
Don’t Give Up Who You Are To Be What You Want To Be

Taylor Rea, Te Rarawa/Ngāpuhi  http://www.youtube.com/watch?v=ReYxHLCKb9A
CHAPTER FIVE - METHODS

QUALITATIVE RESEARCH IN A KAUPAPA MĀORI FRAMEWORK

A significant life event, such as the birth of a baby, should be a time of immense joy for whānau. What is the impact of caesarean section on this event? How is decision-making by whānau altered when the birth plan is repeat caesarean section? If this is the question, then Māori, in particular, whānau should be guiding the inquiry.

Qualitative research in a Kaupapa Māori framework was chosen for this research as it legitimises whānau experience of delivery by caesarean section.

QUALITATIVE RESEARCH METHODS THAT SUPPORT KAUPAPA MĀORI RESEARCH

Qualitative data collection methods for data were analysed for their suitability for a kaupapa Māori approach. Research was developed using a reflective and iterative approach meaning that its interpretation started at the beginning of the process and that methods evolved over the research process, an approach commonly utilised in social science research. Analysis also occurs during the iterative stage, thereby evolving methods (Crabtree and Miller, 1999).

This qualitative approach aimed to produce knowledge rich information through in-depth dialogue with participants discussing their experiences for this particular situation. In-depth interviews with relatively few participants can provide a large amount of data rich information (purposive sampling).

According to Polkinghorne (2005), while quantitative research focuses on populations, samples and generalizability, qualitative research clarifies experience by focusing on in-depth dialogue that provides intense, full and saturated descriptions.

Crabtree & Miller (1999) clarify that qualitative research recognises the subjective human creation of meaning without totally rejecting some idea of objectivity. Pluralism is stressed over relativism, and there is an awareness of the circular tension between subject and object.
Women’s individual kōrero provides in-depth knowledge of the subject. Whānau kōrero provide the breadth to the subject. The answers to the research question are found within the dialogue (Mātauranga Māori).

**MĀORI RESEARCH METHODS**

The importance of whānau was outlined in Cram & Kennedy’s 2010 report *Researching with Whānau Collectives*, where whānau were described as: the building block of Māori society (MoH, 2002). This report also affirmed that understanding how whānau function as a unit, from tāmariki to kaumātua, is essential in supporting Māori well-being and facilitating Māori aspirations.

Cram and Kennedy (2010) undertook research with whānau in a scoping project aimed at creating collective tools and methodologies for measuring whānau disparities and aspirations. Such tools were to provide holistic and collective measurements of whānau as opposed to solely collecting information about individuals within a whānau. The intended outcome was to ensure more responsive policies and services for whānau thereby maximising health and wellness.

Cram & Kennedy explored which methods were appropriate for researching whānau collectives. These methods were:

- Appreciative Inquiry;
- Genograms; Ecomaps;
- Te Whakapapa o te reo i roto i te whānau;
- Participatory Action Research – whānau PAR Groups;
- Participative Action Research;
- Consensus Cardsort – Whānau Future Narrative;
- Quantitative analyses of changes in whānau using longitudinal population-based surveys;
- Social Network Analysis;
- He Kōrero Whānau (o Te Rarawa);
- Kotahi Whānau: Māori Community Partnership Research;
- Family trees – (Manitoba); and
- PATH Planning Tool.
Cram & Kennedy stated that methods should:

... capture the fullness of relationships and connectedness that exist between whānau members that makes them so much more than the sum of their members... have the potential to uphold the mana of Māori whānau, support the building of a knowledge base... to understand what it is to be part of a collective.

The mixed method approach that I chose was based on methods that the whānau in my research preferred, methods that best suited my locality, that respected the sensitivity of my research subject, and that I was comfortable using as an emerging researcher. As I reflect on my research methods and methodology, I realise that I have incorporated aspects of Appreciative Inquiry, Whānau Future Narrative and Participatory Action Research.

Edwards, McCranus & McCreanor (2005) explain whānau narratives in their article Collaborative Research with Māori on Sensitive Issues as:

...narratives from Māori parents (primarily mothers) as neglected holders of experiential data on the context within which Māori SIDS has occurred, privileges the oral accounts as testimony that gives voice to marginalised experiences (McManus 1997). In this way the mana is with the participants while the validity of the project and the insights are enhanced and authenticated (Cram 1993).

Co-operative Inquiry and a Pilot Process with a woman and her whānau are not in Kennedy & Cram’s (2010) list of twelve methods, although they did use a scoping project as part of their larger research project. Positive Participatory Action Research (Cram and Kennedy, 2010; Eruera, 2010) and Appreciative Inquiry Research (Cram, 2010; Hammond, 1998) have emerged from co-operative inquiry research.

I felt it was important to utilise whānau-centred methods to answer my research question. The Ministry of Health (MoH) has requested that government agencies play their part in the Māori health strategy to monitor and implement whānau centred research. In this way, my research is compatible with whānau and government goals; by default, whānau research includes intergenerational research.

**THE TANIWHÅ ZONE**

As mentioned previously, environment can influence the methodology and methods behind Māori Health Frameworks (Workman, 2006). *The Taniwha Zone* is a method
outside the kaupapa of this research but which significantly impacted the tikanga of this research (Ruwhiu, 2011).

Although the tikanga protecting whānau integrity in this research was strong and positioned in the world of Māori and had the protection of the Treaty of Waitangi and relevant Health Research Ethics Committees, it was unable to protect me from certain areas of the research environment, specifically the clash between kaupapa Māori research methods and positivist medical science methods within the hospital when I attempted to procure data, even though I had approval through the locality assessment method (Pope and Mays, 1993).

This was reminiscent of The Taniwha Zone described by Ruwhui or an environment that fosters colonisation and politicisation which as such is devoid of the Treaty of Waitangi. This led to a decision to abandon the use of the local hospital data and to instead rely solely on the Ministry of Health data presented in Chapter Three: Maternity Data Relevant To This Research and its associated Appendix One: High Risk Vaginal Deliveries (page 171).

**RESEARCH METHODS**

This research uses methods that support Strengths Based Research. Strengths Based Research (Cram, 2010; Cram and Kennedy, 2010; Smith, 1997) opposes the deficit approach to research about, and evaluation of, Māori. Strengths Based Research affirms and validates Māori worldviews, and critiques the non-Māori construction of Māori. Its primary task is empowerment and liberation through joint construction of knowledge (Crabtree and Miller, 1999; Heron and Reason, 1994; Oakley, 1981; Punch, 2005).

This research took place in the Ngāi Tahu rohe and the richness of its people’s knowledge was a primary source of reference. Discussions ensued according to events occurring at different stages of the research process and when experience was applicable to particular stages of the research process. The knowledge shared by reference people provided further data to reflect upon during the participant interview period and while analysing themes.

A pilot process was intertwined with the participant phase of the research: as the first woman, her whānau and I moved through the stages of the pilot process, I
commenced the previous phase with the next participating whānau. This provided direct reference, accountability, verification and validation for the methods chosen and ensured that I was constantly undertaking comparative analysis of my research method.

In-depth dialogue with women and their whānau; maximum variation of experiences; accessing reference people; and undertaking a pilot process are methods that provide a diversity of Māori knowledge in the practice and policy of maternity care. This iterative process is typical of Kaupapa Māori methodology and is consistent with the flexibility of qualitative anthropological approaches (Kvale and Brinkmann, 2009; Wolcott, 2001). Therefore, my approach can also be described as both flexible and pragmatic.

Co-operative Inquiry helps participants to interpret meaning and better understand their world by sharing experiential knowledge and can also lead to personal transformation through agreed actions. Likewise, its up-hierarchy contrasts with down-hierarchy in other methods that places the researcher at the top and in control of everything without being involved. Therefore, co-operative research takes place with people, not on people, and is co-initiated, and allows all participants to play equal parts (Bray et al., 2000; Heron and Reason, 1994).

My research intertwines these methods and demonstrates the suitability of most of the methods behind strengths based research. Instead of imposing theories and concepts onto participants, co-operative inquiry with participants and reference people throughout the research process allowed the following constructs or models to arise from the participants’ own experiences and knowledge:

Women as Skilful Weavers, Whānau, Whānau Aroha, Tuakana-Teina relationship, Manaakitanga, and Positive Participatory Action. Te Kawa o te Marae was inherent to all parties and was employed with various degrees of formality, spontaneity and circumstance.

**Field Journal**

With my supervisor’s encouragement, I kept a field journal to record the research journey where I wrote my day-to-day, week-to-week or stage-to-stage reflections. It was like a board allowing me to compare the separate pieces of the puzzle before
their proper place became apparent as the understanding of each stage’s meaning emerged. It was most valuable in the first half of the research process and at a particular part of the interview stage where a pattern in my methodological process began to appear and the ‘pieces fell into place’ according to the principles guiding this research.

The field journal also helped to recall the first stages as I wrote each chapter, and contained jottings from unrecorded kōrero, or information from a medium unable to be recorded by audio, or from hui or informal conversations where relevant knowledge was imparted. It also included notes from supervisors’ meetings, in-department seminars, university level seminars and symposiums, and conversations with reference people.

**Consultation Process – Two Stages for Ethics Approval**

Prior to consulting my research community, I applied for University ethics approval to ensure I safely developed my research documentation (research protocol, interview frameworks, consent processes, information sheets), and while discussing these documents and the direction of my research with reference people, and for my own safety as well.

Requesting Stage I ethics approval from the University Ethics Committee was considered an unusual approach by the Committee. My appeal for two levels of ethical approval was the first challenge of bringing together two world views about research. By seeking to prove myself to the institutional ethics committee, I hoped to gain their respect for my chosen ethics approval process. However, the University Ethics committee wanted me to include the work that I would produce after the first level of consultation in the ethics application to them, suggesting that it was privileging its own approval over the approval sought from my research community. I could not provide what the ethics committee requested of me until I had established my research tikanga with my research community.

I developed two research protocols – one in a Māori framework, and one meeting institutional documentation requirements. Eventually, I was granted Level I ethics approval from the University.
My dual approach to ethics approval is supported by the process that Māori traditional healers undertook to establish *Ngā Tohu O Te Ora: Traditional Māori Healing And Wellness Outcomes* (Ahuriri-Driscoll et al., 2012b), while my interaction with the University Ethics Committee when creating the ethical framework for my research was similar to other Māori researchers’ experience of a stark contrast between the kaupapa Māori framework and the requirements of conventional research ethics committees, based on criteria largely ignoring issues that determine acceptability for Māori communities, thus missing the opportunity to address fundamental accountability requirements for Māori, although perhaps protecting against the worst excesses of colonising research (Jones et al., 2006).

**Participant Selection**

Initially, I decided to seek 6-8 Māori women who lived in Ngāi Tahu rohe who had a history for any of the following:

- three or more caesarean sections;
- being advised against further caesarean section deliveries;
- caesarean hysterectomy.

These women were to be identified by hospital maternity databases or from existing networks (participating whānau; women known to reference people, women known to me through existing networks).

Initially, maximum variation of sampling was one of the methods chosen for this research: meaning women were chosen for the variety of their experiences, seeking to involve a woman with a typical experience, another with an extreme experience, another with a variant experience, and another with a confirmatory or disconfirmatory experience. If the cohort identified by whānau and reference people did not represent a variety of experiences (Lincoln and Guba, 1985) then women were to be selected from a maternity database ensuring maximum variation of experience based on the information provided in the obstetrics notes in women’s files. However, the method that was finally preferred was to first listen to the reality of participants’ experiences, and then to read the women’s files only if required, to clarify the clinical experience.
Women outside the Ngāi Tahu rohe were included if they matched the above criteria and were suggested by whānau living in this rohe. Whānau living in other rohe, could participate if a participant indicated that a whānau member was important to the whānau project, which was why ethics approval was sought at the national level (Stage II ethics approval).

Due to time constraints, the sampling method was altered to enable purposive, convenient sampling using the snowballing method (Crabtree and Miller, 1999). The selection criteria became women in whānau that lived in the Ngāi Tahu rohe who had experienced caesarean section or caesarean hysterectomy.

Snowballing was more in line with community word-of-mouth contacts; this meant that a relationship already existed between a consented participant and a potential participant, or reference person, or my own established networks. The integrity of the research was validated by a participant or community member's willingness to invite or recommend a potential participant on behalf of the research project.

These methods supported the kaupapa of co-construction between researcher and participants. Three of the four women in this research were found by snowballing.

In addition, eight women with up-to-date contact details were identified from the local district health board's maternity database.

From this sampling, a homogenous group of participants of four women and their nominated whānau members was formed. A total of sixteen people were interviewed.

At this point snowballing and opportunistic sampling were safe processes for participant selection. This selection process did not impede a saturation point from being reached because each woman gave different accounts of the same situation, thereby providing conclusive evidence (Crabtree and Miller, 1999; Patton, 1990). By interviewing women, their whānau, and reading associated material, such as diaries and clinical files, data validity was further strengthened by triangulation.

**Pilot Process**

As I did in the literature review, grounded theory was applied to the pilot process preceding the two participant engagement stages: interviews and themes discussion. The whānau of the pilot process helped develop this stage which reduced any
researcher presuppositions and integrated data into the participant engagement process. This was part of an iterative method where design and methods can evolve until no disconfirmatory design issues remain (Crabtree and Miller, 1999). As Strauss and Corbin (1990) note that before the investigation begins, it is impossible to know what the principal problems will be or what concepts may emerge.

Between Stage I and Stage 2 ethics approval and after the first group of reference people met, a member of the reference group came forward with her birth history. She was Ngāi Tahu, studying at University, a single parent with a child attending kura kaupapa. She mentioned that members of her whānau had positive experiences when participating in research. Her obstetrics history was one emergency caesarean delivery. She was approached to share her experience in the ‘pilot’ process that involved two stages. The first stage included all interviews with the woman and the edited transcriptions of these recorded interviews.

First contact was either by ‘cold calling’ the woman with a follow up invitation letter and information sheet, or by sending a letter with an information sheet.

After each of these methods, a further telephone call was made approximately one week later allowing the woman to discuss the research with whānau before she was contacted again. If the woman accepted the invitation, a time and date was arranged for the first face-to-face meeting.

The woman made the decision about where we should meet. I offered an interview room in my research department or asked if the women preferred to meet in her home or some other place that she preferred.

The face-to-face meeting included mihimihi (generally in the form of an informal conversation), the meaning behind the research question was explained, the consent process took place, and if there was time for in-depth interviewing to begin, a karakia would precede this step.

Karakia, kai and koha were part of the process. We discussed how we kept ourselves safe individually, however we agreed that a karakia was appropriate for the matter being discussed.

Koha was sufficient to provide for the meal after the interview as these women were busy family women who had taken time away from whānau to be part of the process.
Koha also covered the cost of their car parking fees, childcare, and petrol vouchers. A record of koha was kept for each whānau for documentation purposes.

Each participant received a plastic A4 sized envelope for storing research information and documents (information sheet, signed consent form) and each household received a fridge magnet and a laminated copy of the research question which each whānau could place on the fridge door, to promote discussion around the research question.

I audiotaped the consent process with the woman in the pilot process for reference, which proved useful, as her kōrero did not wait until after the consent process, but began during that process. This was a natural occurrence for three of the four women interviewed, and to me indicated that they had waited a long time to have their experience heard.

The woman from the pilot process brought along a diary which she had written in weekly during her pregnancy and addressed her writings to her unborn child. She also brought along her maternity ‘pink’ book allowing her to refer to this data during the interviews and provided evidence for her kōrero. The woman’s diary was knowledge-rich and provided a second level of data. As the clinician, I was able to read the diary and maternity pink book to clarify her antenatal and labour progress. This material also provided evidence for ‘non-clinical’ data relevant to this woman’s antenatal, intrapartum, and postnatal progress.

Five interviews took place, including the consent process with the woman in the pilot process. The first two were duration dependent with an exploratory focus on narratives provided by the woman. The second two were also duration dependent and completed any areas that had not been covered and clarified previous content. The final interview mostly consisted of direct questions about whānau decision-making not already covered by the previous flexible approach.

At the end of the fifth interview, it was clear to both of us that all information had been shared. Some interviews were discussions about the interview process itself, about how the previous interview had proceeded, how questions were asked or answered, and how sensitive issues had been approached.

At the beginning and end of each subsequent interview, I asked the participant if there were any concerns about the interview or any questions for me and if they
wanted to continue to participate. The woman would set the date, time and place for the next interview. This was always regarded as a flexible arrangement according to her commitments.

Within the interview process, the woman identified whānau members whose kōrero could be important to the research, which I listed. The woman offered to make contact with them and discuss their participation in the research. I, then, re-contacted the woman to confirm that the whānau member had agreed. Depending on the contact details provided and the potential participant’s preferred contact method, I made contact with the new participant either by telephone or letter. Most whānau preferred a telephone call as part of the process of engagement with me. A telephone call was generally the preferred method that whānau members used to initiate contact when there was an issue that required decision-making together.

On reflection, this process was similar to a karanga from those already involved in the research to those who were about to join the research. The women acted as gatekeepers for their whānau participation in this research. The concept of *te kawa o te marae* was reflected in both the women’s and the researcher’s approaches.

The research method and kōrero from the women’s day-to-day lives illuminated the attribute of *women as skilful weavers*. Their woven relationships allowed participant recruitment by snowballing. Women recognised patterns within their kōrero and how they related to the pātai and put forward whānau members whose knowledge could also contribute to the pātai. They facilitated time within their busy lives for these in-depth interviews and skilfully managed a number of events going on in their lives whilst they were pregnant, and during the intrapartum and postnatal periods, which became evident in later chapters.

To help understand the transcription process and its possible effect on data, I transcribed the recorded interviews from the woman in the pilot process. She received a copy of these transcriptions, which she edited and returned.

I read the transcriptions while listening to the recorded interview, this prevented skimming transcripts and missing relevant points. In this way, emotion and context were jointly analysed keeping the essence of the interview intact, although this approach was more time consuming. If required, the woman and I would meet to clarify any part of the transcribed recordings that I did not understand (never more than two to three sentences from all the interviews with the woman).
During her interview process, the woman did not discuss her interviews with her whānau to restrict influencing the kōrero of other whānau members’ interviews. The time period between whānau member interviews was respectfully kept short so that whānau could discuss issues that arose in interviews without too much delay.

The interview guide was also subjected to the grounded theory approach whereby it was further developed and refined by questions prompted by previous participants’ kōrero.

Each line of the transcriptions was numbered enabling identification of themes by line numbers.

**Development of the Interview Guide & Short Surveys**

I had hoped that when women and whānau were interviewed, their definition of whānau would be revealed. During the interview period, my literature review focussed on whānau decision-making. I read Hope Tupara’s Doctoral thesis *Whānau Decision-making Processes* (2009b) prior to completing my pilot process interviews. Hope Tupara is a midwife and her doctoral thesis investigated whānau decision-making processes regarding genetic testing of familial diseases.

Two aspects of Tupara’s thesis were particularly applicable to my own: her questions on whānau decision-making; and her questionnaire adapted from *Te Hoe Nuku Roa* (a longitudinal study of Māori households) to collect demographic details for each participant. I realised her approach was a pragmatic and realistic method of capturing information that best described each participant’s attributes and supported their narratives by way of a second level of data. A further advantage of employing a survey specifically representing Māori was that it ensured repeatability and reproducibility between research projects, in turn strengthening Māori research methods and methodology.

With Hope’s permission, I adapted the questions in her interview guide (*Appendix Five*, page 201) on whānau decision-making, adding these to my own interview guide (*Appendix Five*, page 201) as direct questions to be raised after the in-depth interview if these had not already been answered. Direct questions were also used for other aspects of the interview guideline that were not addressed in the in-depth interviews and considered relevant to that participant and the research question.
During the interview stage, I realised that a short survey on caesarean section knowledge would be useful. After reading all the transcriptions and identified themes, I produced a short survey listing risks and indications for caesarean section. This meant I could include questions about the risks and indications and issues arising from the transcriptions as well as about the risks and indications for caesarean section included in current literature.

The respondent could answer yes, no, or I don’t know. If a respondent had further information or questions, space was provided at the end of the survey to write freely. Each survey was numbered to identify the whānau and whānau member. Further literature review on risks and indications for caesarean sections occurred while listening to recorded interviews and reading the accompanying transcriptions and as a result additional questions were added to the caesarean section knowledge survey.

This research version of *Te Hoe Nuku Roa Survey* and the *Caesarean Section Knowledge Survey* that I had developed were sent to participants after the transcriptions were edited and clarified with participants, and while the themes therein were being identified. The woman from the pilot process read over the surveys and completed these before other participants.

These surveys provided information that served as a reference for participants’ kōrero or the whānau collective narrative when themes were analysed and discussed in the findings. This information confirms, consolidates and stratifies the information obtained in interviews and provides a second level of data for whānau kōrero.

The most interesting aspect of the caesarean section knowledge surveys is that these did not elicit the extensive knowledge that whānau had revealed by interviewing methods. Whānau’s extensive clinical and non-clinical knowledge about caesarean section was cloaked in a whānau perspective. The caesarean section knowledge survey focused on retrieving knowledge for objective medical analysis, an approach cloaked in the medical perspective. Some whānau members found the survey confusing and some doubted that they had the knowledge to answer the questions; however their in-depth interviews confirmed they did indeed hold this knowledge.
The Interview Process

The interview period, including the pilot process, took twenty weeks. On average, three interviews with a total duration of 2.5 – 3.5 hours were required for women participants; and one to three interviews with a total duration of 1.5 – 2.5 hours were required for whānau.

Women could choose to be interviewed alone or with whānau, or a mix of both modalities, as could whānau members. Most whānau members chose to be interviewed individually. One couple were interviewed together. Sensitive information private to the women, the couple or individual whānau members but shared during the interview was the main determinant for the number of whānau members attending the interview.

One interview was undertaken via Skype and timed to occur when whānau members participating in the research were visiting this particular participant so as to provide support afterwards if required.

Interviews began with my reason for asking the research question, followed by asking whether the participant had any questions or anything to discuss about the information sheet received by mail. At times, the sheet was provided again at this stage and we would go over the material together. The consent process would follow and a participant contact details form would be completed. Karakia would precede the first interview. Women underwent a short clinical history-taking session. In-depth dialogue followed where the participant provided a narrative of their caesarean delivery experiences. I prepared a check-list of points that I considered we would most likely cover on the subject in an interview guide and I would prompt further kōrero with a point that had not been discussed when the conversation stopped. This continued until most points were covered, or when the participant indicated that the interview had to stop due to other commitments. The participant would estimate how much time they had prior to each interview which was particularly important for elders.

We would agree to meet for a further interview within seven to ten days, although it often took place two to three days after the last interview. I would tick off points that had been covered and re-write a checklist of matters we had not covered or matters raised by the participant and worthy of further exploration. At the end of the second interview, I would direct questions toward any unanswered points on my checklist if
time allowed. The third interview was focussed on specific, direct questions about whānau decision-making, when I would also raise the names of whānau members discussed in the participant’s kōrero to explore whether they were potential participants.

The sensitive nature of the research question was considered during the interview planning process. I planned to provide participants plenty of time when sensitive or emotional issues arose. Most cried during their kōrero. The interviews had a therapeutic aspect as participants’ perceptions sometimes differed from the clinical reality. Knowledge was reciprocated and the explanations I provided to clarify the clinical situation that whānau had experienced, gave them the understanding they required, and relief from apparent clinical miscommunications or misperceptions, or realities.

I was careful to introduce this knowledge without altering ontological experience. I provided a clinical perspective only after in-depth dialogue and surveys had been completed, or if it was unlikely to alter the information required by the research surveys. Three whānau members were very distraught about the clinical situation that they had experienced. In these interviews, re-establishing a balance in hinengaro was more important than concerns about altering their knowledge of their experience before finishing their interviews.

*The desire to create change, to lessen oppression, or to assist in the development of a more equitable world sets up a different research dynamic from that of the disengaged academic* (Fontana and Frey, 1994).

**Transcriptions**

Each participant’s group of interviews was sent at one time to the research transcriber who was a Māori post-graduate student. One whānau, with close ties to the University requested that a member of their whānau transcribe interviews to maintain their confidentiality.

Generally, I met with participants to give them their transcriptions for editing and then again to collect the edited versions and to ask if there was anything to discuss. Transcriptions were usually transferred between researcher and participants over coffee or lunch. Out-of-town participants received and returned edited transcriptions in stamped, addressed envelopes that I provided.
Analysis

The whānau interview process revealed the attribute, *whānau aroha*. This and other themes began to emerge during the in-depth interviews for the pilot process, then during further whānau interviews, and while listening to the recorded interviews and corresponding transcriptions.

Themes were generated by whānau kōrero and my clinical knowledge helped to identify how these related to the maternity care system. The collective knowledge of whānau, reference people and the researcher allowed for exploration of how themes raised by this particular research question were inherent to Te Ao Māori, and as such this knowledge belongs to the participants.

Preliminary working themes were developed by listening to the first two participants’ recorded in-depth interviews alongside their transcriptions; these participants were the woman from the pilot process and a member of the whānau where the woman had undergone a caesarean hysterectomy. Analysis of further participants’ transcriptions supported and elaborated these initial themes which were placed in table form (*Appendix Seven: List B*, page 213).

All themes were developed from the project objectives and de novo themes were added during the analytical process. This is consistent with the template editing approach described in Crabtree and Miller (1999). A final list of themes was tabled after coding and analysing whānau transcriptions. I used a cut and paste method to develop themes from transcriptions and identified exemplars to illustrate each theme.

The grounded theory approach reduces the influence of any preconceived ideas from the researcher, important to a new researcher in Kaupapa Māori research, and in order to facilitate an uninterrupted message from whānau. In this research, any preconceived ideas were either supported or nullified when the data became specific to participant’s knowledge.

Exemplars were listed according to line numbers in a participant’s transcription. The line numbers associated with each exemplar were placed under one (or more) corresponding themes and then transferred back to exemplar form under the corresponding theme(s) revealing which themes had strong relationships and were
worthy of combining. This provided a streamlined catalogue of themes which is also listed (Appendix Seven: List A, page 211).

The research process had provided for themes to be discussed with the participants. However the overwhelming amount of data collected and the time taken to process themes, in addition to Western time constraints of a Master’s degree did not allow for this interaction between participants and the researcher. This will occur during the dissemination process, and the subsequent results will contribute to research articles. The time spent campaigning the validity of this research to academic institutions and collecting background data in maternity statistics (450 days) could have been better spent on this aspect of the research process.

The enormity of data meant that the themes were collated by the researcher and two reference people. Discussions ensued between the three people involved during this part of the research process and the woman from the pilot process. I undertook the processing of data for whānau who had stated their confidentiality criteria. Although consultation was limited, the discussions that occurred confirmed that the themes and process were proceeding along an affirmed course and these reference people provided a ‘member check’ (Crabtree and Miller, 1999) for my interpretation and analysis.

Along with the themes that emerged from whānau members’ kōrero, a profile representing each whānau and compiled from their collective experiences was produced. Each whānau’s collective kōrero was based on the research question. This was read by the woman from each whānau, and if necessary, she edited the narrative to maintain confidentiality and to ensure the whānau’s mana was upheld.

The health framework appropriate to this research was revealed when these profiles were complete.

My analysis of whānau kōrero is my interpretation from where I stand as an emerging Māori health researcher, obstetrics & gynaecology trainee, and mother of two.

**OTHER CONSIDERATIONS RELATED TO METHODS**

During the research process, raw data were securely stored at my research office. My primary supervisor and I were the only two people with access to the data during
the research project. The transcriptions, analyses, interpretations, themes and issues were discussed with the people identified as part of the research process (participants, supervisors, reference groups). Any internal departmental discussions or presentations for this research did not include identifiable material.

An ethical concern arising from this research was that after being part of this research, participants might view caesarean delivery as an undesirable mode of delivery because of its potential complications and impact upon whānau decision-making. As noted previously, the research supports caesarean delivery as a necessary mode of delivery should vaginal delivery be contraindicated. In the interviews, women participants were given the hypothetical situation that they could choose the mode for all their deliveries, and all preferred never to experience a caesarean section.

It was decided that if substandard care of woman was revealed, it would be discussed with my supervisors. If a participating woman had questions about past pregnancies and deliveries that I could not answer, the plan was that she would be referred to her GP or LMC. Alternatively, I would advise the participant to contact the Patient Support Office in the hospital where delivery occurred.

When this situation occurred for one whānau, hospital patient support services were enlisted and they could not find the woman’s file in medical records (maternity files are kept for twenty years). The hospital stated that it did not keep files for more than ten years. This whānau had previously had an Accident and Compensation Corporation claim declined with regards to their situation.

**DISSEMINATION**

Dissemination to participants followed a flexible approach where participants could choose the feedback they preferred upon consenting to the research and these are listed on the research consent form (*Appendix Four*, page 198).

Further dissemination will occur with whānau after this thesis is concluded. Discussion around the findings and solutions for going forward will be explored with whānau.
During the research process, a whānau that I had a close relationship with, went through a birth experience where induction of labour for postdates was required. The mothers of the couple stayed at my home as they were from a rural area. I was able to provide on-going knowledge to the two mothers during the induction of labour significantly reducing their collective anxieties.

During these conversations we discussed the usefulness of a booklet outlining each whānau experience for a particular high risk pregnancy or delivery and how this would be beneficial for whānau in these situations. The booklets would combine the whānau kōrero and the medical facts associated with that experience and would be bilingual and richly illustrated. Women participants that I discussed this concept with were enthusiastic about this proposal and this supported an earlier consideration for a booklet similar to He Kakano edited by Leanne Hiroto.

Other dissemination methods also considered were: health related journals with an audience that includes clinicians working with whānau in the area of obstetrics; antenatal classes specific to whānau, publications that contribute to indigenous health; and qualitative research publications.

INTRODUCING WHĀNAU, HEARING THEIR KŌRERO

The four whānau participating in this research are: whānau Kaokao, whānau Maru, whānau Kiekie and whānau Harakeke. All names are pseudonyms.

The following four chapters introduce whānau members that were interviewed and provide a description of decision-making within each whānau. After these introductions, each chapter contains a whānau profile of their experience and the Māori Health Framework Te Whare Tapa Whā was recognisable when each whānau’s collective kōrero was collated into a story.

All aspects of Te Whare Tapa Whā were experienced by each whānau; however each whānau profile identifies with one particular aspect of Te Whare Tapa Whā:

- Whānau Kaokao – Wairua
- Whānau Maru – Hinengaro
- Whānau Kiekie – Tinana
- Whānau Harakeke – Whānau (Tuakana-Teina)
How the decision making for each whānau is altered is discussed after each profile. Following this, the *common* decision making that was altered for all whānau is discussed.
CHAPTER SIX – WHĀNAU KAOKAO

Aho tapu (Riley, 2005), the skilful weaver

This is the whānau that participated in the pilot process. The woman, whom I call Whetūrangī, accepted me unconditionally. Whetūrangī called to her whānau to be part of this research; her kaikaranga (call to come forward), her kōrero, her aroha (love), and her mahi was that of a skilful weaver. Ka nui te mihi ki a koe, te wahine, mo to aroha ki ahau.

Whetūrangī was single, a non-smoker, and her work kept her physically active. Although she lived in the North Island, her whakapapa whānau lived in the South Island. She had a close-knitted, supportive, urban whānau.

Three members of whānau Kaokao were interviewed: Whetūrangī, the tāne, and Whetūrangī’s mother.

1. DECISION-MAKING

Whetūrangī speaks about her own childhood and through this kōrero the characteristics of her whānau are revealed:

...everyone raising you not just mum, although I think she was a superhero really now. So whānau to me was never just a mum and a dad and me, ‘cause I didn’t have that. It was everybody. Including all of my friends at daycare, they were my brothers and sisters; the people who taught there, [they] were my aunties and uncles. That’s how I grew up. … …we moved from town to town. I made friends quickly and whānau was whoever we connected with …

The concept of the real Māori kaupapa around whānau was normal to me. So when I had my baby, what worked with me, I knew would work for her. She’d go to kōhanga, they became instant whānau, and they call her their moko, she’s treated the same. The way I explain it is: Well it’s just me and [my daughter], we are just us, but we need all of you, because I can’t raise her on my own, I can’t do everything that is required to raise her to be the beautiful woman that I want her to be.

Whetūrangī discovered she was pregnant in her first trimester and no longer in a relationship with the father, who despite being in a new relationship maintained a friendly relationship with Whetūrangī. Both were committed to the baby they had conceived.
Whetūrangi’s GP helped her process her situation. She valued her relationship with her GP and had a very positive outlook for herself and her baby’s future.

....he’s [GP] the one that is getting me through. He would say, ‘do you want to come back next week and see me?’ He was the kinda doctor...he would know your name. He’d be there to see somebody else [in the waiting room], and while he was there he was like ‘oh Whetūrangi, how you doing?’ You know he was just a real genuine doctor. When I had my baby, I went back to the clinic and he’d left.

Whetūrangi kept a pregnancy diary where she wrote to her unborn child on a weekly basis from the first trimester, recording the day-to-day life that she and her baby-in-utero were living. I was privileged to be allowed to access it and it acted as a useful second level of data for this research and corroborated whānau kōrero, Whetūrangi’s maternity ‘pink’ book, her hospital discharge summary and provided non-clinical data that impacted on Whetūrangi and her pregnancy, but which was not recorded in clinical files. The most valuable aspect of this diary was its record of the strong relationship between Whetūrangi and her expected child.

Whetūrangi met her midwife early in her second trimester and who explained at the beginning of the relationship that she would not be working at the time of Whetūrangi’s expected delivery date and that her partnered midwife or ‘back-up’ midwife would be at the delivery. Whetūrangi had an uneventful pregnancy. The first midwife introduced the ‘back-up’ midwife who would be taking care of Whetūrangi over the last few weeks of her pregnancy; she would be there for Whetūrangi’s labour and delivery of her baby.

Excerpt from Whetūrangi’s diary to her baby:

We’re special, we have two midwives. I’ve been a bit cry baby this week, lots of emotions, lots of sleeping and lots of aqua aerobics. Go for another scan on Wednesday, looking forward to seeing you again…

Whetūrangi had written her birth plan in her maternity ‘pink’ book that held the notes from her midwife’s visits specifying that she wanted her midwife and the tāne at the delivery. She preferred not to have her mother at the birth because her mother is a strong woman and Whetūrangi felt that the tāne would have no rights. If the tāne could not come to the delivery she had two friends she would ask. As it turned out, her mother and father were present during her labour and delivery, as was the tāne.
2. TE WHARE TAPA WHĀ – TAHA WAIRUA

The capacity for faith and wider communication. Health related to unseen and unspoken energies. The spiritual essence of a person is their life force (Durie and MoH, 2012).

This was Whetūrangī’s first pregnancy. As such, her experience is not related to a repeat caesarean section. However, the four whānau in this research report that the first emergency caesarean section was a traumatic experience held in whānau collective memory.

For whānau Kaokao, the care provided by the back-up midwife during labour was poor. She ignored advice to refer Whetūrangī for an induction of labour (IOL). As Whetūrangī was already fourteen days past her due date, there was no choice around the date for induction of her labour and one of the induction days coincided with the back-up midwife’s child’s birthday.

The day Whetūrangī met with the back-up midwife to arrange the IOL, the back-up midwife offended Whetūrangī's mother with an inappropriate comment based on assumptions.

The tāne was unconcerned about the technical details of labour as he felt Whetūrangī and her mother had this under control. He regarded himself as an overseer who would ‘step-in’ should the whānau be unhappy with the events that were taking place and to inject humour to relieve any tensions. Also, the tāne was focussed on the karakia (prayer) given to him by his parents that would be the first words the baby heard at delivery.

Whetūrangī was induced with two doses of prostaglandin gel on the first day of the induction. On the second day, Whetūrangī and her mother requested pain relief for regular, painful contractions. The midwife minimised their request and told Whetūrangī and her mother that Whetūrangī was not in established labour. Although Whetūrangī had a high threshold for pain, it was so strong that she nearly passed out in the delivery suite bathroom, again they insisted on pain relief. The midwife examined Whetūrangī and revealed that Whetūrangī was six centimetres dilated with bulging membranes and the midwife broke Whetūrangī’s waters (ARM, artificially ruptured the membranes). Soon after this, the midwife left to go to her child’s birthday.

Whetūrangī:
I kept saying the pain is getting worse. The midwife was saying, ‘well you would be crying, you’d be in a lot more pain than this if you were in labour’. I was saying, ‘I’m pretty sure that I’m in labour’. So she said, ‘hop up on the bed then’. I managed to get up on the bed, and she goes, ‘oh, no, yeah, you’re six centimetres already, I’ll just puncture your waters and away we go’.

With the midwife not in attendance, Whetūrangi’s mother felt responsible for monitoring the baby-in-utero’s heart rate and she became concerned when it dipped. She asked for a review by one of the hospital midwives.

Whetūrangi:

So as the birth started getting worse and worse, Mum just started getting more agitated. She was upset that there was no midwife there. One of the shift midwives came in, and she seemed to know what she was talking about, and this relieved my mother…all those small things that matter…so that changed the atmosphere and Mum listened to the staff midwife and she felt that some things happened after that staff midwife came on…

The whānau began to realise that labour was progressing slowly and that the baby had not been delivered. Again, Whetūrangi’s mother became concerned about the baby’s heart rate and left the room to request that the back-up midwife review the progress of labour.

Yeah so the heart rate kept dropping, and each time the midwife came into the room she would say, ‘oh yeah, ok, maybe I should call them, no’…and she didn’t really know what was happening. …and it wasn’t until the obstetrician came into the room that things just went, ‘ok, this is what’s happening’. He growled at the midwife. He pushed the baby back up, and asked her why had she let me go so far? And mum was like, ‘thank god someone knows what they’re doing’. We were thinking about the midwife, ‘are you actually in this room with us or what the hell is going on?’

The obstetrician announced that the baby would be delivered by caesarean section which was a shock for whānau. At no stage were whānau members prepared for anyone to speak about caesarean sections.

The tāne:

I remember it being sudden, I remember many, many hours of squats with Whetūrangi leading up to that point. Yeah, I remember the suddenness of the whole thing going from a normal birth to an emergency caesarean section, it’s what stood out for me the most… it didn’t really occur to me until we walked through… after we’d put our cap on and it was at that point and everybody busy and pacing and lots of medical talk…it was quite a shift of energy…tones of voices were different….things were going to move…sense of urgency from the staff, I was the possum looking at the headlights, not really realising…I felt anxious.
Whetūrangi’s mother:

I think the [backup] midwife that was looking after her, going away to her child’s birthday wasn’t a good thing. If she’s delivering a baby she should be in the room until the baby’s delivered. The midwife from the hospital, she was a very good midwife, she came up and reassured me, and I hadn’t said anything. She was the one that called back the obstetrician, it wasn’t the backup midwife, she just didn’t seem to be there. I heard later, ‘well if the midwife doesn’t deliver the baby, she doesn’t get paid’, so maybe that was influencing her [that she would not get paid should the baby be delivered by caesarean section].

Both Whetūrangi’s mother and the tāne thought that Whetūrangi’s life was in danger. At this point, a staff member asked Whetūrangi which whānau member was going into theatre with her. Whetūrangi knew about the plan for the karakia, so she chose the tāne. This greatly distressed her mother who thought Whetūrangi could die during the procedure and that she would be absent from Whetūrangi’s side.

Whetūrangi and the tāne were in separate areas while both were negotiating with staff members about how to achieve their birth plans during the suddenness of an emergency caesarean section in a foreign and now stressful environment.

The tāne was escorted to the changing rooms. He cannot recall who was in there with him, and he became concerned about not being able to deliver the karakia to his baby. Would he be in close proximity? Would the karakia be the first words the baby heard? His parents had told him to whisper the karakia straight into the baby’s ear, which he explained to the person in the changing rooms. When he entered the theatre, he could not identify any staff. Everyone looked the same with hats, masks, and blue sterile scrubs. He was in scrubs too:

…felt impersonal. It felt very…felt very kind of like a UFO if that makes sense, like you’re in an alien environment, everybody knows what’s happening but you’re not really sure what’s happening, everybody seems proficient whereas I felt inadequate.

Meanwhile Whetūrangi had been prepared in theatre. Part of her birth plan was a waiata to her baby. Whetūrangi asked if any of the staff in theatre were born in New Zealand, and none were. She then asked if they were New Zealand residents and most replied, yes. She asked if they knew the national anthem and if they would sing it when her baby was born, they agreed. The karakia would come first.

The tāne:

…Mum and Dad thought these words were the first words that their mokopuna should have and that became immediately important to me as
well. Although it didn’t work out exactly the way we’d planned, it still became a really beautiful… We’d planned to have her in my arms, I was told to ensure that the words were the first words, to whisper it straight into her ear… It was a bit of a moment for everybody really ‘cause the whole staff stopped and gave me that time and they knew… we’d managed to get to them that this was an important part of it… as soon as baby had come…. that no words were to be spoken other than the karakia. So they adapted to that and were ready for that and it worked. The drape went down, and her mother was there, her head was there next to her mother, I said the karakia, and I cut the cord. The staff were really great, just paused and waited.

Once born, the baby was removed from theatre. The tāne had to choose to go with his baby to NICU or stay with Whetūrangi.

*It’s like: do you want to keep your arms or your legs? What a decision to make. If I had known that decision had to be made before I went to theatre, we could have arranged something, so that whānau was with both baby and Whetūrangi.*

Whetūrangi shared a *Mars Bar* with the anaesthetist after the delivery signifying the sharing of kai after a significant event.

3. **HOW IS DECISION-MAKING ALTERED FOR WHĀNAU KAOKAO WHEN DELIVERY IS BY CAESAREAN SECTION?**

Positive relationships with health professionals include timely sharing of knowledge for whānau to make medical decisions. The patient should be the focus of the care that a health professional provides, this should not be impaired by personal objectives. The backup midwife’s poor quality of care could have been detrimental to the impression of positive relationships with health professionals for this whānau.

Whānau were not informed of the pathway for an induction of labour nor the possible outcomes, this meant that time to make decisions rapidly diminished.

The absence of the midwife meant Whetūrangi’s mother took on the responsibilities of the primary attendant and this altered a celebratory life event to one where she became agitated, stressed and hypervigilant.

The tāne felt that part of his role was to ensure whānau were happy, to provide reassurance, and to inject humour. However in the situation of an emergency caesarean section, he felt inadequate when he compared his situation to the
proficiency of operating theatre staff. He mentions that he suddenly felt like a foreigner in an uncontrolled situation with his whānau.

The tāne and Whetūrangi mutually respected one another, as future parents of their baby. This attribute helped them to achieve what was important for them at the delivery, even though they were in a foreign environment, in a stressful situation, and their birth plan didn’t proceed exactly to plan. Staff, not whānau, were present at the delivery, and sang the waiata. The tāne did not hold his baby for the karakia, but he was in close proximity. Aspects of their decisions were altered; however both Whetūrangi and the tāne were pleased with how staff facilitated their improvised solution and provided them with the privacy they required.

The tāne had to leave Whetūrangi to go the neonatal intensive care unit (NICU). He felt torn between Whetūrangi and his new born and this was an unexpected decision. When the tāne left with her baby, Whetūrangi felt cold and alone. The tāne would have preferred to have known about this outcome prior to entering the operating theatres, then whānau could discuss the situation and negotiate with health professionals. Whānau did not believe that Whetūrangi should be placed in a position to decide which whānau member would accompany her into delivery, and they did not agree with her having to select only one whānau member to be in the operating theatre.

While Whetūrangi was in the postnatal ward, and still under the effect of the epidural, her baby had a choking episode in the hospital crib. Whetūrangi was unable to reach her baby and her attempts to pull the crib closer to her bed by throwing clothes onto the crib and tugging it toward her nearly toppled the crib over. Although she used the assistance bell, no assistance came during that time.

The length of the IOL, on-going slow progress during the labour, whānau awaiting the outcome of the emergency caesarean section and the associated exhaustion was not anticipated by whānau and had on-going effects. The tāne and Whetūrangi’s mother had an argument in Whetūrangi’s home after the baby was delivered and he was asked to leave. This altered the care for Whetūrangi once she was discharged from hospital.

Whetūrangi’s parents had anticipated four weeks post vaginal delivery to care for her. She was two weeks over her delivery date and she spent three days in hospital, this left just over a week for her parents to care for a woman who was now post
abdominal surgery and caring for a baby. They had to go back to work in the South Island. This could not be altered as their leave from work was inflexible, changing flights was expensive, and flight availability was limited at short notice.

For Whetūrangī to be eligible for financial assistance from the Work and Income Department, she had to physically go into their department. She carried her baby with her, waited a long time to be assisted at the government department, and was febrile. She felt that if this could have been facilitated while she was in hospital (for example, a visit from a staff member from the department whilst she was in hospital) then it may have worked better for her.

The tāne visited Whetūrangī at her home and realised that she was unwell, resulting in a further hospital admission. I found it interesting that the tāne detected Whetūrangī's deteriorating health and that this preceded her re-admission to the maternity unit. There was no mention of midwife visits which may have meant that the infection could have been detected earlier and an opportunity to initially treat the infection at home was missed.

Whetūrangī felt that an accurate discharge summary for her delivery would have expedited her readmission to hospital; that she provided information to the doctor who completed the discharge summary however this information was missing and was required for the government department. She felt that a discharge summary should state the indication for the caesarean section and future advice for pregnancies and delivery (Whetūrangī was not offered a six week postnatal review).

During the interview, Whetūrangī did not mention the midwife during this postnatal period. It is difficult to establish the care provided by the midwife from the point where a caesarean delivery was called and the implications in terms of continuity of care by the midwife during antenatal care, induction of labour, surgery preparation, being present at the surgery, immediate postnatal assistance for the mother and baby (skin to skin, breastfeeding, fulfilling birth plans, providing information for whānau), and the postnatal period of care to six weeks.

The relationship between Whetūrangī and the tāne seemed to remain the same, Whetūrangī remained single, the tāne remained in his new relationship. The degree of input from the tāne may have decreased as he was no longer staying in Whetūrangī's home, as that plan was altered. Overall, although Whetūrangī and the tāne were not a couple, his presence was positive for Whetūrangī and her baby.
Whetūrangī mentioned that when she returned to the medical centre, the doctor she had known no longer worked there.

Whetūrangī was part of an urban whānau. The involvement of her urban whānau during the time that her whakapapa whānau were present was not discussed. Whetūrangī’s original birth plan was that two friends would attend the birth should the tāne be unable to. It may have been that her urban whānau assumed her whakapapa whānau was going to be there for four weeks after the delivery or, that when she recuperated at her auntie’s home, after her second discharge from hospital, that there was a temporary disconnection with her urban whānau.

Whetūrangī reflected on her situation during that pregnancy, delivery and postpartum period and she has resolved that part of her organisation for further pregnancies would be to stock the pantry to avoid leaving the house if she was unwell, that she would be in a long-term relationship, and that she would have more support people available.
CHAPTER SEVEN - WHĀNAU MARU

Whai motu ki a Maru (Riley, 1994)

Seven members from whānau Maru were interviewed: the couple (Jo and Rangi), their daughters, Rangi’s sister and parents.

1. DECISION-MAKING

According to the koroua and kuia when they discuss issues involving whānau or if the koroua and kuia consider the decision to be important, whānau are contacted and the issue is discussed. Major decisions do not occur often – about every three to four months. The koroua and kuia like to keep whānau abreast of what is happening, including overseas whānau. They prefer everyone in the whānau to receive the same information at once. They state that the whānau is reasonably close, that everybody would come to help if there was anything wrong.

Should the koroua and kuia need to make decisions about their health then these are discussed with whānau. It was noted that whānau get upset otherwise. The koroua makes first contact with whānau by telephone and after the telephone call whānau members visit, not necessarily as a group, in order to provide support and discuss the issue. The tuakana (Rangi) rather than the koroua leads the conversation in these situations. The women discuss female related health issues further. In the past, they have requested that the doctor write a letter to the whānau to explain the health diagnosis given to a whānau member. Whānau from overseas are likely to return home if a whānau member is admitted to hospital.

Jo and Rangi’s eldest daughter (the tuakana) explained the decision-making in her immediate whānau: she and her sister (the teina) would discuss an issue and come to a decision before approaching their parents. If their parents changed the sisters’ decision, then the two sisters would trust their parents’ judgement. They refer to their parents as ‘the voices of reason’ and explained that their parents are a team, you work with one, and you get the other also. When she was younger, if her parents did not agree, they would go away from the children and work out a decision. She says
now this process occurs with her in the room. Sometimes discussions start with two whānau members and the rest are called in to participate.

She may also go to her paternal grandfather (Bei, the koroua mentioned above) for decision-making. Should all three of her immediate whānau disagree then she usually waits for them to agree. She may go to other whānau; however for advice only.

Her teina’s kōrero supported this definition of whānau decision-making and her description of her grandparents’ discussion on decision-making. The younger sister lives overseas; she makes her decisions with her partner and her best friend from high school. She would Skype with her parents to make some decisions. However she says, although Skype provides a face-to-face opportunity, Skype does not have the essence of being physically present with those you are communicating with. She says that while our upper layers define us as individuals, our deeper layers are the same – whakapapa, whānau. Both sisters speak about their strong tuakana-teina bond. The teina also mentions how she feels uncomfortable making a decision without discussing the issue with at least one other person.

The tuakana also explains that their religion plays a large part in their decision-making. Her father will pray if he is not able to come to a decision. As she says,

   *our Christian values are first; our Māoritanga is next... well dad would argue it comes hand in hand.*

Her father has taken her to marae council and hapū meetings (she says it was with reluctance as a child), however they live at least a three-hour flight and then a thirty minute drive from their marae, or at least a twelve-hour drive in the car which includes the ferry crossing between the North and South Islands, so visits are infrequent.

In this whānau, agreement is not a difficult outcome, and disagreements are resolved by compromise, or a decision to ‘agree to disagree’, that is, respect each other’s side of the argument. A common theme in this whānau is that there are seldom disagreements.

Another whānau member who has lived overseas for some years mentioned her frustration at the time taken for some decisions to be made. For her, the result is
more important that the process taken to arrive at a decision. For this reason, sometimes she chooses not to discuss her decisions with some whānau members.

Some whānau members feel they do not make good decisions and rely on whānau to make decisions for them. Other whānau members are confident with their decision-making and when they discuss their issue with whānau, whānau often affirm that person’s decision.

This whānau values face-to-face decision-making – kanohi ki te kanohi.

The koroua feels that whānau do not take notice of him in this day and age. He tells them his opinion and then he says the whānau please themselves about what decision they make which seemed to contradict what he had outlined above, however it may demonstrate the competing factors that underlie decision-making in the 21st century.

Finally, this whānau trust the advice given by doctors.

2. **TE WHARE TAPA WHĀ – HINENGARO**

The capacity to communicate, to think and to feel mind and body are inseparable. Thoughts, feelings and emotions are integral components of the body and soul. Our interaction with that which is uniquely Māori and the perception that others have of us (Durie and MoH, 2012).

The couple in Whānau Maru were the youngest in this research when they were bearing their children. Once married, they wanted to start their family. Everybody in their whānau knew that the couple wanted a large family.

Jo and Rangi were an independent couple. Rangi was a youth worker, they received a low income; however, as they put it, ‘they never starved’. Finances were not an obstacle for the number of children they desired. The couple had opened a foster home in an unused Presbyterian building. Like the other three women in this research, Jo and Rangi lived geographically separate from their whakapapa whānau. They had a close relationship with church whānau.

Jo had a normal vaginal delivery for their first child. The second child was delivered by emergency caesarean section, which eventuated in a hysterectomy.
Jo’s lead maternity carer was her GP obstetrician. During the delivery of her first baby, Jo sustained a significant tear to her perineum. Whether this was due to the baby’s weight, or the presentation of baby at delivery, or that there was no attendant present in the delivery room at the time of delivery cannot be ascertained. Whether she sustained a third or fourth degree injury to her perineum, which may have caused some reflection on whether the size of her babies should be monitored for future deliveries, cannot be ascertained either.

Jo:

…they said it was a bit more internal than an episiotomy because I wasn’t quite ready to push but there was no one there to tell me not to, and so I was pushing….so they did spend a bit of time doing that …and I asked for pain relief…and they kept saying it will only be a few more minutes…they said the injection would be just as bad...

Rangi witnessed the repair of this tear:

Her stitch…I can still see it…

Jo went into spontaneous labour at term with her next baby. Her membranes spontaneously ruptured (SROM, broke her waters) at home. Friends living three suburbs away came to the couple’s home to look after their toddler.

While initially the labour progressed to plan, it later slowed and Jo pushed longer than expected for the second stage. The couple felt that Jo underwent vaginal examinations by many different people and that they had no choice about this. A doctor from the obstetrics team was called in to the delivery suite room to review progress. When the doctor examined Jo, the baby sucked his finger, a situation described as a face presentation. A caesarean section was required for delivery.

Rangi recalled that a consent form was signed; however he could not recall the risks and complications for a caesarean section. Jo was transferred to theatre where the staff were becoming annoyed because Rangi was not there and they were telling Jo that they would proceed without Rangi being present. Rangi had been told to ‘gown up and sit somewhere’, which he had done, however he was not sitting where staff had expected that he would sit. Jo was becoming anxious that Rangi would miss the delivery when she observed the frustration shown by staff.

Initially, Jo was given spinal anaesthesia for surgery. The caesarean section was performed by a female doctor who Jo and Rangi had never met. Rangi pushed the
baby from Jo’s uterus with his hands on her abdomen and commented that the delivery seemed difficult:

Yeah, and sort of helped deliver the baby by pushing down on her stomach….’cause I could see all the innards and things…the pushing was gross…I didn’t want to hurt her…and they said, ‘push harder’, just sort of braced my feet and…I was only young, I would have done whatever they told me to do. The woman who did it was quite young, and you know, must have been difficult for her…it was difficult for me. I can’t remember her ever talking to me. I never saw her again.

Jo:

I only briefly saw my baby… her face was all bruised and swollen. She cried and was quite active apart from looking like she’d been in a boxing match.

At the closure of the uterus, there was increased bleeding. The movement caused by the surgeons attending to the bleeding was too much for Jo and she was given general anaesthesia (‘put to sleep’).

When the caesarean section was completed, the midwives had the baby and told Rangi that his baby would be close to Jo. As it had been a long night, they suggested that he go home as Jo was still recovering from the general anaesthesia, which he did. He collected his toddler from his friends and they went to the airport to meet his mother, then the three went to the hospital. They were met by a staff member who said that there had been unexpected bleeding and that Jo had returned to theatre. Rangi and his mother were unaware at this stage that Jo was in a serious condition. Again staff advised Rangi and his mother to go home and sleep.

The toddler was very active in hospital and Rangi’s mother offered to take her mokopuna home to the couple’s house. As there was only one car, Rangi took them home.

Rangi’s mother:

If he hadn’t had to pick me up from the airport he would have been there.

Rangi, his mother and his child left to go home to sleep. He returned to the hospital five hours later.

I came back late afternoon. I went up to the ward, she wasn’t there. I was a little upset that baby was there alone in the crib in the room…someone could have pinched her…
A staff member approached Rangi and told him to go to the Intensive Care Unit. When he arrived at ICU, he was asked to wait outside until a doctor was ready to speak to him. Rangi waited forty minutes for a doctor he had never met to explain Jo’s very serious condition to him. Her uterine artery had been severed during the caesarean section which went unnoticed until three hours after the surgery when her blood pressure dropped significantly. Jo had further surgery and a hysterectomy was performed and Jo received multiple blood transfusions. Rangi was told that Jo could die and that the ICU team would not be able to give a further prognosis until the next morning. After he had visited his wife, he telephoned her parents with the bad news.

Jo:

That freaked him out a bit ‘cause he didn’t actually recognise me...he walked right past me. He said...I was so ‘tubed up’ and looking so, sort of crook.

Rangi’s mother:

We went home and I got the wee one to bed and then we went for a walk and I bought something to cook for dinner. It was dark when he came back ...I opened the door for him and he just burst into tears.

When Jo woke in ICU, her GP (lead maternity carer) was there, and he broke the news about the hysterectomy.

While in ICU, Jo became aware that she was not wearing any gowns under the bed sheet and felt vulnerable being nearly naked in a public room.

During her recovery, as with all the women in this research, she too experienced postoperative pain:

I can remember being in a lot of pain...the nurse kept telling me that I couldn’t have any more pain relief because it was addictive and she had given me pain relief four hours ago. I was really upset. I remember insisting that she give me some pain relief. She just came in and jabbed it into me and said ‘Well there you go then, have it’ It was awful. I remember the same nurse, I didn’t like the way she held my baby, she didn’t seem to support the baby’s head.

I can remember being told off for holding my baby too long and breast feeding her too much.

Whānau observed staff holding their baby in an uncaring manner and decided that where possible only whānau would hold their baby.

Rangi’s mother:
The first day Rangi was unhappy with the way a nurse handled his baby and he got me to hold her….

A week after the delivery, Rangi’s mother returned home to work in the South Island.

I had planned to stay for a week; I couldn’t get any more time off work. I had to leave before she left the hospital. I hated leaving….

Jo declined visitors while she was staying on the postnatal ward.

Rangi’s mother:

No she didn’t have visitors in hospital. She didn’t want anybody to know.

Jo was extremely upset when she realised that her community knew what had happened to her and that her decision to keep this private had not been met. This resulted in her becoming reclusive when she was discharged to her home.

The couple tried to find an explanation for what had occurred. They reflected on what they could have done in this situation to perhaps prevent what had occurred, and on staff decision-making during the labour and delivery - it had been a long night, and a prolonged labour; that the surgery was at the end of a night shift for the registrar, and that the registrar had been on duty for over twenty-four hours. They reflected on whether the severed uterine artery was an error because of fatigue. They realised that they had never met the registrar, nor had they ever seen her after the delivery.

Jo:

Yeah, it was just a really long night, just being really tired, it was about quarter past seven in the morning when we went into theatre and the registrar had been on duty for a day and a half…that might have been why she made…the mistake …that she was tired. I suppose the adrenaline…you’re pretty wide awake when you’re cutting into someone, are you?

Jo and Rangi reflected on the postnatal appointment about six weeks later, with another doctor whom they had never met who avoided discussing these points they had raised and the doctor relieved the hospital, the doctors, and the staff of any responsibility for what happened. They felt the responsibility was placed on them to provide support for the registrar who had performed the caesarean section, so they sent a sympathy card to the registrar.

The only time that it was discussed was that follow-up appointment with some guy…I got the impression that he was quite high up…and there was
a lot of...this isn’t anybody’s fault, and it wasn’t her [the registrar’s] fault...this is a risk that happens, and it’s a very difficult thing to be able to avoid.

Jo and Rangi received little information about the events that occurred; the doctor did not acknowledge the loss of future children for Jo and Rangi, nor did they receive an apology. Their accident compensation claim was declined.

*There was never any acknowledgement of what we had lost. The grief of losing those other children that we could have had.*

Rangi’s mother:

*Just taking that choice away from them of having a large family and they’ve both got a lot of love to spread around and ....that they didn’t have that chance.*

Jo reflecting on her decision to ask for a general anaesthetic:

*I felt guilty ...I had stuffed up by asking the surgeons to knock me out because of the discomfort when they were trying to stop the bleeding. If I hadn’t had the general anaesthetic ... I may have realised that I was bleeding... And when they were monitoring my blood pressure, then I might have alerted them sooner if I were awake. I could have said, ‘hey, I’m feeling a bit woosey’ and then passed out, maybe they would....I could have said, there’s something wrong and I could have said, ‘do something’ and they could have saved my uterus.*

The teina (baby of the caesarean hysterectomy):

*It’s because I am so nosey, that’s why I was born looking the wrong way.*

...I did at one stage think it could have been my fault that my mother almost died. I was a little upset, I mean mum and dad sort of sat me down and said, ‘it wasn’t your fault...so....’

Jo:

*Not being able to provide more grandchildren or a grandson for the family name that Rangi had been christened*

The koroua:

*Jo was quite upset that she could not give you a grandson [researcher]*

Mmmm...I should think so. Rangi’s name has always been in my family. It’s a family name. [koroua]

*If they had more kids they would have had to come home sooner. Wouldn’t have been away that long. ...[koroua]*

After it happened, if they’d been around...oh just try and support him, just sort of stick my arm around him, give him a hug now and again, cry with him. [koroua]
The tuakana (Jo and Rangi’s eldest daughter)

When I was a kid it was selfish disappointment. More that you can’t have any brothers and sisters, …that’s mum and dad’s… you know, that’s their… they make babies… they wanted… they wanted more than two. … as you get older you kind of realise that even though the doctors, they were the ones that stuffed it up but they also saved her, … you’re really pissed off but really thankful at the same time… I can’t even begin to describe how... what it would be like in mum’s position or even dad’s, or even [my younger sister]… you know? Yeah. Would have been really, really hard for them.

Rangi’s mother

I think taking my son away from the hospital was the worst thing so, if I had stayed at the hospital and coped better with [the toddler], I think he would have been there when things were going wrong. I think his physical presence at the hospital would have meant something. I blame myself for him not being there….I didn’t realise in this hospital it was ‘par for the course’…it wasn’t like the [strict] rules at our hospital.

Rangi’s sister:

…if I could have given them a baby … I would’ve you know just the fact that they couldn’t have any more and we knew, we all knew, how many kids they wanted, I think like 10 so we all really felt for them.

3. HOW IS DECISION-MAKING ALTERED FOR WHĀNAU MARU WHEN DELIVERY IS BY CAESAREAN SECTION AND HYSTERECTOMY?

Jo and Rangi chose to be interviewed together for this research. Often when they spoke, one would finish the other’s sentence, or sentences did not need to be completed because each intimately knew what the other person was thinking.

They made the majority of their decisions together as this was part of their close relationship and respect for one another. This collective decision-making and respect for other whānau members was consistent with every member of the whānau that was interviewed. This whānau demonstrated how although knowledge may be individually held, when whānau discussions ensue, everyone has access to an expansive source of knowledge. Whānau Maru’s experience resulted in an aspect of healing remaining incomplete and a wound for whānau. Collective knowledge also means collective memories, collective emotions, and collective responsibility.
This whānau trust what doctors advise them and base their decisions on trusting the advice from health professionals. This implicit trust is important considering that Māori women on average give birth at a younger age than other women in New Zealand and given that age should not be a barrier to empowerment within the health system, nor to quality of care. Hospital staff work in an environment that is comfortable for them. This environment is set up for staff to operate maximally. Staff often do not realise that their environment is foreign to patients, who do not work nor live in a medical environment. This was especially true for the couple in Whānau Maru, who felt disempowered by the hospital staff and environment, especially in an unexpected situation that also meant they had no opportunity to make decisions. Staff did not consider providing knowledge to the couple to allow them to make informed decisions. In this environment, Jo and Rangi were often separated.

The unfamiliarity of hospital surroundings and the vague instructions that Rangi received from staff about where he should sit and wait before entering the operating theatre for the caesarean section, demonstrates that the familiarity of surroundings for staff enables their decision-making and that their insight into how unfamiliar hospital settings are for some patients and their whānau is limited. Without this insight, instructions to patients and whānau from staff can be unhelpful, yet staff displayed their agitation for perceived non-compliance by the young husband, when poor instructions provided by staff were the problem. Jo was exposed to the staff’s annoyance and their discussion that surgery may need to proceed without Rangi. This breakdown in communication resulted in unnecessary anxiety for the young couple.

The fathers of the babies in this research all agreed that they did not want to be exposed to the women’s disrupted anatomy caused during surgery. Rangi discussed this with regards to the delivery of their first baby. He did not want to witness the extensive suturing to his wife’s perineum, nor did he want her to be in pain during this repair. During the delivery of his second baby by caesarean section, Rangi pushed his baby out of his wife’s abdomen against his will. However, it did provide him with the knowledge of how difficult the delivery was for the registrar.

Decision-making for the couple was made by staff that held the clinical knowledge to make these decisions. This did not empower or facilitate this whānau’s decision-making ability. They based their decision-making on advice provided by health professionals; advice does not necessarily translate into providing clinical knowledge.
Rangi complied with staff who told him to go home when Jo was under general anaesthesia and saying that she would spend a few hours in recovery meaning he would be unable to see her. Rangi was reassured that his baby would be kept close to his wife and under the care of the midwives.

When he returned to the hospital, and Jo was back in surgery, again the seriousness of Jo’s condition was not relayed to them. Instead, Rangi was advised again by staff to go home to sleep.

Rangi’s mother:

I said, ‘was it serious?’ And the nurse didn’t say it was life threatening or anything like that…we didn’t realise that her life’s in danger…..’cause we would not have left the hospital.

Rangi would have stayed in the hospital if he had known the seriousness of his wife’s condition and if he had known his baby was going to be left alone. His mother would have stayed in hospital if she knew that her mokopuna (grandchild, moko) could be physically active within the hospital.

You know you’re in a Pakeha institution, you don’t have any power…and it’s drummed into you that you don’t have any power there, you just do what they…you know…

When Rangi was informed by the ICU doctor about Jo’s life threatening condition, he realised Jo would be unable to care for their baby for some length of time. He had to decide how he was going to care for his baby. I found it interesting that Rangi was making these decisions alone, without hospital staff.

I was going to take the baby home with me. I wasn’t sure how I was going to feed her. We never had bottles or anything like that.

Then Rangi had to make a decision to telephone his wife’s parents and his father.

Then I had to ring the family, …..it was just, you know, it was just devastating afterwards. I had to ring up her parents and say ‘your daughter might die’; after such congratulating news twelve hours earlier. A hard thing to describe over the phone. Everyone was stunned. The conversation was short.

Jo’s GP was present when she was extubated in ICU, and he broke the bad news. Jo’s GP was the only health professional known to the couple. It was probably appropriate that he broke the news. It may have been appropriate to have the health professionals who were involved in the delivery present with the GP also. Whether the GP breaking the bad news was planned or a coincidence cannot be ascertained.
Jo’s decision on how much time she would spend feeding her baby and holding her baby post-surgery was influenced by the staff’s decisions that she should not hold or feed her baby for the length of time that she wanted to.

Jo’s decision to insist that she receive adequate pain relief resulted in the nurse initially withholding pain relief, and then when the nurse finally administered the analgesia, she inflicted more physical pain.

What I find significant for this whānau is that when Rangi and Jo attended the appointment six weeks after delivery, no information was provided to them to process the events. If that information had been provided, a discussion could have ensued, an accurate explanation could have been elicited from the health professional that they met with, and Jo and Rangi in turn, could have provided this explanation and clinical knowledge to other whānau. Without an explanation, whānau lived with years of collective misplaced guilt for what had happened. If the senior doctor at the postnatal appointment had provided an explanation and claimed responsibility then this whānau would have realised that they were not responsible for the events that took place.

For Māori, introductions are fundamental; face-to-face discussions are highly valued. Jo and Rangi met many professionals who were not introduced to them (the registrar, the ICU doctor, the midwife from the postnatal ward, the senior doctor at the six-week review). As they mentioned, they had never met the registrar prior to the surgery and they never saw her again; they were unhappy with the number of health professionals performing vaginal examinations during Jo’s labour. As introductions are a key way of initiating discussions that eventuate in decisions, when these do not occur, then the familiar way for discussion and decision-making may not follow.

In hindsight, it is clear that the registrar who performed the caesarean section should have met face-to-face with this couple at the meeting. The opportunity for Jo and Rangi to have a discussion with the health professionals involved in her surgeries would have contributed toward the healing for all involved, including the registrar. The opportunity for whānau aroha to be extended to the health professionals and the opportunity for mana to be restored to everyone involved could have been facilitated by a face-to-face meeting. This couple was extending an opportunity for responsibility to be claimed by health professionals and healing to be restored for
everyone. They expected their loss and injury would be recognised by their ACC claim.

A postnatal follow-up with a couple who had undergone an emergency caesarean section, and in this case, a hysterectomy also, should be a time to facilitate the couple’s concerns and to help them process the decision-making that occurred around the time of delivery, in particular to share clinical knowledge. The follow-up appointment should not be used to displace blame away from the health professional and create chronic misplaced guilt for whānau. This misplaced guilt is most striking when you hear the collective kōrero of whānau.

The couple tried to piece together the events that occurred and which would help to provide closure for them. However a serious medical event had occurred and they were not provided with knowledge to process the event. The couple felt that they had lost their independence. The woman’s identity and her future plans were to be a mother to many children. She no longer felt like a woman, she considered herself unworthy to stay in the family and Jo felt her family would have been better off if she had died.

Whānau aroha, is all encompassing and all forgiving, however in these situations it is disturbing that on the surface this characteristic seems to be unwittingly exploited by health professionals. Whānau aroha, implicitly understood by Māori, may be interpreted as naïve trust by the maternity health professional and capitalised on by the obstetrics team that looked after this couple.

When the obstetrics team did not provide an apology to Jo and Rangi, there was no closure for this whānau. This type of treatment may result in many years of distrust toward the health system. This couple chose to extend whānau aroha to the registrar, forgiving her for their loss of any further children. However, the couple and other whānau members were only relieved from the guilt and distress that they felt when they became part of this research and when they were provided with clinical knowledge. It was then that they realised that the events that occurred were not a result of their actions.

Jo and Rangi:

*Just that feeling of powerlessness and that someone’s done this to you or through circumstances this has been done to you. I went through a time of not feeling like a proper woman...that the very essence of you had been ripped out...and goodness knows where my uterus ended up...probably*
burnt. This precious part of me that made me a woman is just ripped out and thrown away.

And I, not being a medical person, it’s hard to understand why they couldn’t find where the bleeding was coming from. If they’d cut a vessel going into the uterus, then when they take the uterus out, it would not stop bleeding, the vessel would still be there. I couldn’t really…that was something I never really…

When I signed that piece of paper I certainly didn’t expect them to be doing a hysterectomy, you know, that wasn’t what I was signing up for.

This experience led Jo to isolate herself from her community:

…’cause always, you know, pretty independent people and do things ourselves. Always wanted to do things myself, yup. Friends and church were really supportive but it was just…but it just made it harder for us because…we are private with our own stuff…

And what I found a little bit difficult…talking about it…people asking me questions…I really wasn’t in a good space to be able to talk to people…some of these people, I never dreamt would know these things about me. I became reclusive. I didn’t really want to see people because whenever I talked about it; I was just a mess. And that was for a while, Aye?

The couple were unable to discuss the situation together without intense emotions and they decided not to raise the issue with each other for a while.

We were both pretty bad. We actually couldn’t talk to each other…so we just basically didn’t, for quite a while, aye?

In later years, partly motivated by his position at work, Rangi made a decision to approach someone to speak about his experience despite feeling that there was a limited choice of people. Rangi sought out other men with small families and other men with daughters who he thought may have had a similar experience. However, the men that he approached were not equipped to help him work through his experience and some of his mates were ‘freaked out’:

It must have been three or four years later, I decided to go and speak to people. It was when my nephew was born. Some mates, having a yack…one was moved that I had approached him. But he really didn’t have the…. I just actually wanted to know how to deal with things.

The koroua provided his definition of whāngai: this meant going to a better place. He had thirteen siblings and the family resources were stretched so when his auntie and uncle decided to whāngai him: he went to a better place.

Rangi and Jo would have accepted another baby, however as Rangi put it: the baby would need to be family. The definition for whāngai that Rangi provided in his survey
meant that when Rangi and Jo considered whether they would whāngai, the baby would need to be from a close relative.

Rangi was the eldest of his siblings and the first to have children. When Rangi’s brother began his whānau, he and his wife had three children by private, elective caesarean section. Rangi’s sister had only one child. She would have preferred more. She would have willingly given a child to Rangi and Jo.

Rangi and Jo’s situation did not match the koroua’s concept of whāngai and Rangi’s siblings were not in a position to have further children for Rangi and Jo. Whāngai was not an option chosen by Rangi and Jo.
CHAPTER EIGHT - WHĀNAU KIEKIE

Ka mahi koe te whare o te tīeke (Riley, 2005)

Three members of whānau Kiekie were interviewed: the couple (Ranui and Scott) and Ranui’s mother.

1. DECISION-MAKING

The couple’s decision-making incorporates Māori values. The husband is British descent, third-generation New Zealander. He fully embraces his wife’s Māori values and supports the decision-making processes that occur in Māori families. He says he did not feel supported as a child and young adult in his family and feels the whānau way of life is better. There is an age difference between the couple and the husband has a medical condition. Ranui has very good organisational skills, which makes her family life run to plan.

Ranui explains that decision-making in her whānau usually begins with a telephone call and explains that her whānau is very talkative. Her mother is the second eldest in her whānau. Whānau members approach her mother’s tuakana, May, for advice when decisions are to be made. When their grandmother was alive (Ranui’s kuia), they approached her for advice when making decisions.

Ranui told me that, ‘you always take heed of what Auntie May says’. However, one of Auntie May’s children died unexpectedly recently and since then Auntie May has declined to be a part of decision-making. Ranui’s mother is more involved in whānau decision-making now but explains that as she never had this role previously, and because she does not have Auntie May’s experience in this role, she is reluctant to be in this position.

We go to May, ‘cause she’s the oldest…and that’s why, she knows stuff…she’s good at it…

I mean sometimes we make the decision, she’s not in charge. But often the big things go through her. Sometimes she doesn’t agree and when she makes a valid point, I’ll go with it, I’ll swing her way…

Although this whānau is close knit over these two generations, they are geographically separate from their marae (meeting place), about twelve hours drive.
and an interisland ferry crossing away. Once, the whānau went back to their marae as a group because a close family member had died. They were challenged on the marae where they did not feel strong in their Māoritanga (culture) compared to those there. Subsequently, some family members did not return to the marae again. Ranui’s husband, Scott, was part of that experience.

Ranui reflects that, when someone in the whānau does not agree with the others, and withdraws from decision-making, he or she is given space and time and the door remains open to continue participating in decision-making, and whānau aroha continues regardless. Scott comments that the whānau are the great compromisers. They are very good at seeing the other point of view, and unlike his non-Māori family, they are not bloody minded.

*We accept that we are different and sometimes we don’t agree and that’s just the way it is so you don’t get angry at one another or stop talking or*…

Examples of decisions that would be discussed are: moving cities; going to stay with a member of the whānau; which kura kaupapa the children should go to. Like the whānau collectives in this research, the theme of whānau aroha was also consolidated during their interviews.

At the time of their pregnancies, this couple was geographically separated from their whānau. They had tertiary qualifications and two good incomes.

It took longer than expected for the couple to get pregnant and they had organised a visit to a fertility clinic, however they conceived naturally while waiting for the appointment.

2. **TE WHARE TAPA WHĀ - TAHA TINANA**

*Our physical ‘being’ supports our essence and shelters us from the external environment* (Durie and MoH, 2012).

Ranui, from whānau Kiekie, was a confident, organised, and empowered woman. Ranui had a modifiable risk factor for caesarean section with a body mass index greater than thirty and she realised that her weight could be an issue. For this reason, Ranui wanted to be sure she had a midwife by the end of her first trimester and Ranui started her pregnancy by interviewing midwives.
Ranui describes herself as a ‘larger woman’ and needed to know that the midwife would be okay with that. One midwife told her that larger women usually have caesarean sections because the fat gets in the way, the second midwife was unavailable, and she did not feel that she connected with the third midwife.

She then asked her auntie if there were any Māori community midwives. There was only one; she contacted this midwife:

_I liked this midwife. She was tall… and not skinny, so I felt comfortable with her, and I met her in my first trimester. …she is great, she supported me, she’s just a really nice background kind of…[facilitated the women’s autonomy]._

For her first birth, Ranui had planned a water birth at home. Her mother (who lived in another city), husband, and midwife would be present.

Four weeks before her delivery date, Ranui was told that her baby was lying transverse and large for gestational age (LGA) requiring a hospital admission until baby turned ‘head down’, and when this happened, she was discharged home. She then realised that a home birth was impractical. She had very strong feelings toward experiencing a vaginal delivery. She was reviewed ten days after her delivery date by the obstetrics team. As the baby was large, discussion took place around whether she could deliver vaginally as the shoulders may get stuck during delivery (shoulder dystocia). Ranui was a practical woman; she added this clinical information to her own knowledge of the situation (midwife, books, internet) so that she could make an informed decision. She still had strong feelings for a vaginal delivery.

She recalls that the ultrasound measured the baby at twelve pounds, and the obstetrician saying that although it was her decision, things could happen when babies were that size. Ranui knew babies could have their arm broken to enable delivery. Although it was an unhappy decision that she didn’t want to make, Ranui chose caesarean section over vaginal delivery to avoid harm to the baby, crying as she said this during the interview. Also she preferred not to be induced as she felt the exhaustion from an induction, and probable long labour which could result in a caesarean section would hamper a quick recovery. The doctor gave her the weekend to think about it, which she greatly appreciated, and prepared herself for a Monday delivery. She knew elective caesarean days were Thursdays; she considered her delivery to be a planned emergency caesarean section. A Monday delivery would mean the doctors would be relaxed after ‘a nice weekend playing golf.’
He said they would give me the weekend to think about it. He was respectful and really nice, and I say that, because I have a comparison to the doctor in my second pregnancy. I didn’t feel that I was the focus, it was about my baby. So I got ready the next Monday and I just remember crying when I went to bed the night before and saying that I didn’t want to do it. But I just had to get over it, I’m still not over it, but it’s a process…time has gone by.

Scott’s view was that he wanted Ranui to have a safe birth, and that she and the baby lived, and that he didn’t care how the baby arrived as long as it came safely, reassuring her that it was alright to have a caesarean birth, even though she had set herself up for a natural birth.

Ranui:

*The plan was he would cut the cord.*

One complication for a large person is that the epidural or spinal anaesthesia may be more difficult to administer which may recur in future caesarean deliveries. The alternative is a general anaesthesia (GA, ‘go to sleep’). In some hospitals, should a woman have general anaesthesia for a caesarean section, then no whānau member is permitted into the operating theatre.

*They tried several times to get the needle in my back…the most senior consultant tried. And I’m crying the whole time and trying to lean over my giant belly and holding on to a pillow. Then they said, ‘we can’t do it, you’re going to have a general’. Cry some more. It meant that I couldn’t have baby crawl up to my breast before me (sniff)…. and it meant that everyone else would hold my baby before me.*

*Then I woke up two hours later with the worst, most intense stomach pain I have ever felt… Through the pain, I can’t remember who told me that baby was a boy. My husband brought him over and I gave him a kiss. I couldn’t hold him at that point. My midwife was right there, I have a photo of her looking at me and baby. He weighed 5.1 kilograms.*

Scott expressed the appropriateness for the midwife and him to be present at the caesarean section and, for him, it was important to witness theatre staff being appropriate and professional when Ranui was under general anaesthesia. Their midwife was the only recognisable person in theatre, and he felt comfortable knowing at least one person there. She provided a running commentary of the clinical situation to Scott. Once he had observed professional behaviour by the staff, he felt comfortable leaving the operating theatre with his baby, while the midwife was still in the operating theatre with Ranui.
For me...that Ranui wouldn’t be conscious...and wouldn’t have any sense of the birth... I was asked if I wanted to stay, and I said, ‘yeah I’m happy to stay’. Then they said, ‘we’ve opened her up, would you like to look at the baby’. I said, ‘no, I don’t want to have a look at my wife’s guts thank you very much’. Then they said, ‘we’re about to take the baby out, would you like to look?’ And I said, ‘nope’.

Our midwife was in the theatre, and that was wonderful, because they were strangers otherwise...it was a huge plus to see someone going right through to the end of the process which was the delivery, and if I had questions she answered them...a really good commentary and then also when they were doing things to the baby...so she was great.

I think it was good to be there with Ranui being unconscious. It was good to see how professional they were and how calm and business-like they were and explaining what they were doing at each step. And they allowed me to cut the cord. They gave the baby to me and I was allowed to leave the room with my son. I was hoping Ranui would come out of the anaesthetic soon because I couldn’t breast feed the baby, he was looking at me. It was about an hour and a half. When she did, she was in terrible pain.

Staff became busy getting Ranui’s post-operative pain under control. This aspect of post-operative care delayed her from connecting with her baby in a timely manner.

At this point, Ranui and Scott realised that her mother had been waiting for some time in the room on the postnatal ward.

Scott:

It was at this point that we realised no-one had let her mother know that her daughter and the baby were ok. That was a big wait for her, I think it was harder on her nerves than mine, I mean I was right there.

Ranui discussed how she felt the transition to motherhood was an unnatural process due to the effects of the caesarean delivery and anaesthesia. Due to her increased BMI, she was prescribed pneumatic compression stockings delaying her ability to mobilise and care for her baby.

Ranui:

For the first couple of days I had [pneumatic compression stockings] and I was quite immobile. It must’ve been about the third day that...I had that light bulb moment when I realised that I had to take care of the baby ‘cause to begin with I had those big cricket pads on my legs.

Scott discussed how things worked at home after the delivery:

Her mum was great, she did the cooking and house stuff. She was there for five weeks...I tried to figure out what my wife meant when she would ask me, ‘get that thing for the baby, or do this’.
There was no organised postnatal follow up with the obstetrics team (the only couple to receive postnatal follow up with the obstetrics team was the couple in whānau Maru).

Ranui and Scott’s decision to fall pregnant again was to give their son a sibling as they were relatively isolated from other whānau. Furthermore, reflecting on his own medical condition and age; Scott did not want their child to be alone once he had passed away. Financially, they calculated that they could have another child when their first child was three years old. They also considered the cost of tertiary education and decided that they could afford two children if they were to support both through University. They actively saved prior to their pregnancies so that they could afford the time that Ranui would require for maternity leave.

They had difficulty conceiving for their first pregnancy, so allowed more time to conceive the second time. This being the case, they fell pregnant earlier than expected. They chose the same midwife.

Again, Ranui demonstrated her practicality and organisational skills for her second pregnancy.

Yeah, I knew that there was going to be lots of interest in the second one, so I went for a seven-week ultrasound scan. And the rest of the pregnancy was fine.

Again, Ranui expressed her strong desire for a vaginal delivery and how she did not want to focus on whether she was to have a caesarean section or not; but rather on the pleasure of a vaginal delivery as an outcome for this pregnancy, whether it occurred or not. Ranui felt that her positive feelings were strengthened when she visualised a vaginal delivery. She did not feel that visualising a caesarean section, contributed to her sense of wellbeing during pregnancy.

I was very clear to the obstetricians about that: I want to experience my pregnancy with the feelings associated with the anticipation of a vaginal delivery. I used visualisation techniques to help me focus and I studied a pain-free birthing technique which I started practising at twenty weeks gestation.

Intense surveillance from the obstetrics team during the antenatal period was extremely stressful for Ranui and she felt that some of it was unjustified; it weakened her positive feelings in pregnancy. She had to weigh herself each time she went to the antenatal clinic and the scales were always placed in a public area, which made Ranui feel uncomfortable.
During the pregnancy, I visited three different specialists, and I had so many scans that it was ridiculous and stressful. I had to have the diabetes check three times.

Yep, and this baby tracked big also. All the specialists talked about was how big I was, and how much more difficult that is, and then they would talk about maternal mortality and they would throw in death threats...that I was more likely to die because I was overweight and it pissed me off. None of them ever explained what it was that would make me die: at birth if I had a vaginal delivery? Surely, I am not going to drop dead because I'm pregnant because I'm fat, who knows?

Ranui was unkindly and disrespectfully treated by one of the obstetricians in the antenatal clinic, altering her decision-making during the weeks preceding her estimated delivery date. She met this doctor at 34 weeks in the antenatal clinic, and behind the curtain, where Ranui was unsure if other people could hear, he said:

Now look, I’m not going to bother dressing it up because the cold, hard reality is that you’re fat.

...that I couldn’t have a vaginal delivery. Because I’m fat...because baby was big, those two things together and because I hadn’t had a successful vaginal delivery before.

...I couldn’t believe that someone that worked with so many women could be so... awful. He talked to me like I was stupid. It felt like a lecture.

At one stage he said, ‘if it were up to me, we would be giving you a caesarean section at 38 weeks’. And I was just not trying to dwell at that stage on the imminent medicalization of my second birth.... I just blanked out because his interaction was so awful.

My midwife and the student midwife were with me.... it’s a difficult position that they were in. She said he was notorious for that.

He made me feel like: he was the man and he knows everything and I was just a pregnant mother and I was stupid because I was fat. I wondered if I’d been tall and gorgeous if he’d talk to me that way, it was almost like he had written me off because I’m fat. I don’t think I am reading too much into it, because the other two specialists were not like him.

He requested scans every two weeks. The way I reclaimed my control was that I did not attend my 36-week ultrasound scan. I said to my midwife, ‘Is there any reason to go? I’ll go if I have to but what is the medical purpose of this?’ Ok so the baby’s going to be bigger, well the baby’s going to be bigger, ‘cause it’s growing!

Ranui started to make her own decisions without involving the obstetrics team who represented a disempowering environment. Ranui, her midwife and the midwifery student continued their relationship, which she described as kind and calm. Ranui considered ways to stay empowered.

I talk a lot with mum, we give each other good energy...I just look around me and try and see the beauty in the world.
She decided to go to the 38-week scan, and tried not to think of the obstetrician. She packed her bag for a 38-week caesarean, her midwife organised another obstetrician for clinic and Ranui was stunned by the difference. This obstetrician gave her one week past her estimated delivery date, and mentioned that he would review the situation after that. However he also used the words maternal and infant mortality, and trouble, to which she replied, ‘haven’t you read my notes, I’ve [already] heard it’ . However, his style while going over everything was respectful, and he allowed her a week past her due date and recognised her vaginal delivery plan, but kindly informed her that the other plan was required as well. This had been all she had wanted, to be acknowledged and understood.

As with the other women in this research, the pregnancy was not the only event happening in Ranui’s life. The pregnancy becomes prioritised according to daily activities and importance of events for whānau and should be compared to the pregnancy being utmost in the minds of the obstetrics team in the antenatal clinic, and from this exclusive standpoint, the obstetrics team makes plans that they feel the woman should commit to.

I can’t remember the last two weeks as my sister-in-law arrived with her daughter, and my husband’s daughter arrived to stay, and a friend who had returned to New Zealand from Australia came to stay.

My mother didn’t come down this time, she has a few sickness issues, she was waiting for surgery…she was on a list and she got the call up, but the earthquake freaked her out, she couldn’t…no-one could…I couldn’t come up because it was when I had the caesarean section…and her and Auntie were meant to give us the name for baby…and we waited and waited…

My waters broke during the night. We had prepared to transition our son into his big bed, however after the earthquakes, he slept with us. We had never been apart overnight from our son, so I took a taxi with a friend into the hospital, my husband stayed at home.

There was another reason for Ranui’s desire to have a vaginal delivery.

Scott being at home while I was in hospital was stressful for him. We knew it would be and we had discussed what it would be like for him during the time that I was in hospital. That was one of the reasons why I really wanted a vaginal delivery: I could go home the same day.

Ranui was very happy and satisfied that she was feeling the first symptoms of labour; such as her waters breaking and early labour which she had always wanted to experience. Ranui listened to her i-Pod and used pain-free breathing techniques. Ranui felt that if she were to have a caesarean section now, she had at least felt the experience of early labour.
I was having contractions but they were not strong....a little worse than period pain. Then a specialist came in and said that the position that baby was in, and the weight that baby probably was, meant that they strongly suggested a caesarean section.

Nonetheless, Ranui was reminded of the disempowering environment that she was in:

...at 9.30am in the morning the surgeon came to our room. I was in shock, it was him. I was sitting in my gown on the edge of the bed and he said to me, ‘now you haven’t had breakfast eh, you’re not going to go and have breakfast?’ I thought, you arrogant son of a bitch or bastard ‘cause it’s probably not his mother’s fault. What was he doing saying that, he’s smiling as he’s saying it, like it’s a big joke. I’m not stupid…I know what Nil By Mouth is. I am still angered by his attitude. I didn’t say anything because he was going to have a big knife in his hand looking at my guts at ten o’clock. Yeah, and he said that I had to go to the main theatre to the ‘fat person’s table’. It really pissed me off that he was delivering my baby.

Thank God the anaesthetist was one of the most angelic people in the whole universe, he was amazing. So I thought I had all my plans made, and then the anaesthetist said, ‘who is going to cut the cord?’, and I burst into tears, I hadn’t planned that, and then I had that delayed, ‘oh my god, I’m having a caesarean section’ feeling.

In the end I asked my midwife, because she was Māori and that was my reasoning, she’s connected to me through the whenua and the greater holistic picture of whenua and that felt good before I went into surgery. I had a very cool midwife; I loved the words she used when she spoke to me. What I would call, ‘essential woman power’ and ‘mana wahine’.

Ranui underwent another general anaesthetic missing the experience of her baby moving toward her breast from a lying position on her abdomen.

And then they couldn’t get the needle into my back. I had attended their new anaesthetic antenatal clinic and the anaesthetist said everything looked alright.

And I just remember thinking, here we go again: now we are putting the [urinary] catheter in, oh great fine, in here with thirty people and that bloody surgeon over there, excellent.

The anaesthetist was really nice, he whispered in my ear, ‘I’m really pissed off that I couldn’t get your spinal in’. And that made me happy, and I said thanks. He also covered up the breathing tube and took the tape off my eyes for the photographs that were taken after my baby was delivered and when she was placed next to my face. I’m so grateful to him.

In this research, woman and whānau discussed the consistently appropriate care that was provided by anaesthetists and neonatal intensive care staff. Unfortunately, Ranui also experienced the same post-operative pain as in her previous caesarean delivery.
And then I woke up to the most incredible pain in the world.

The general anaesthesia and time taken to control the post-operative pain delayed skin-to-skin time; which Ranui had expressed was an important moment for her. She was disappointed that this had occurred for both deliveries.

Ranui felt it was important to be emotionally prepared by getting adequate rest prior to her caesarean deliveries, which is why she refers to her caesarean sections as semi-emergency deliveries as she was able to negotiate that time prior to delivery. The exhaustion related to an immediate emergency caesarean section is something she wanted to avoid. She feels that making hospital and home care plans during the antenatal period is important including preparing whānau for a caesarean section, including emotionally.

3. HOW IS DECISION-MAKING BY WHĀNAU KIEKIE ALTERED WHEN DELIVERY IS BY REPEAT CAESAREAN SECTION?

Ranui is a strong, confident, educated woman who has a husband that embraces whānau values. Ranui realised her body mass index was going to be a problem for some midwives and she made an informed decision to interview midwives. This was her first exposure to inappropriate comments by health professionals. Her pursuit to find a midwife that she felt would not judge her because of her large size, led her to a Māori midwife. Ranui and her husband spoke very highly about their Māori midwife. Ranui explained that her midwife was ‘a background person’, who facilitated Ranui’s autonomy but also supported Ranui to make her decisions. The midwife always attended antenatal clinic with Ranui, and she attended both deliveries.

This couple’s gratitude for care provided by their midwife should be compared with the care that Choc Junior in Whānau Harakeke received by her midwife and Whetūrangi’s care provided by her back-up midwife.

Ranui constantly felt stressed at the antenatal clinic. The increased surveillance with ultrasound scans, repetitive glucose tolerance tests, publicly weighing her, using words such as ‘morbidity’ and ‘mortality’ and ‘being fat’ were part of the language of health professionals and apart from the risk of shoulder dystocia, the message about the risk factors and complications relating to an increased BMI were never communicated.
Ranui made informed decisions, like arranging an early ultrasound scan in her second pregnancy in preparation for the expected surveillance by the obstetrics team and because she had irregular periods. An early ultrasound scan is the most accurate measurement for determining a delivery date. Ranui attended the pre-caesarean section anaesthetists’ clinic which was a new initiative for antenatal care, unfortunately, the anaesthetist did not discuss that Ranui may experience a failed spinal anaesthesia again, consequently this outcome was unexpected.

Ranui made an informed decision not to proceed with an IOL because of the exhaustion related to the recovery after an IOL resulting in an emergency caesarean section or the trauma associated with a possible shoulder dystocia at a vaginal delivery. This was a decision she made despite her strong emotional commitment for a vaginal delivery. She was able to negotiate the timing of her caesarean sections.

Ranui found that her concept for visualising a vaginal delivery no matter what delivery occurred was continually undermined by the obstetrics team. Ranui felt that for her to remain positive she would need to alter her level of engagement with obstetricians, this contrasts with her relationship with her Māori midwife. The obstetrics team would have regarded Ranui’s pregnancy as a high risk pregnancy; however keeping this woman engaged with their care was not always prioritised by some of the obstetrics team and compromise and shared decision-making were not part of their management skills.

Ranui often felt that the emotions associated with her interaction with the obstetrics team were a distraction from her own plans. When she realised during the preparation in theatre for the second caesarean section that she had not prepared someone to cut the baby’s umbilical cord and that she was not in a situation to discuss this with whānau, Ranui re-lived the ‘sinking’ feelings that she associated with a caesarean section.

There were five reassuring factors that enabled Scott to remain at home with their toddler while Ranui was under general anaesthesia. These were:

1. Scott had been present when she was under general anaesthesia for her first delivery and he could confirm that she was treated with dignity and in a professional manner;
2. At the first caesarean delivery their midwife had provided a running commentary to Scott so he was familiar with the process his wife was going to undertake;

3. Ranui’s midwife was a familiar face in the operating room and she knew what Ranui wanted during delivery. When Ranui was placed in a situation to make a hurried decision, such as cutting the cord, her decision was based on her midwife being present;

4. The anaesthetist considered how he could make this a good experience for Ranui even though she was ‘asleep’. He did this by taking care with her appearance for photographs, by making a connection with Ranui and communicating his own disappointment that the spinal had failed;

5. Ranui had her friend present at the second caesarean section even though this was a general anaesthesia where a support person is not usually allowed in the operating theatre.

Ranui’s ability to care for her newborn immediately after the delivery was delayed by post-operative pain, effects of the general anaesthesia, and pneumatic compression stockings. Ranui never experienced her babies crawling from her tummy to her breast immediately after birth. The pneumatic compression stockings that prevented deep vein thrombosis delayed her ability to care for her baby as these restricted her to the bed. The care of her baby went to the midwives. Subsequently, Ranui needed to be reminded once she was mobile that she was responsible for the care of her baby. She describes this as an unnatural transition to motherhood.
CHAPTER NINE – WHĀNAU HARAKEKE

Mau tena kīwai o te kete, maku tenei (Riley, 2005)

Three whānau members from whānau Harakeke were interviewed: Choc Junior, the woman; Mark, an ex-partner; and Kataraina, Choc Junior’s tuakana.

1. DECISION-MAKING

Choc Junior, from whānau Harakeke, is single. She has children from two relationships. Her relationships with the two fathers of her children were intertwined during her childbearing years and both relationships were with farmers who were third or fourth generation New Zealanders of British descent. The decision-making was predominantly non-Māori centred. She was single when her second child was born and remains single today.

Choc Junior was geographically separated from all whānau except her sister who lived in the same province.

She spent her childhood immersed in a strong Māori community during which her parents separated. Her home life became less settled especially from her mid-to late teens and a decision was made for her to go to the South Island to live with her older sister, Kataraina. When their auntie was in her childbearing years she needed help with her children, so Kataraina left Australia and went to live in the South Island. Kataraina married a European immigrant.

The sisters call themselves Plastic Māori which they describe as ‘not actively Māori’.

I used to be when I was living up there, now…I…just… so-so about it….

While Choc Junior was bearing children, her decision-making was based on several factors such as:

• her relationships with her partners during those childbearing years and the intertwining male relationships;
• her desire for independence;
• financial stability provided by her partners’ financial status;
• living in a rural area;
• dividing her time between being at home for her children as well as being at
the neonatal intensive care unit (NICU), and the desire to be at home for her
children when she had her own antenatal hospital admissions.

Whānau are collectives with many functional interpersonal relationships. The one
that comes to mind in whānau Harakeke is the tuakana-teina relationship which was
the main support for Choc Junior and enabled her decision-making:

_I wasn’t too fussed about support when I was pregnant, and probably
after….oh yeah, nah, I didn’t, ohh, …not a lot of support. My
sister….was good support._

Choc Junior lived in a rural area approximately fifty minutes from the hospital. Both
her partners were farmers and she worked in the shearing sheds. Choc Junior had
the same partner, Mark, for her first and last pregnancies. There was a significant
age difference between Mark and Choc Junior; she was younger. Her second
pregnancy was with a different partner; however Choc Junior was living alone at the
end of her second pregnancy.

Choc Junior had never challenged Mark’s decisions as she feared him, so when that
relationship ended, her decision-making was based on her desire for independence
and the decisions required of a single parent. When she resumed her relationship
with Mark, Choc Junior reports that the relationship was more equal and the
decision-making was shared.

Her tuakana, Kataraina, spoke of how she and Choc Junior would discuss issues.
The two sisters rarely needed to get together with immediate whānau to make
decisions but if they did, their brother, mother and Kataraina usually attended and
she would speak on behalf of Choc Junior as they had already discussed Choc
Junior’s opinion. One such decision that might be discussed would be financial
assistance.

2. _TE WHARE TAPA WHĀ – TAHA WHĀNAU_

_The capacity to belong, to care, and to share where individuals are part of
wider social systems. Whānau provides us with the strength to be who we
are…the link to our ancestors, our ties with the past, the present and the
future_ (Durie and MoH, 2012).
Mark, Choc Junior’s first partner, did not feel antenatal classes were required and Choc Junior did not have birth plans. Choc Junior had three emergency caesarean sections and two of her babies were born at 33 weeks’ gestation.

Mark did not feel any extra decision-making needed to occur for the caesarean deliveries other than packing a bag and considered that ‘caesarean sections are just something that has to happen’ based on his own experiences of delivering lambs by caesarean section. Nonetheless, he was reluctant to watch Choc Junior’s caesarean deliveries.

*I didn’t particularly enjoy watching her get cut or that, I sort of more concentrated on talking to her, holding her hand, rather than peering over to see what was going on at the other business end of it.*

Another impact on this woman’s decision-making during her pregnancies was that there was only one midwife in her rural area whom Choc Junior and Mark felt was incompetent, therefore they did not engage with her. They considered that the only reason the midwife enquired about Choc Junior’s pregnancy was so that she could tick the boxes required to receive payment for antenatal care. Being practical, they became impatient with what they called ‘the midwife’s nonsense’.

Choc Junior:

*She … didn’t really give a crap. And I didn’t know what kind of care I should be receiving, so I just went along with her. She was the only midwife, otherwise I had to travel.*

Mark:

*Choc Junior was six months when I met her midwife [laughs] yeah, well, yeah, … she was just a drama queen … she was all gushy, wushy and full of shit. Didn’t really do a lot for what I thought she should be doing. …. We had her right from the first to the last child ….*

Despite the couple’s feeling that the midwife was there just to ‘tick the boxes’ to be paid for antenatal care, many important boxes were not ticked. Choc Junior was not screened for gestational diabetes (her babies’ weights were greater than 4.5kg) and she did not get nuchal translucency scans in her pregnancies despite fetal abnormalities detected in her first pregnancy by ultrasound scan at sixteen weeks gestation. That pregnancy was terminated under the supervision of a private obstetrician. Choc Junior discussed that the closest radiology business that provided ultrasound scans would then charge Choc Junior for the scan.
Mark:

There were things that were meant to be organised in the pregnancy, and Choc Junior would say, ‘oh [the midwife] is sorting it out. But [the midwife] had done jack shit. I tell you if something had gone wrong with Choc Junior I would’ve been really, really pissed off.

I remember we were in theatre with the [third] baby, pretty serious, and there was a delay because the bloody midwife wanted to be there and she wasn’t suited up because she was in the café having a coffee. I just thought, ‘this is pathetic’.

Although this couple felt their animal husbandry experience gave them sufficient knowledge about birth they still felt frustrated that their midwife could not add to their knowledge. They felt they could have been further empowered if the midwife had sought further knowledge for the couple (and shared her own knowledge base). This meant that when Choc Junior had difficulty feeding one of her babies after leaving the rural maternity unit, the couple’s chose to visit their GP or go to the rural hospital for assistance rather than involving the rural midwife.

She was no help when Choc Junior could not get [the baby] on the breast. ...if she had been prattling on about something relevant that would have been worthwhile...we are not stupid you know... We had to get another midwife from the rural maternity unit. She should have been a lot more helpful with the breastfeeding. I found other people were able to tell me what was happening, I didn’t need to rely on [the midwife].

Choc Junior received minimal postnatal follow up from her midwife.

No, the midwife did not give me a six week check. I never saw her after I left hospital. I rung her to tell her to come and see me and I was biffed onto Plunket.

Mark was able to get leave from work when Choc Junior went to the city for delivery by caesarean section and the couple faced no financial restraints.

Choc Junior’s first delivery was an IOL, the indication being that she was more than one week past her delivery date. She was placed under the care of hospital midwives for this procedure as her own midwife did not attend explaining that she did not undertake deliveries in the city hospital.

During induction of labour, the cervix failed to dilate and a caesarean section was performed. The baby weighed 4.9kg and Choc Junior had a postpartum haemorrhage for which she received multiple blood transfusions.
Mark:

Well nobody realised she was bleeding at the beginning. It wasn’t until she started feeling terrible that somebody realised what was happening with her….I felt a bit of a spare part, that you’re there just as an observer thinking what the hell is going on…and you can’t do anything about it….but I knew things were getting serious when they started prepping her for theatre, things didn’t look good…not so much that somebody had told me, but you could just tell by things that were going on.

Choc Junior recalls being bedridden, and the lack of independence this implied:

Hospitals suck….it was probably a few hours after the crap had gone on with all the bleeding and stuff and I just thought, I could sort of lift myself up on the bed and then I could be outta here (laughs)….but I was actually bedridden…the midwives had to move me in my bed.

I’m pretty tough anyway (laughs) went from the city hospital to the rural maternity unit for a couple of nights and then home. I wasn’t medically cleared to go directly home…

Choc Junior discusses how she wanted to leave hospital early with her first baby; however she had not mastered breastfeeding. She explains how different midwifery care would have enabled her to leave hospital sooner.

…The midwife would say, ‘[the baby] goes here, put the baby here, and here, and I was thinking, ‘I don’t know where here and here is’. And I didn’t ‘cause I was a bit of a sooky bubba, I didn’t say, ‘explain it better’.

I went to the rural maternity unit and I didn’t know how to feed and I had real sore nipples and I was crying…being a sook [laughs], and the nurse down there was being a cow….but then a midwife sat with me for like five hours trying to get [the baby] to latch on, showing me how to latch on and stuff…

…yeah you can’t really take your baby home when you can’t feed them (laughs)

Choc Junior speaks about her second relationship:

….probably about a year, another abortion. And then we split. Then I met another guy and fell madly in love [laughs]. It was like a fairy tale [giggles] and I got pregnant. I had some bleeding in early pregnancy, we went to ED, and the O&G doctor said I had lost the baby, but I hadn’t. We were pissed off.

…probably only the one [ultrasound scan], and that was ‘cause we lived [in rural Otago] at the time, so it was very rarely that we’d come through to have scans and stuff……

Then I got PET [pre-eclampsia].
Choc Junior’s second and third babies were born prematurely at thirty-three weeks by caesarean section due to pre-eclampsia. She had a postpartum haemorrhage with her second delivery also.

Kataraina had planned to attend the second delivery while Choc Junior was unsure which ex-partner, if any, would attend as she had recently ended her second relationship.

This delivery started with a 32-week visit from her midwife who stated that Choc Junior looked ‘puffy’. Her blood pressure was raised and she had protein in her urine.

*I had blurred vision when she came to visit.*

The midwife referred her to the city hospital day assessment unit where she was accompanied by Kataraina. During this assessment, she informed doctors that she did not want to haemorrhage as she had after her first baby’s delivery. Kataraina recalled this conversation also.

The plan was to admit her for 24-hour blood pressure monitoring and Kataraina travelled home. Hospital midwives changed shift during the night and not long after, a decision was made for Choc Junior to have an immediate emergency caesarean section.

*Yeah that was shit because I wanted a VBAC. I was really hoping for a VBAC and yeah that put a damper on it. I was praying to God that I’d have a vaginal delivery.*

Choc Junior telephoned her sister and the baby’s father. Each lived approximately ninety minutes from the hospital and had to organise children. Three children were taken to the hospital, so that a friend in the city could come to the hospital to collect them. Kataraina and the baby’s father (it was his first baby) missed the caesarean delivery.

Choc Junior:

*It was an emergency...everyone was screaming and yelling....my blood pressure was like 210, ... yeah I could hear the obstetrician yelling, ‘get her in there’. I’ve met him before; he goes crazy all the time (laughs). He’s a nut doer. So we went to theatre and she was born and up to neonatal she went. ...I pulled through once again. It was hard...being in there on my own...scared...it was shit (laughs). It was ‘cause....you would like someone to hold your hand, but there was no one there...
And then I haemorrhaged again...haemorrhaging...just everyone panicking and that was nearly off to theatre again cause of*
the…anaesthetist…he was in the room ready to knock me out and off we were going.

As mentioned, Choc Junior and Mark had no birth plans or plans for Mark to cut the cord, although he trimmed the couple’s last baby’s cord. He was able to hold the first baby at the caesarean delivery, and he held the third baby before she was transferred to the neonatal intensive care unit.

Mark’s theory on bonding:

My theory is that for the first several months they’re not too worried about their father, I mean they just want fed, slept, nappy changed. Well I can comfort a crying baby but it more often wants it mum ‘cause it likes the smell of the breast milk and it settles, so I’ve never worried about, you know, the great bond right here [points to his chest]…I was quite happy…I wasn’t distressed that I couldn’t touch her in the incubator…and I remember putting my hand in and her grabbing…doing the whole finger thing and yeah, great, I had no worries that ‘cause she’d been in there that there was going to be some distance or obstacle between us…

After the birth of her second child, Choc Junior’s main concern was caring for her child who stayed at home, as she was not in a relationship. She reflects on the level of support that she had at home.

I’d prefer to be discharged on the first day after my caesarean section. I spent five weeks in hospital after my second; I went to the parents’ room. Then I was travelling every day…

I was always back in hospital with [the baby in the neonatal unit], I was there most of the time. I would go down to the maternity unit to get my blood pressure checked and the medications adjusted…but it was a bit hit-and-miss.

…I’d rather go home…. There was lots that I couldn’t do but I made myself do it, I was probably doing a bit more than I should because I didn’t have very good support at home….I was hanging washing out, getting firewood, ‘cause it was the middle of winter…just not taking it easy…it was sort of the same with baby number three as well…yeah I drove home from the delivery of my third baby. I left hospital after two days, and then I drove to and from the neonatal unit. I was there every night.

When discussing her decisions while her babies were in the neonatal intensive care unit she says that one of her partners was good, he looked after the baby and brought her in to visit Choc Junior. However she found it difficult after they had gone and she was left alone in a room with babies crying near her and her own was still in the NICU incubator.

And I asked the midwife to come in to my room ‘cause I thought I was depressed, but she said it was normal (laughs). I was quite down, not
seeing my child at home and nothing was going our way with the baby...me sulking.....

Mark discussed the support for Choc Junior when she came home:

When she came home....would’ve been me, friends, family....as in her sister. My mother was around. I don’t know how it was organised....it was probably self-organised....people knew she was home with a baby....She’s a bit....don’t-make-too-much-of-a-fuss-I’m-alright type person.

Yeah, there definitely would’ve been that help if she was back where her whānau came from....all the ladies would’ve swooped in....that whole [Māori] community up there...

Kataraina discussed the times when she was around to support Choc Junior. She was overseas for the first baby. She discussed experiencing the postpartum haemorrhage and her sister’s pre-eclampsia. After witnessing these she did not want her teina to have any more babies:

No [laughs] we had just thought that it would be like you’d get slotted in to have a caesarean so everyone would know exactly where they were, but of course it didn’t work out like that.

I missed out with her second, I was too late ....I just didn’t know she was going to be operated on, neither did she, until she rang me and said, ‘I’m going in’. So I said, ‘well can you wait and I’ll be there shortly...and [the father of the baby] he lived closer, in [Central Otago] too, but I beat him to the hospital...

...and I looked after the two children when she had her third baby.

...yeah, there were nurses coming in and out all the time, it was hardly ourselves really....but Choc Junior picked it up; they didn’t...and I thought shit yeah, that is [a lot of blood]. I mean, I don’t know what is normal you see, and then of course, once I’d seen that....it was all go....and pump drugs and pushing down and all that sort of stuff.

I don’t think it was life threatening. Look you’ve got to put your faith in the staff there.... if they don’t, then get someone who does and get someone to do something until it stops, but after seeing that...I said to her, ‘I don’t want to see it again, you better not have any more children...’

Kataraina discussed the complexity of Choc Junior’s male relationships and how she often did not know which partner was supporting her. It was difficult to discuss this whilst Choc Junior was in hospital in a postnatal room with three other women. Choc Junior was unable to move from her bed for the first twenty-four hours so they could not go anywhere else to talk. Kataraina felt that if staff were aware of Choc Junior’s complex social situation, they may have facilitated a single room to allow whānau to raise the issue of on-going support for Choc Junior in a private setting.
They both [men] were there, one popping out and the other popping in…which I thought: oh this is awkward…yeah she wasn’t in her own room then, so yep.

With her second, she went straight home…I don’t know where she was living or who she was living with…She was pretty much by herself that time. She may have had no one, but then I don’t know, must have been somebody there, ‘cause you can’t just take care of two kids after a caesarean…

…it was quite a struggle, ‘cause she already had one, and financially she must’ve been on her own then and financially because she was travelling to the city to see the baby as well, yeah…well yeah it was a struggle.

In her third pregnancy, Choc Junior was monitored for symptoms and signs of pre-eclampsia.

Prior to my last child being born they thought I’d had a minor stroke because I couldn’t do anything with my arm, it was just hanging there, so I went for a MRI…and they found nothing wrong but they were still quite concerned…but then when [the baby] was born: it went, which was good.

I was monitored more because they were worried about PET. The care was the same, just more blood pressure checks; I was always peeing on sticks. This baby was born the same time as the last, 33 weeks. And I didn’t haemorrhage [laughs], I was pleased about that, I was saying to the doctors that I didn’t want to haemorrhage again and he goes, ‘well, we’ll get it under control’.

Choc Junior relied heavily on her tuakana so that she could return home as soon as possible after delivery by caesarean section. There was some distance between their homes (a forty-minute drive). The tuakana was able to help because her own children were older and more independent which meant her husband could supervise them. Initially in the interview, Choc Junior didn’t mention that she probably required further help to manage travelling to the neonatal unit from her rural home on a daily basis, caring for her young children who were at home, and recovering from surgery when she would discharge early from hospital.

Her sister about the third pregnancy:

That was the plan right from the start; because she was living with Mark at that time, the plan was …it was a bit rushed again… she went into hospital before she had the caesarean, she had high blood pressure again, baby was early, I stayed at her home for a couple of days and then I brought the girls here ‘cause I thought that was enough time away from my kids so…we came here and then, I don’t know how long she stayed in hospital for…

…we kept in touch once a day while she was in hospital. She knows that I had everything under control with the kids; she just had to look after herself…. My husband could look after our kids, they were old anyway,
and independent, so they could basically look after themselves….there was no other family to help…it was only the kids that we needed to plan for….

The tuakana speaking about her supportive role:

I am her number one support person. If anything should go wrong, she calls me. I wasn’t there for her first baby. She may have had no one, [there] must have been somebody there….

She was at home after each one and then travelling back to see each baby. I was a constant visitor at the neonatal unit. ….you know it all comes down to our upbringing:…. how she’s eleven years younger and probably always looked up to me and that sort of thing. I don’t know if she’s always relied on me, and that’s fine, that’s how we work….

Choc Junior:

I had two children at home, there was nothing that I could do, I had already more or less been there and done that. I knew what my boundaries were. So I was pumping at home and bringing milk through. It was tiring, that’s the only thing ‘cause being at home with the other two and then travelling through at night….I was pushing to get her out of NICU. If I had family in the city I would have brought the other kids in during the day.

I only saw the midwife three times. I asked her [the midwife] to come out; I was concerned about the baby’s weight. I went to the GP.

Yep well I had to pump for both [the two youngest]. [The second youngest] she was [very difficult] she wouldn’t go on, so I was trying every blinkin’ thing that you could ever invent trying to get her to feed off me but eventually she was about twelve weeks before she started feeding from me….

Choc Junior visited her GP soon after the birth of her third child as she felt vague and unclear; her blood pressure was substantially raised. The GP arranged an ambulance to take Choc Junior to the maternity ward.

I was home about seven weeks after having baby. I was sitting there … it was like being under the water with my eyes open so I went to the GP and he checked my blood pressure, he said it wasn’t normal. He rang the ambulance and they took me to the maternity unit, but they said it was not their problem because it was too long after the baby was delivered. So I went home. I had that feeling all the time after that.

Choc Junior about future pregnancies:

The kind of support I needed was a helpful partner (laughs) that wasn’t useless, that would hang out the washing and get firewood, instead of going to the pub, yeah, and probably more supportive friends now, looking back I realise that they weren’t as supportive as they could have been. ‘Cause I don’t think they knew about caesarean sections. And the
haemorrhaging knocked me back...but I’m pretty tough (laughs). I had all the support I needed from the hospital [neonatal unit].

I’d be screwed, I would be screwed ‘cause I know ...yeah I’d be screwed if my sister couldn’t take my children. ...but she’d kill me for having another baby...that’s probably my main thing is the kids having them sorted for a few days ...God [laughs]...[she reflects on her two pre-term babies in the neonatal unit from 33 weeks gestation and realises that she would need far more help than a few days]

I’d ask Family First....oh....would I? Not knowing what was going to happen with my kids [laughs]....it’s a toughie...if you don’t know someone and they’re in your house....yeah.

I probably would [attend regular antenatal clinics], as much of a pain as it would be, but as I have had two early ones, otherwise I wouldn’t bother.

Choc Junior had no financial issues with travelling from home to the neonatal unit as, whilst she was in relationships, she was financially stable. When she was a single parent, she found the travel vouchers from the social worker were empowering and allowed her to be at home. She would travel to the hospital either once at night, or once in the morning and once at night.

When asked to consider how it would have been without financial stability or financial assistance, she replied:

I probably would have just stayed in the city the whole time. It would’ve been hard at home, but I’m pretty sure my sister would’ve helped out if need be.....

3. HOW IS DECISION-MAKING BY WHĀNAU HARAKEKE ALTERED WHEN DELIVERY IS BY REPEAT CAESAREAN SECTION?

Decision-making in whānau Harakeke was dominated by New Zealand European & European immigrant male farmers. Despite this the two sisters enabled their own decision-making processes where possible.

Mark may have felt that his practical experience as a farmer and having three children from a previous relationship was sufficient knowledge as an alternative to the poor quality of care provided by the local midwife, however Choc Junior did not have this experience, and in that respect the knowledge base may have been inequal.
When Choc Junior was between male relationships and when she was single, the key whānau relationship enabling her decision-making was the tuakana-teina relationship. When they were children, the sisters had a strong Māori community and although they regard themselves as ‘plastic Māori’, inherently the tuakana-teina relationship exists. Choc Junior’s decision-making developed with her maturity and independence.

The restriction on decision making around repeat emergency caesarean sections is amplified when whānau who live in rural areas and who have young children are not considered when the priority for a caesarean section is escalated according to changes associated with hospital staff shifts. Unexpected decisions meant whānau were placed in unsafe situations when they tried to attend the birth at short notice.

The couple were unhappy with the care from the sole midwife for their area. Was Choc Junior’s pre-eclamptic condition detected in a timely manner by her midwife? Would earlier detection have prevented an emergency caesarean section during the first night of admission to hospital?

Choc Junior was proactive in seeking out healthcare when required: with breastfeeding, with the symptoms caused by high blood pressure, acquiring travel assistance, visiting the GP when her baby was not gaining weight, and when she had loss of power in her upper limb during one of her pregnancies.

Choc Junior’s ability to be aware of decisions that she needed to be involved in was hampered by poor quality health care and a lack of clinical knowledge provided to her about her medical conditions and this meant she was unable to make informed decisions. Choc Junior was unaware of the importance of ultrasound scans; she was unaware of the symptoms and complications for hypertension; she was unaware of what were routine antenatal screening tests. Despite her proactive approach to her health, Choc Junior was not referred for postpartum blood pressure checks with her GP; she was not referred to the renal team when she had a past history for two pregnancies complicated by pre-eclampsia; she was turned away from the maternity unit when she arrived by ambulance with significant hypertension; despite having a pregnancy terminated in the second trimester because of fetal abnormalities, Choc Junior did not get nuchal translucency scans nor growth scans in her subsequent pregnancies; Choc Junior had large babies however she did not undergo tests for gestational diabetes; she received inadequate support when she first showed
difficulty breastfeeding. Choc Junior had recurrent postpartum haemorrhages with blood transfusions despite whānau making health professionals aware of her history. Two of the risk factors for postpartum haemorrhage are a large-for-gestational age baby and a history of previous postpartum haemorrhage.

For a woman who was trying to get home to her children, a postpartum haemorrhage (PPH) not only delays discharge from hospital but it reduces her postpartum health when she was the sole carer of her children. Kataraina’s experience of her younger sister’s PPH meant that she wanted to influence her teina’s decision for further children.

Choc Junior felt any plans to take care of her children at home and attend the neonatal unit could not have been implemented without the unconditional, twenty-four hour support from her tuakana. She was reluctant to engage in care from an agency as she felt uncomfortable having a person she did not know in her own home with her children.
CHAPTER TEN – THEMATIC RESULTS

INTRODUCTION
In the previous chapters, whānau profiles illustrated the decision-making experienced by each whānau when delivery is by caesarean section and which also signified the dimensions of Te Whare Tapa Whā.

Here I outline the factors that altered decision-making and which were common to the four whānau participating in this research. Then I discuss the foundations that have been identified within the four whānau that enable decision-making and that are relevant to this research, concluding the findings chapters with a summary of thematic findings.

ALTERED DECISION MAKING COMMON TO WHĀNAU PARTICIPATING IN THIS RESEARCH

A. Limited Decision-making
None of the four whānau participating in this research experienced elective caesarean sections, all experienced emergency caesarean sections and repeat emergency caesarean sections.

The most salient point is that all whānau who experienced caesarean delivery stated that decision-making was extremely limited given the circumstances leading to repeat emergency caesarean sections. The point was not how decision-making was altered, but rather that little or no time was provided for decision-making for a situation whānau had often not anticipated.

Therefore, for these whānau, decision-making around caesarean section (whether repeat or first time) involved an emergency situation, contrasting to most whānau discussions on decision-making where the emphasis is on the decision-making process and allowing time for everyone to participate. Whānau Aroha is intricately linked to providing respect and time for whānau members to negotiate, compromise, and generally come to an agreement with a decision so that no-one leaves the process disrespected.
Planned decision-making became spontaneous decision-making for a significant life event meaning a change in the way the karakia or waiata (song) was performed or who would be present at delivery, or that at times no whānau were present. Often whānau were the last to be told that a caesarean section was to proceed; they could only recognise that something different was happening by observing changes in health professionals’ urgency or tone.

B. Absent Birth Attendants
When birth attendants are absent, whānau cannot make informed or timely decisions nor reassess previous decisions.

C. From Different Worlds – Māori Women and the Obstetrics Team
A notable theme in these interviews was that these women faced many situations other than pregnancies that they needed to address whilst pregnant and during the postpartum period. The obstetrics team’s assessment of a woman occurred in one moment of time and in the obstetrics team’s setting: the antenatal clinic or the day assessment unit or delivery suite. The team would make plans without knowing how a woman could commit to these, and when she could not, she would be labelled DNA (does not attend appointments) and their attitude toward her would change. Health professionals should consider that lack of consideration toward Māori women may mean they do not return to clinic.

Whānau expect to be able to negotiate and compromise with health professionals’ care plans to facilitate day-to-day commitments. This understanding would increase the success of health professionals’ plans and facilitate best possible outcomes.

D. Poor Quality Health Care
The theme Poor Quality Health Care or Poverty of Health Care provided to Māori women who delivered by caesarean section was an undercurrent in the kōrero of whānau members that was identified by the researcher and reference people and which was a result of the interpretive process evolving from an editing organising style of analysis and the immersion/crystallisation style of analysis.
My analysis clearly shows that the level of care by maternity health professionals for Māori women and whānau who participated in this research was, at times, poor. Although participants were not directly asked to comment on the quality of care that they received, this was, nevertheless, a disturbing undercurrent within the kōrero of participants.

Poverty of health care was a recurrent theme in that the kōrero of younger whānau members echoed the level of care that older generations received thereby confirming that poverty of health care is intergenerational. The examples in this thesis represent poverty of health care relevant to the research question. There are many further examples within whānau interviews. (It was not in the realm of this research question to further explore and discuss intergenerational poverty of health care; however there is an opportunity for further research into this finding.)

Elder whānau members had not shared these experiences with younger whānau members, as previous generations strongly believed that the next generation would receive better care, which proved not to be the case for the whānau in this research.

Poor quality health care altered decision making for Māori women who delivered by caesarean section. At times, where whānau implicitly trusted health care professionals, this required a high degree of tolerance to poor quality of care.

For me, whānau members’ kōrero demonstrated that, at times, the quality of care received, the high level of tolerance and the implicit trust that women and whānau held toward health professionals actually placed women at greater risk during pregnancy, delivery and postnatal care. For example, this was the situation for Whānau Maru and Whānau Harakeke: where Rangi was advised by staff that he could leave the hospital on more than one occasion when unbeknown to him, his wife, Jo, was in a very serious condition. His baby was left in the crib on the postnatal ward without anyone in the room. Similarly, Choc Junior had a history for postpartum haemorrhage which whānau repeatedly relayed to health care professionals, yet this was not factored into management of her future deliveries.

On the other side of the spectrum, when whānau distrusted health professionals’ level of care, they chose to disengage from them. Often there was no option to transfer care to other health professionals, as none were available.
This theme should not be interpreted as healthcare provided by all maternity health professionals is of poor quality. However, the experiences described by participating women and their whānau are corroborated by my own clinical observations working in hospitals throughout New Zealand.

This theme, will be difficult for some maternity health professionals to accept and it is a reluctant conclusion, however it is strongly supported by this research, my clinical observations and what has been identified in previous research looking at the quality of care provided to indigenous peoples (Mathole, 2004; Smedley, 2004; Rumbold, 2011).

E. Young Māori Adults & Emergency Caesarean Sections
The couples from whānau Kaokao and whānau Maru were young Māori. The latter couple were the youngest when they experienced a caesarean section. When young Māori interact with health professionals in stressful, foreign situations in which young Māori do not hold the clinical knowledge about emergency caesarean sections or situations requiring a return to the operating theatre due to complications arising, then their identity may be challenged, in turn, altering decision-making (Rangi was consistently told by staff to go home, when he had the choice to stay, which he would have preferred).

F. Two Whānau Members To Support Two Patients
Decision making was altered when women were told to choose only one whānau member to go into the operating theatre. All whānau participants felt strongly that there should be a whānau member to support the baby, especially if the baby went to NICU; and then a whānau member coming into surgery to support the woman.

Some also felt that their other children should be part of the delivery to welcome the baby. Two support people can probably be facilitated in an operating theatre however logistically it is not a safe place for children and this requires further discussion.
G. Timely Update of Progress for Whānau
All participants agreed that whānau should be informed of the outcome of the delivery as soon as possible, as this is typically how they are informed of events. For whānau, this is a time where heightened anxiety can be mediated by the celebratory significance of safe delivery.

H. Consent Process for an Emergency Situation
Only one participant could recall the consent process (these were emergency caesarean sections). The one whānau member, who remembered the consent form being signed, could not recall the risks and complications for a caesarean section. Leaflets, as produced by RANZCOG, providing information on caesarean sections and vaginal birth after caesarean delivery (VBAC) should be part of the consent process. This leaflet could then be kept within the whānau and their questions could be addressed either on the postnatal ward round or at a six week postnatal appointment when delivery is by emergency caesarean section, repeat emergency caesarean section, or delivery with complications. Either this or a copy of the consent form should be given to the woman for her permanent records.

I. The Importance of Introductions For Māori
Foreign environments and unknown health professionals do not facilitate whānau decision-making. An example of this is when whānau members cannot engage in discussion about decisions as they cannot identify anyone dressed in scrubs and behind masks in the operating theatre. Therefore, meeting surgeons prior to and after surgery would be appropriate for most women and whānau to develop a safe and connected relationship with the person delivering the baby and caring for the woman during surgery. Jo and Rangi who experienced the peripartum hysterectomy did not know who the health professional was that they met at the postnatal follow up appointment.

The whānau in this research appreciate the ability to negotiate. As one participant said, ‘whānau are the great compromisers’. Introducing involved parties is a starting point for negotiations and in turn, can lead to successful management plans.
J. Men in This Situation

Although women and clinicians are at the forefront, men still felt they had an active role that was unique to them. Māori men preferred to leave the technical decision-making to the women in the whānau.

Men did not feel that it was necessary to witness the internal organs (guts and innards) or perineal injuries that their partners’ endured. Nor did they want to be involved in these procedures (Rangi pushing his baby out of Jo’s abdomen). This exposure to graphical female surgical anatomy was not part of their day-to-day life.

In this situation, men value their role as overseer who can negotiate with health professionals should whānau members be unhappy with events. What men found was that their overseer role was altered as they were unaware of what was going to happen next, so they could not reassure whānau. Men know that they are not skilled clinicians however the feeling of losing control in an emerging urgent environment was uncomfortable when they felt responsible for the overall wellbeing of whānau present.

All men described the feeling of being an outsider in an uncontrolled situation for them and their whānau. Men, along with whānau, recognised non-verbal staff cues indicating escalating urgency and felt a discussion about the changing circumstances would allow men to reassure whānau. Without this knowledge it was difficult for men to use humour to relieve the tension.

In this research, men did not want to be left alone with the baby for long periods of time immediately after a caesarean delivery as they cannot comfort their baby by breastfeeding. The men in this research who found themselves in this situation would clockwatch. In this situation, allowing women to express breast milk prior to a caesarean section, and having this available may ease men’s anxiety while waiting for a woman to recover from general anaesthesia or for her return from further surgery (e.g. manual removal of placenta, postpartum haemorrhage, hysterectomy).

K. Optimal Analgesia for Māori Women

Uncontrolled pain was a consistent theme for the four women in this research. Staff withholding pain relief occurred to three women. Women and whānau felt that post-operative pain altered decision-making: inadequate pain relief reduced mobilisation;
while being provided with adequate analgesia would allow discharge from hospital to home earlier. Staff also withheld analgesia when women specifically requested pain relief (including during an induction of labour).

L. Immobility After Delivery
Women felt that immobility after delivery by caesarean section due to pain, pneumatic compression stockings or the effects of regional (epidural or spinal) or general anaesthesia altered their decision-making. For example, Whetūrangi was immobile due to spinal anaesthesia and her bed was too far from the baby’s cot when her baby was perceived to be choking. This placed both mother and baby at risk and was felt to be an unsafe environment. Likewise, women in this research felt that recovery from abdominal surgery contributed to an unnatural transition to motherhood in terms of temporarily losing independence and the ability to take care of babies how they had intended. Women were often unable to mobilise to the neonatal unit after a caesarean section for twelve to twenty-four hours, this prevented women providing support to their baby in NICU. Staff availability was a limiting factor for the woman’s first visit to NICU.

Just how shit caesarean sections are...just how what it does to you...how it cripples you, what I can gather from a vaginal delivery is that you fight back and you are walking after five minutes...I don't like having people doing things for me...

Just like going to the toilet, need to go to the toilet after the caesarean section. Doing number twos and they wanted you to sit on a bed pan. I remember the nurse, she was a [not a nice person], she was real mean to me. I held it all in, I didn't go to the toilet...clogging myself up. They gave me some syrup crap.

M. The Importance of Returning Home
A constant theme for women in this research was that vaginal delivery meant leaving hospital to go home on the same day as opposed to repeat caesarean deliveries and a three day admission to the ward after surgery.

These women valued their independence and fulfilling their responsibilities to whānau and community so appreciated as little interruption to the management of their households as possible. They valued their ability to continue managing other issues in the lead up to, and post, caesarean delivery (repeat emergency caesarean
delivery). This was more pronounced when the woman’s hospital admission was extended past three days or if an antenatal admission was required prior to delivery or if there was a readmission for infection, or when postsurgical complications arose, or when the women stayed in hospital while her baby was in NICU.

Women preferred not to be away from children for an extended period of time (caesarean delivery involved being away from their children overnight which these women would not have otherwise done).

Women perceive their absence from the home increases tensions and stressors for other whānau members. This parallels the experiences of Aboriginal and Inuit women as outlined in the literature review chapter.

N. Postnatal Follow Up

All these women had emergency caesarean sections. Only Jo who experienced the caesarean hysterectomy had a postnatal follow up appointment with the obstetrics team. For the whānau in this research a postnatal clinic follow up was strongly desired. Whānau felt that this provided an opportunity to gain knowledge about why the delivery occurred as it did; a chance to discuss future pregnancies; the likelihood of caesarean section in the future; to discuss modifiable risk factors; and to implement management of these during the interpregnancy interval with the obstetrics team.

Ranui from whānau Kiekie had a modifiable risk factor identified in her first pregnancy and this was not addressed by health professionals in the postpartum period and therefore she was not provided with the information that would have enabled her to make a more informed decision about preconception care before her next pregnancy.

The postnatal follow up appointment for emergency caesarean sections gives an opportunity to discuss who is responsible for adverse outcomes. Emotional trauma can be addressed. The fear of death can be discussed. Misperceptions and miscommunication can be discussed. Clinical knowledge obtained from the postnatal appointment can then be shared further between whānau not present at the review. This all contributes to informed decision-making for future pregnancies. Whānau said that their main information source for caesarean sections is other whānau members.
This shared resource should be supported by accurate, factual information and one method is for clinicians to provide this at the postnatal follow up appointment.

**O. Whānau Support Plans**

Emergency caesarean sections mean that travel plans, the expense of rebooking domestic flights, and previously organised leave from work to support a woman who has had a baby and surgery may impact on how long whānau can support a woman, often leaving less care than expected for the woman when she returns home.

**FOUNDATIONS FOR DECISION-MAKING FOR THE WOMEN & WHĀNAU IN THIS RESEARCH**

The women and whānau participating in this research had several attributes in common that enabled their decision-making. These were: Women as Skilful Weavers; Whānau Aroha; the Tuakana-Teina relationship; Whānau as a Collective; Men as Overseers, Tikanga and Kawa, Mana meets Mana.

Tikanga and Kawa have already been discussed in the ethics, methodology and methods sections of this thesis. Mana meets Mana will be discussed in the *Discussion* chapter.

*Women As Skilful Weavers*

The tradition of weaving for Māori represents women who are highly skilled not only in the art of weaving but women who are highly organised and responsive in all aspects of their lives.

The women from whānau in this research are highly skilled at managing whānau commitments: caring for whānau members; participating in community and school activities; being primary carers of their children; providing shelter for the all-encompassing ‘whānau’; contributing to whānau income; carrying babies during pregnancy; managing hospital admissions either for antenatal, delivery by caesarean section, or for postnatal reasons; and participating and facilitating research to achieve better outcomes for Māori women in the future. They were resourceful when
placed in adverse situations and they showed their ability to compromise. When plans were made for them by the obstetrics team, and when circumstances allowed, they engaged in negotiations that balanced the obstetrics team's plan and their own personal planning, which contrast starkly with the limited time for organisation when delivery is by emergency caesarean section.

These women weave the strands of flax representing their pregnancy and delivery in with those that represent their whānau and community commitments. The strands from the women’s pregnancy and delivery may be seen as temporary compared to the already woven flax of other aspects of their daily lives, however these become permanent in the next generation that emerges from the women’s pregnancy and delivery.

The women and whānau demonstrated their full understanding of clinical knowledge learnt from their experiences. Often health professionals engaging with whānau in clinical settings missed the opportunity to prioritise knowledge sharing with whānau, meaning that whānau were not always fully informed to make decisions.

Time constructs differed between health professionals and whānau, health professionals often explained the progression of the situation to women and whānau from the perspective of the professionals’ involvement in the women’s situation or the time their services would be required. When situations were explained from this perspective it was difficult for women to be able to plan their lives around it, as the situation in terms of the consumption of women’s time was unclear.

This approach by obstetricians or midwives also restricted women’s ability to use their organisation skills to prepare themselves and their whānau as when the obstetrician or midwife’s clinical time wasn’t consumed by the women’s situation, no communication occurred, and women and whānau were unaware that a situation was not going to plan. The decision for an emergency caesarean section often came without warning causing intense negative emotions and upheaval for women and whānau.

Māori women are skilful weavers; time is required to re-organise their roles, commitments and whānau when they are removed from their community and placed in hospital. When this is not facilitated, they say that they often felt stressed as they were unable to skilfully re-organise their commitments.
When the caesarean section occurs, the immediate planning for women and whānau may include welcoming the newest member of their whānau by karakia, waiata, and more than one or two whānau members. This may have been planned around a vaginal delivery or an elective caesarean section. The time to welcome the baby is often not considered in the health professionals’ calculation of time for the caesarean delivery.

The appropriation of time by the health professional was a common theme for women and whānau. An obstetrician may say: keeping the whānau updated so that they can organise their lives is a social worker’s job description. However, emergency caesarean sections occur at any time of the day or night, under the control of the obstetrician.

The highest category for an emergency caesarean section is delivery within thirty minutes. For this to be achieved a high level of organisation is required: the theatre team, the anaesthetics team, the midwifery team, the neonatal team, the obstetrics team and protocols are implemented to achieve an expedited delivery. However, the woman, with or without her whānau, is also placed in this pressured situation. When the obstetrics team imparts their knowledge of the situation to her as soon as possible, the woman and her whānau can adapt and respond also.

**Whānau Aroha**

Aroha is inherent to Māori. Whānau aroha was shown by whānau toward each other, the researcher, and health professionals. The concept of Aroha should be explained here for the reader to fully understand the meaning of whānau aroha.

Māori have produced many books containing an explanation of the concept of Aroha. *Te Wheke, A Celebration of Infinite Wisdom* by Dr Rangimarie Turuki Pere (Rose) is also used as a Māori health framework. In Rose’s book, on Page 6, she describes the concept of Aroha:

*Unconditional love that is derived from the presence and the breath of the [divine parents] āiō mātua.*

*Aroha is not to be talked about, it is only meaningful when actioned. Human needs, the human element, are more important than material possessions.*

*Aroha is an important concept in regard to the survival and true strength of whānaungatanga (kinship ties, extended family across all*
...essential to the survival and total well-being of the world community.

....negative forces cannot flourish where absolute aroha reigns. In a climate of aroha, the psyche, the spirit of a person can soar to great heights.

[Aroha] knows no bounds and is infinite.

Tawhai 1988: 858-9. Of Rangi (Sky) and Papa (Earth) being separated for the first time:

This is the first time...that there is opposition to differentiation or expansion, and the intervening factor is aroha... The separation is physical only. Rangi sends his aroha down in the rains, which are his tears, to Papa, who responds by sending her greetings at dawn in the rising mists. Although physically apart they are united in spirit, their aroha binding them as one.

The most significant aroha shown in this research was Jo and Rangi’s aroha to the registrar who performed the caesarean hysterectomy along with the collective aroha from whānau toward Jo and Rangi. Unfortunately the registrar never experienced this face-to-face.

Tuakana-Teina

The tuakana-teina relationship is an important relationship between Māori siblings.

Ma te tuakana ka totika te teina, ma te teina ka totika te tuakana:

From the older sibling the younger one learns the right way to do things, and from the younger sibling the older one learns to be tolerant.

The whānau in this research revealed that their decision-making was often informed by tuakana-teina relationships which often served as their main support and a means of keeping the whānau together when intergenerational relationships were missing (geographically, due to whānau size, or where the dominant culture for intergenerational relationships was not being Māori). The tuakana-teina relationship in older generations served younger generations where such a relationship had not yet developed. Tuakana-teina relationships evolved from wider whānau relationships and the tuakana-teina bonds were strong in whānau where there were few siblings, or where siblings were isolated.

The eldest daughter of Jo and Rangi, Whānau Maru:
My dad’s brothers and sisters…they come to dad when they want decisions made. He’s the eldest. He can look at things from different angles.

Rangi from Whānau Maru:

*It has put pressure on them [his two children] throughout their lives to…always put pressure on them to have a good relationship with each other, ‘cause they’re the only siblings they’ve got. Once we go, that’s it.*

Choc Junior from Whānau Harakeke speaking about her tuakana:

*Ohh…I’m really supportive when I had the third one, she was supportive with the second one when I had my third, she took the other two home with her up to [central Otago] and she looked after them when we came through [to the hospital], yeah she was good, she was real good.*

**Whānau As A Collective**

Whānau is a self-defined collective of people who in this research demonstrated the strength held within a collective. Whānau can be described as a library of knowledge providing a collective experiential resource for other whānau members to inform their decision-making. For the whānau participating in this research, most members sourced information about caesarean sections from whānau who had experienced a caesarean delivery. *Whakawhānaungatanga, whānau taonga tuku iho,* telephone calls to initiate decision processes, and *kanohi ki te kanohi* were mechanisms that enabled each whānau members decision-making. Whānau members are skilled negotiators and compromisers.

Mātauranga is a taonga highly regarded by Māori. The whānau in this research held accurate and informed knowledge about caesarean sections, which was only limited by knowledge that was not shared with them by health professionals. Health professionals’ clinical knowledge is respected as it expands whānau knowledge. Health professionals need to be more aware of the need for information for whānau in emergency situations.

Whānau experience collective emotions. Many whānau members said that the experience of an emergency caesarean section raised the fear of death for the woman and the baby. Staff did not recognise, and therefore did not address, the fear that whānau were experiencing.

Whetūrangi from Whānau Kaokao:
The worst part was watching my Mum... (starts crying) The worst part was thinking, sorry Mum, I should’ve have let you come in. So you’re being wheeled in the thing and she’s standing there, you think, oh.

‘how I could have died and they would have been left with a baby, and making funny choices like that, it was just weird’. I felt apologetic that I had not considered what my sister would be going through. [Whetūrangi discussing her sister’s comments. Her sister and brother were in another city when she was in labour. They were kept up-to-date by telephone.]

Whetūrangi’s mother:

I felt like my daughter could’ve died and I wouldn’t have been there and I thought that I should’ve been allowed to go [into theatre]. ... because of what she’d been through, she’d just been through hours of labour...and it wasn’t happening, and you never know...in an operation, are they going to live, are they going to die?

.....why was he there? well I know why he was there, he was there for his baby and...but she was my baby, and even though she’s an older person she’s still my baby and I kind of thought, if something had happened in that operation room and she had died, I’d have been really pissed off...and I don’t know what effect it would have had on me, because...you know I love [my mokopuna], but I love [my daughter] and you just don’t know what it could do to you.

The tāne from Whānau Kaokao:

Yeah. Very much so, yeah I don’t know, you’re scared of the unknown as a tāne. Are you going to show me something I don’t really want to see, talk about something...? So to have her mum there..... that all the technical sides were covered.... there was no way that her mum was going to put Whetūrangi in any type of risk

Ranui from Whānau Kiekie:

...and luckily something funny happened: so as I’m lying there with my arms and feeling the coldness, the anaesthetist said that I felt a bit cold, and I remember someone saying, ‘it’s really quiet in here, shall we put the radio on?’ And so they did, and Madonna came on... so I’ve never had surgery before... so I haven’t had that feeling of going under apart from at the dentist. And so it was some little weird happy place... well if I don’t ever come out of this, at least I know I’ve gone out to Madonna (laughs) and it made me feel happy...

The quotations also demonstrate the trust that participants had in the support of their whānau. Kōrero from whānau members demonstrates that knowledge, decision-making, emotions and memory are experienced collectively.
**Men As Overseers**

This theme was apparent in the men participating in this research for this particular situation and should not be regarded as a generalisation about other situations. Men felt that their role was altered when the decision-making was altered. They knew that they were not clinically skilled and they did not want to stand in the way of the health professional, however, men did want knowledge to provide reassurance and safety for their whānau, this includes the ability to use humour as a coping strategy.

When whānau were placed in a situation where typical decision-making cannot be enabled, what happens? Whānau members felt that their identity within the whānau was also altered. Decision-making tended to transfer towards the health professional. Whānau felt that some decision-making was altered by the environment provided by the health services. The level of care provided by health professionals altered decision-making for whānau. Some were able to maintain their typical decision-making attributes despite being in disempowering situations. For this particular situation in this research question, Māori women had repeat emergency caesarean sections, and for this, it was not as much how decision-making was altered, as much as there was no decision-making.

**THEMATICAL RESULTS**

Māori women and their whānau, through in-depth interviewing discussed their experiences with caesarean delivery. Their experiences and knowledge have provided an enormous amount of data not only on the delivery of their children, but on other aspects of women’s reproductive health and healthcare. Whilst processing data, a number of themes were identified from interviews with regards to Māori women, whānau and caesarean deliveries, however these were not specific to decision-making and were therefore excluded from further analysis. These excluded data and themes will inform further research and subsequent publications.

The four women participating in this research lived geographically separate from the majority, if not all, of their whānau at the time of their pregnancies, deliveries and postpartum. At the time of this research, three whānau had three generations living on the same property.

The four women in this research had a total of 8 deliveries:
• One had a vaginal delivery and then an emergency caesarean section with a peripartum hysterectomy;
• One had a semi-elective caesarean section;
• Seven caesarean sections were emergency caesarean sections;
• One of the four women had three emergency caesarean sections and was aware that elective caesarean sections were planned for her subsequent deliveries; however circumstances meant her caesarean sections were always emergency caesarean deliveries.

Māori women are more likely to deliver by emergency than elective caesarean sections, and these are not restricted to the first pregnancy.

The women in this research expected that a repeat caesarean section would be an elective caesarean section; however they delivered by repeat emergency caesarean section. For Māori women, knowing delivery by emergency caesarean section is more likely, means it can be included in the decision-making when repeat caesarean section is expected as a possible outcome.

The woman who had a semi-elective caesarean section was aware in her second trimester that she would most likely deliver by caesarean section. The indications for the first caesarean section were presenting again in the second pregnancy and were modifiable; however the opportunity for health professionals to provide medical knowledge to modify these did not occur between pregnancies. This was because (as with the other women) there were no six week postnatal reviews by the obstetrics team, where plans could be discussed to modify risk factors during the interpregnancy interval.

The kōrero from whānau discusses the significant impact emergency caesarean sections had on their emotional well-being. This is a striking contrast to the emotions related to a significant celebratory life event for whānau. The degrees of the emotions associated with the deliveries by caesarean section were mild to severe. Many of these shared emotions are still expressed within each whānau today. All whānau cried, except one, during the interviews when recalling their experiences.

All four women did not want to deliver their babies by caesarean section. All four women believed that a woman should deliver as nature intended – vaginally. When questioned, none of the women could provide an answer for the best aspect of delivering by caesarean section. All replied with the question – is there a best aspect
to delivering by caesarean section? The three women, who had never delivered vaginally, expressed their disappointment that they had not experienced a vaginal delivery. They felt they had missed out on a significant life experience.

All whānau were unanimous that delivery by caesarean section is a necessity if the mother and/or baby are compromised by not delivering by caesarean section, and all expressed joy at the delivery of their babies.
<table>
<thead>
<tr>
<th>Woman from Whānau Kaokao</th>
<th>Gravida and Parity prior to delivery</th>
<th>Emergency/ Elective c-s</th>
<th>preconception/ medical</th>
<th>antenatal</th>
<th>labour</th>
<th>delivery</th>
<th>postpartum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Caesarean section 1</strong></td>
<td>G1 P0</td>
<td>Emergency</td>
<td>Recreational drugs</td>
<td>Unsure dates. Preferred not to attend regular antenatal classes</td>
<td>IOL &gt;14 days postdates. LMC declined to refer woman for IOL as advised by obstetrician</td>
<td>Prolonged labour, failed to progress in 1st stage, CPD not identified by LMC during labour</td>
<td></td>
</tr>
<tr>
<td><strong>Caesarean section 1</strong></td>
<td>G2 P0 M1</td>
<td>Semi-elective</td>
<td>High BMI, non-smoker, PCOS (polycystic ovarian syndrome)</td>
<td>Preferred to attend antenatal classes. LGA, transverse lie in 3rd trimester requiring hospital admission, then cephalic presentation.</td>
<td>dystocia risk if induction of labour at Term +10</td>
<td>Term+11 caesarean section. Failed spinal anaesthesia with multiple attempts, last attempt by consultant. General anaesthesia (GA)</td>
<td></td>
</tr>
<tr>
<td><strong>Caesarean section 2</strong></td>
<td>G3 P1 M1</td>
<td>Emergency</td>
<td>High BMI</td>
<td>Woman requested dating scan, LGA, transient polyhydramnios</td>
<td>planned VBAC (vaginal birth after caesarean section), postdates, SROM, FTP</td>
<td>Attended anaesthetic review in pregnancy. Failed spinal anaesthesia, GA</td>
<td></td>
</tr>
<tr>
<td>Woman from Whānau Maru</td>
<td>G2 P1 previous NVD with significant tear</td>
<td>Emergency</td>
<td>ex-smoker</td>
<td>Severe hyperemesis. Larger baby than previous. After initially attending, preferred not to attend antenatal classes</td>
<td>Malpresentation: face presentation identified when baby sucked attendant’s finger in prolonged second stage</td>
<td>Husband assisted with delivery at c-s (pushed baby out)</td>
<td>PPH went from spinal to GA</td>
</tr>
</tbody>
</table>

**Table 16: Risks And Indications For Caesarean Section For The Women In This Research**
<table>
<thead>
<tr>
<th>Woman from whānau Harakeke</th>
<th>Gravida and Parity prior to delivery</th>
<th>Emergency/ Elective c-s</th>
<th>preconception/ medical</th>
<th>antenatal</th>
<th>labour</th>
<th>delivery</th>
<th>postpartum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>G1 P0</td>
<td>Non-smoker. Known PCOS.</td>
<td>Diagnosed with pregnancy at Gynae clinic for irregular menses.</td>
<td>TOP - termination of pregnancy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>G2 P0 T1</td>
<td>Fell pregnant on OCP.</td>
<td>No early USS, fetal abnormality detected at morphology scan. Preferred not to attend antenatal classes.</td>
<td>Private obstetrician for TOP.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caesarean section 1</td>
<td>G3 P0 T2</td>
<td>Emergency</td>
<td>Known 2nd trimester TOP.</td>
<td>IOL</td>
<td>Baby's weight 4.85kg</td>
<td>PPH, multiple blood transfusions.</td>
<td></td>
</tr>
<tr>
<td>Caesarean section 2</td>
<td>G4 P1 M0 T2</td>
<td>Emergency</td>
<td>known PPH</td>
<td>None</td>
<td>Preterm @ 33/40</td>
<td>PPH, multiple blood transfusions. No follow up for PET</td>
<td></td>
</tr>
<tr>
<td>Caesarean section 3</td>
<td>G5 P2 M0 T2</td>
<td>Emergency</td>
<td>known PPH, known PET</td>
<td>None</td>
<td>Preterm @ 33/40</td>
<td>No follow up with regards to PET (pre-eclampsia)</td>
<td></td>
</tr>
</tbody>
</table>

Every woman that represents a statistic has an experience associated with it, and her knowledge need not be adjusted into insignificance.
As mentioned in the methods chapter, a caesarean section general knowledge survey was completed by each participant, acting as a second level of data to the in-depth interviews. Within these surveys, the sixteen members of the whānau who participated in this research provided their answers about the risks, indications and complications for caesarean delivery and how many caesarean deliveries a woman could undergo. This research found that the method of in-depth interviewing revealed the extensive nature of whānau knowledge on this subject compared to the survey. A summary of relevant information from the surveys with regards to decision-making is outlined in the following paragraphs along with comments made in participants’ interviews.

One third of whānau reported that midwives provided information about caesarean sections. GPs and obstetricians were not a source of knowledge for caesarean sections for the collective whānau in this research who also felt that antenatal classes were not a suitable resource for them or that when antenatal classes were attended these did not provide knowledge with regards to caesarean sections.

One woman mentioned that she did not feel comfortable in antenatal classes and informal conversations in antenatal classes often included discussions on ‘couples’ buying power for baby accessories; such conversations were often irrelevant to her. One woman discussed how she and her husband were the only brown couple and the antenatal classes were not specifically relevant to them as Māori. Another who was single mentioned how she would go with a female friend, and she was occasionally made to feel uncomfortable because they were not a heterosexual couple.

**Number Of Children, Risks & Complications For Caesarean Delivery**

Each woman reflected on the number of children that they wanted to have. Whetūrangi from whānau Kaokao would not have further children unless she was in a stable relationship although she was very keen to have more. At the time of this research her child was six years old.

Jo from whānau Maru reflected on the number of children that she and her husband had desired: six to eight children.
Ranui from whānau Kiekie and her husband chose two children due to their finances and his age and health.

Choc Junior from whānau Harakeke would have more children even though the obstetrics team who delivered her last baby commented that her uterus was too thin for further deliveries. At the time of this research, Choc Junior was single.

Two out of the three women who were able to have future pregnancies believed that once they had a caesarean section they would always have to deliver that way. Further whānau members also agreed with this.

Whānau members felt that there was a limit to caesarean sections. The sixteen whānau members commented on the number of deliveries that a woman could have by caesarean section. This number ranged from 2-6 caesarean sections. Most commonly, whānau thought that women were restricted to two caesarean deliveries.

Only a few of the women and whānau who participated in this research knew about the risks and complications for a caesarean section from other than their whānau experience. Most could recall one or two risks or complications for caesarean section. This was also the case where more than one or two risks or complications were part of their whānau experience.

Whānau were asked to identify from a list provided to them, conditions which were related to risks and complications for caesarean delivery. For most of these questions, half of the participants were able to distinguish risks and complications for caesarean delivery from situations where there was no risk or complication related to caesarean delivery.
CHAPTER ELEVEN - DISCUSSION

This research process has been an extremely rewarding experience. As more Māori doctors graduate and choose this specialty the opportunity arises to explore the many issues that were identified through this whānau research process. The range of issues identified through in-depth interviews was vast covering gynaecological and obstetrical enquiries by whānau and specific to Māori perspectives. My interpretation of the material presented in this thesis, and which is only part of a vast amount of material collected, is informed by my perspective as a Māori obstetrics & gynaecology trainee.

Māori women who undergo repeat caesarean delivery are more likely than non-Māori to undergo a further emergency caesarean section; and Māori women undergo more emergency caesarean sections than elective caesarean sections. How we share this knowledge with whānau during the interpregnancy interval, preconception period, antenatal period, and postpartum period needs further discussion to enable improved services. Whānau would be interested in outcomes where we can reduce the percentage of Māori women delivering by repeat emergency caesarean section; and should this situation occur, decisions, although hurried, would be based on considered knowledge and less likely to be altered.

Absent birth attendants between the late first stage of labour to the end of the third stage of labour should be considered as a contributory factor for high risk vaginal deliveries. A formal definition needs to be identified for these deliveries as part of an on-going awareness that these deliveries exist.

Whānau had a mixed level of knowledge with regards to the indications and complications of repeat caesarean delivery; this was best informed by experience. Relevant, accurate and factual resources for whānau, such as focused antenatal

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21 The following are but a few examples: An audit of degree of tear at primary birth centres; A further investigation into the risk factors & indications for caesarean section for Māori women; Why do Māori women deliver by emergency caesarean section? How should we define a high risk vaginal delivery? Too many placentas in the freezer; Second trimester termination processes for Māori women; Are Māori women with PCOS getting optimal management in Primary Care? Are Māori women with infertility problems being identified, and when they are, then do they receive optimal care? Whānau kōrero to the unborn baby: a Māori-relevant antenatal diary.
classes, could be an opportunity to increase the distribution of informed knowledge within whānau as whānau have reported that their preferred knowledge source was other whānau members.

RELATIONSHIP TO SCIENTIFIC LITERATURE

By sifting through NZ government maternity documents and combining the data from different reports and then comparing this with international literature, I identified that Māori and Pasifika babies are more likely to suffer from hypoxia induced encephalopathy than those of other ethnicities in New Zealand and the international literature reports a relationship between this condition and emergency caesarean sections and high risk vaginal deliveries. In addition to this example, this research inquiry has made a number of other findings relevant to whānau, Māori health researchers and Māori doctors who seek to address these issues.

International Statistical Classification of Diseases and Related Health Problems ICD-10 codes were used to help identify caesarean section-related diagnoses for Māori women, while taking into account international recognition that these codes are underreported (WHO et al., 2012). Along these lines, the indications uncovered for Māori in this research were similar to those for non-Māori, or those mentioned in the international literature. ICD-10 codes associated with caesarean section for Māori women are more likely to be related to diagnoses associated with emergency caesarean sections. Premature rupture of membranes (PROM) is one ICD-10 code identified as a caesarean section-associated diagnosis for Māori women and this diagnosis is less identifiable in international literature. PROM is more common than pre-eclampsia or gestational diabetes as a caesarean section associated diagnosis from ICD-10 codes. This needs further investigation into how ruptured membranes is diagnosed; and what happens from the time of ruptured membranes to caesarean delivery; and why this is a caesarean delivery associated diagnosis in NZ and not internationally.

Māori women give birth at a younger age, which could be a protective factor as caesarean section has an association with older women.

Modifiable risk factors have also been identified in this research but on the basis of international literature. These were: extremes of neonatal weight; optimising
management of diabetes in pregnancy; increased awareness about the risk of caesarean section according to maternal age; formalised teaching programmes in birthing and obstetric units. Opportunities to modify risk factors in the interpregnancy interval could be initiated at a six-week postnatal appointment.

Antepartum haemorrhage is not in the twenty most common ICD-10 diagnostic codes associated with caesarean delivery in NZ when only the hospital admission for caesarean delivery is counted, however 20% of Māori women who had a caesarean section had an antenatal diagnosis for antepartum haemorrhage. Antepartum haemorrhage is a major contributor toward Māori women and Māori babies' morbidity and mortality, data that is represented in such subtle forms within government databases need to be further investigated to tease out the relevance for improving Māori health status.

Māori women may be having higher risk vaginal deliveries, for example more vaginal breech deliveries, however when the data that is ‘unstated’ or ‘unspecified’ is a higher volume than the data for Māori women, then it is difficult to identify if this is the case. This means that unstated or unspecified data is unacceptably high in our maternity statistics and that the point of data entry for our maternity databases needs to be audited.

Māori contribute personal data toward New Zealand statistics, however the way this information is stored and collated does not provide ease of access to these data for Māori researchers, and may contribute to barriers that result in less optimal improvements in Māori health care, health inequality and inequity. Government departments and health institutions that collect Māori maternity data should consider that these are collections of individuals' whakapapa and that these data should be held and produced with the appropriate level of respect.

Similarities were identified between Māori, Inuit, and Aboriginal women (Gherardi, 2002) mainly in terms of being apart from whānau. Women prefer to remain with whānau where their day-to-day responsibilities provide cohesion and stability for whānau. Physical proximity to whānau, especially children, is important for the well-being of Māori women. Māori women would not willingly be apart from their children on a day-to-day basis and in particular prefer children to stay in the whānau environment. This is a conflict for Māori women who are hospitalised for caesarean sections or when their new born is in NICU.
Exploring the realities for rural Māori women who deliver by caesarean section requires functioning government databases such as the one that was disabled while I was undertaking my data gathering process. In some ways, caesarean deliveries remove the birth from whānau as only one member is allowed into the operating theatre, not unlike how the Aboriginal and Inuit communities which are removed from the birth by vast distances when women are transferred to centralised areas adding to stressors for families and feelings of isolation for the women (Gherardi, 2000).

Harris et al. (2007) implied that non-clinical factors contribute to the differences between Māori and non-Māori caesarean section rates, from those factors, the following have also arisen within this research: patient preferences and expectations, provider practice, patient-provider interaction, access to information and care, and differential management and inaccurate data in women’s hospital files. The 2010 PMMRC Maternal Mortality Working Group Report identified that the more common contributory factors to Māori perinatal related deaths were health service organisation and management, personnel, environment, barriers to access and engagement with care. These may have remained unrecognised, along with indirect deaths, if these had not been established as worthy of identification in reports from 2010 onward.

WHĀNAU

Māori own the knowledge within Te Ao Māori, and the knowledge is widely distributed within whānau, whānau taonga tuku iho. Māori have the right to access and own medical knowledge, to infuse this with their own forms of knowledge to assimilate into Te Ao Māori systems and to then inform and equip themselves to be able to successfully negotiate, compromise and achieve the decision-making outcomes and management plans that best work for whānau when engaging with health professionals.

This research had similar findings to Tupara’s (2009) in that whānau attributes have been identified (Chapter Ten Thematic Results – Foundations of Decision-Making for the Women & Whānau in this Research, page 143) that are central to decision-making and which are informed by information, role modelling, values, beliefs and fears and which consider whānau mana.
MANA MEETS MANA

Whānau in this research included urban whānau, kōhanga whānau, church whānau, ‘plastic Māori’ whānau, and whakapapa whānau. Whānau are self-defined collectives and inclusiveness allows other ethnicities to be woven into their whakapapa. Addressing such issues, Bevan (1999) undertook research that included narratives of white Māori, and refers to a study in 1940s England (Wilson, 1987) which proposed that children with more than one ethnicity would suffer identity conflict; the report found that two of the main causes for this were discrimination and prejudice. The experiences of some whānau members support the findings in He Ritenga Whakaaro: Māori Experiences of Health Services (Jansen et al., 2009) that some health professionals hold a belittling attitude toward Māori. This is known to, and witnessed by, Māori health professionals (Ranui’s midwife and midwifery student in Whānau Kiekie’s profile, Chapter Eight), however the power imbalance and the need to continue to work within that environment on a permanent basis places the Māori health professional in a difficult position.

Institutional racism is historical (intergenerational) and is not discussed at a tertiary level of care, however my research shows that it clearly exists and needs to be openly addressed.

Although not the focus of this research, whānau interviews revealed intergenerational poverty of health care for women. Historical negative health encounters spanning generations within whānau need not be forgotten, however the work done by whānau and health professionals to promote shared knowledge and positive experiences contributes towards redress and acknowledges that mana can meet mana and both parties can benefit (MoH, 2002; Pyett et al., 2008; Smylie et al., 2006): take for example, Whetūrangi and the tāne being able to deliver the karakia for their baby (in Whānau Kaokao’s profile, Chapter Six); and the anaesthetist maintaining Ranui’s dignity while she was under general anaesthesia (in Whānau Kiekie’s profile, Chapter Eight).

Mana is one of the essences of wellbeing for Māori, and when it is present, the way Māori are treated, viewed, and behave is imbued with respect, dignity, and compassion. Mana can be honoured or trampled, both possibilities profoundly affecting the wellbeing of those involved.
Mana is not only about the present; it incorporates the past and the future, and individual mana reflects on the mana of the whānau and hapū, and vice versa. It also includes protecting the natural, physical and spiritual environment. Should individual or collective mana be denigrated then everyone in a particular whānau suffers. It behoves health professionals to respect individual and whānau mana.

**RECIPROCITY**

Māori see their environment as including the seen and the unseen, the past and the future, all residing within the present. Informed New Zealanders are aware of Te Kawa o te Marae and part of this is the *mihi whakatau* which can be respected in any environment. When health professionals hold knowledge of pōwhiri and pepeha, and understand the value of face-to-face encounters with whānau, and who can recognise whānau attributes and the whānau interpersonal relationships behind decision making in situations particular to any specialty, then health professionals move closer to ensuring maximal access to health care and the best possible outcomes for Māori women, Māori babies and whānau. When NZ health professionals embark on a journey to understand the Māori worldview this inevitably leads them to reflect on the impact and responsibilities that will be borne by future generation’s residents.

**EDGEWALKING**

My specialty’s academic sector contributed financially by funding the costs of this research, although me and my research were placed under the umbrella of the General Practice and Rural Health Department and I worked to continue to meet my own living costs and financial commitments which took me away from my research community. The GP and Rural Health Department was an incredibly supportive research environment that fostered my autonomy.

My specialty, obstetrics and gynaecology, as one of the surgical sciences, would benefit from supporting and engaging with Māori doctors who are entering their specialty and providing unchallenged, non-competitive research positions; and providing training environments informed by Māori, who then can contribute toward their Te Ao Māori knowledge bases and reciprocate this knowledge with engaged
collegial peers who are fulfilling their part of the Treaty of Waitangi on behalf of the Minister of Health, and as New Zealanders.

LIMITATIONS OF THIS RESEARCH

As such, this is qualitative research and the question of generalisability is one applied to quantitative research. The principle limitation of this research as a Master’s Degree has meant that a national scale research project was beyond its scope. Although the participant population was small, participants reported similar experiences which suggest that other whānau in similar circumstances might have also shared these experiences. The research was carried out in Ngai Tahu rohe, although participants were not exclusively from Ngai Tahu. The data was knowledge rich and in this way a saturation point was reached on the perspective of this research question from the South.

The accuracy, and therefore reliability, of NZ maternity health databases is another potential limitation to my analysis and does pose the question of how valid the data in this research can be, other than to say, that these databases are used for government documents also.

This research comes from my perspective on Māori health in obstetrics and, as such, I may fall short of providing an academic perspective on the subject from other areas within Māori health. However, there is potential for these academics with the passion that they hold for their area of expertise to work together with Māori doctors in Obstetrics.

FUTURE RESEARCH

The whānau in the pilot process for this kaupapa Māori research provided the most relevant reference people and most appropriate guides for this research. The principles in Te Ara Tika (The Putaiora Writing Group, 2010): Tika, Manaakitanga, Whakapapa and Mana have been observed and both parties (whānau participants and researcher) enhanced their knowledge. Other reference people for this research included those with a particular knowledge base who were sought out individually or others with a common knowledge base.
The findings of this research and other Māori women’s health issues that were identified will be discussed with participants and reference people to inform future research. Māori-relevant and Māori-centred booklets for whānau members and maternity health professionals about high risk whānau pregnancies and high risk deliveries are the most supported research inquiry at present, and therefore will be the next project I explore.

To the whānau who participated in this research and whose main objective was to provide further knowledge to other whānau, I hope this research has achieved this result, and that future research that has been informed by your participation may continue to achieve your objectives.

Whānau aroha – past, present and future
REFERENCES


This Appendix is an addition to Chapter Three Maternity Data Relevant to This Research (page 30). One of my questions regarding the low number of caesarean sections for Māori women compared with non-Māori women was whether Māori women were experiencing more high risk vaginal deliveries. The lower caesarean section rate for Māori women is also observed with other indigenous women in their own countries compared with non-Indigenous women.

Again, I was able to write a chapter analysing the data provided for this inquiry, however analysing this data was not part of my research objectives. The tables illustrated here provide data for Māori women in New Zealand’s maternity environment in relationship to some aspects of high risk vaginal deliveries. High risk vaginal deliveries require a formal definition and should include such things as absent birth attendants.

According to the 2010 PMMRC report, 21% of stillbirths occur during the intrapartum period (during labour and delivery). Māori babies account for 32.6% of perinatal deaths. 26.8% of the total perinatal related deaths are experienced by Māori women.

Leeman & Leeman (2003) reported that increased rates for labour dystocia and vaginal delivery after caesarean section were two reasons for reduced caesarean section rates for indigenous women. They also reported lower caesarean section rates than the USA national average for indigenous women diagnosed with diabetes in pregnancy or pre-eclampsia.

For this enquiry I concentrated on third and fourth degree tears (lacerations to the perineum), diabetes in pregnancy, large for gestational age babies, shoulder dystocia/dystocia during delivery, antepartum and postpartum haemorrhage, and neonatal encephalopathy. As mentioned in Chapter Three, the data for smoking and BMI in pregnancy can only be accurately reported from 2010.
ASSISTED DELIVERIES (FORCEPS, VACUUM, VENTOUSE)

In *Chapter Three Maternity Data Relevant To This Research*, Tables 5, 6, & 7 (pages 45 and 46) illustrate number of women in New Zealand, including Māori women who gave birth per delivery type.

An assisted delivery is defined as a ventouse/vacuum delivery, forceps delivery, or assisted breech delivery.

In 2010, the total number of vaginal and assisted deliveries for New Zealand women was 45,997 of 64,876 total deliveries. The total including ‘Ethnicity not stated’ was 64,939. There were 40,168 normal vaginal deliveries, 5438 assisted vaginal deliveries (forceps, ventouse/vacuum, ventouse/vacuum and forceps deliveries), and 331 vaginal breech deliveries.

‘Ventouse delivery’ was used for initial searches of MoH data. It was observed that ventouse and vacuum delivery were separate delivery types in data collected by the MoH. For the purposes of this research, ventouse and vacuum delivery have been combined.

The breakdown in numbers for each type of breech delivery for non-Māori women in 2010 and over the five year period are respectively: 59 and 317 assisted breech deliveries; 27 and 181 breech extraction deliveries; and 129 and 594 spontaneous breech deliveries. The numbers for each type of breech delivery for Māori women are illustrated in *Chapter Three Maternity Data Relevant To This Research* Table 6 (page 46).

THIRD & FOURTH DEGREE LACERATIONS TO THE PERINEUM

Lacerations to the perineum sustained during delivery are graded in degrees from first to fourth degree tears (Refer to page 225, *Appendix Eleven - Glossary of Medical Terms*).

A third or fourth degree tear (OASIS – obstetrics anal sphincter injuries), and extensive second degree tears, should be repaired by a member of the obstetrics team. A severe third or fourth degree tear should be repaired under supervision of a consultant obstetrician (RANZCOG guidelines for ITP trainees) and with either spinal,
epidural or general anaesthesia. Appropriate management of third and fourth degree tears helps to reduce associated physical and psychological morbidity which may include increased hospital admission, readmissions for further repair, pain, faecal and flatus incontinence, sexual dysfunction and lifestyle alterations (Ampt et al., 2013). Up to 59% of women will still suffer faecal incontinence after a tear repair (Kudish et al., 2008). In 2010, the New Zealand national rate for episiotomy was 17.5%. The homebirth rate was 3.2%; however homebirth statistics are not included in the episiotomy data.

When risk factors for third or fourth degree tears can be identified during a woman’s pregnancy, for example expected large fetal weight (>4.4kg) for a woman who also has a diagnosis for gestational diabetes, a caesarean section would be offered to the woman to prevent a third or fourth degree tear, or reduce the risk of shoulder dystocia, and the associated maternal morbidity.

The Royal College of Obstetricians and Gynaecologists (RCOG) provide a patient information sheet for women stating that 90% of women will sustain any degree of tear during delivery. Of these 9% will be a third or fourth degree tear.

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As mentioned in Chapter Three, the extremely low number of third and fourth degree tears reported in primary maternity facilities is likely to be because women with these injuries are transferred to a secondary or tertiary hospital for repair of the injury. The latter facility records the final diagnosis for degree of tear into the maternity database. This could be interpreted as the injury occurring at the facility where the data was entered. The lead maternity carer in a primary birth centre needs to have the experience to identify the degree of injury and transfer a woman to a secondary or tertiary facility if repair of a third or fourth degree tear is required (Code 3020, Guidelines for Consultation with Obstetricians and Related Medical Services Referral Guidelines 2012).

In New Zealand, 10.6% of all women who delivered in 2010 did so in primary facilities and 17.6% of Māori women gave birth in a primary facility. Māori women account for 39.6% of all women who give birth in a primary facility (The Maternity Summary Report for the MoH, 30 November 2012 gives the facility level and ethnicities for Pacific and NZ European women only. You need to look at the associated Excel files to find this data for Māori women).

Māori women account for 30.7% of all NZ women delivering in secondary facilities; 16.6% of women delivering at tertiary facilities and account for 28.2% of women delivering where the level of facility is unknown.

The number of Māori women who delivered vaginally for the five year period 2005-2010, was 62,229 and 162,307 non-Māori women delivered over the same period. 15,454 of all vaginal deliveries did not specify degree of tear of which: 4,789 deliveries were for Māori women and 10,464 deliveries were for non-Māori women. Of the 62,229 Māori women who delivered by normal and assisted vaginal delivery: 13,659 sustained first or second degree tears and 752 sustained third or fourth degree tears.
Māori women represent approximately 16% of NZ women sustaining third or fourth degree tears during vaginal deliveries. From the population of Māori women, 1.1% and 0.1% who had vaginal deliveries suffered third or fourth degree tears. From the population of non-Māori women who had vaginal deliveries, 2.3% and 0.2% experienced third and fourth degree tears respectively. This indicates that Māori women either have fewer 3rd and 4th degree tears than non-Māori women who deliver vaginally, or are more likely to be in the ‘degree of tear unspecified’ group (Māori women account for approximately one third of women in the ‘degree of tear unspecified’ group).

Of the 225,536 normal and assisted vaginal deliveries in New Zealand between 2005 and 2010, 4,812 women (2.13%) of New Zealand women who delivered vaginally sustained a third or fourth degree tear.

The statistics above do not take into account 15,582 (6.9%) vaginal deliveries where tear was unspecified and where ethnicity was also unstated. However, this number was unlikely to be significant.

Data is not collected for ‘Extension of an Episiotomy’ in the New Zealand maternity environment.

**INCREASED BIRTH WEIGHT**

Although diabetes can be differentiated into Type I Diabetes Mellitus, Type II Diabetes Mellitus and Gestational Diabetes, only gestational diabetes is accurately collected in MoH Maternity Databases over the 2005 to 2010 period. Also, as...
mentioned in Chapter Three (page 30) and where reasons are provided, diabetes in pregnancy may or may not include women who were pregnant and who had a diagnosis of Type I or Type II diabetes.

Tables 18 & 19 below illustrate the NZ women with or without gestational diabetes who sustained third or fourth degree tears and their baby’s birth weight. Table 20 illustrates this information and mode of vaginal delivery. The numbers are low perhaps indicating low numbers for data entry. There does not appear to be an increased risk for Māori women in the population set. The data seems to indicate that all NZ women are at a higher risk of third or fourth degree tears when they do not have gestational diabetes and this needs to be explored further including does intrapartum care alter when a women has gestational diabetes and is this a protective factor against third or fourth degree tears, or is it that the data included under no gestational diabetes include women who were never diagnosed with gestational diabetes. Alternatively to this, the data indicates that women with gestational diabetes are still delivering by assisted breech delivery and sustaining third and fourth degree tears, which would be regarded as high risk vaginal deliveries. The data is too inaccurate to make binding statements about what is illustrated in the tables.

Of the 751 Māori women who sustained third and fourth degree tears, twelve were recorded as having a diagnosis of gestational diabetes (1.6%), all of whom sustained third degree tears. Four had babies weighing between 2500-2999g for four Māori women; two between 3000-3499g; five between 3500-3999g; and one between 4000-4499g.

Of the 15,454 deliveries where degree of tear was unspecified: 393 women had a diagnosis of gestational diabetes.

Parity is not included in these data.

Women with a baby in-utero estimated at more than 4.4kg measured by ultrasound scan, may be offered caesarean section to prevent significant trauma to the perineum or shoulder dystocia at vaginal delivery. Monitoring the level of control of blood sugar levels for women with diabetes in pregnancy may help to identify women who are at a higher risk of macrosomic babies. Women with babies in-utero weighing more than 4.4kg but who have previously delivered a baby of similar weight
vaginally without significant trauma to the perineum, may not require a caesarean section.

Table 18: Māori & Non-Māori Women With Gestational Diabetes Who Sustained A Third Or Fourth Degree Tear By Birthweight For The Five Year Period 2005 - 2010

<table>
<thead>
<tr>
<th>Birthweight</th>
<th>2005-2010</th>
<th>Māori</th>
<th>non-Māori</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3rd degree tear</td>
<td>4th degree tear</td>
<td>3rd degree tear</td>
</tr>
<tr>
<td>2000-2499g</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2500-2999g</td>
<td></td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td>3000-3499g</td>
<td>2</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>3500-3999g</td>
<td>5</td>
<td>29</td>
<td>8</td>
</tr>
<tr>
<td>4000-4499g</td>
<td>1</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>4500g and over</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>weight not stated</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 year period Total</td>
<td>12</td>
<td>0</td>
<td>101</td>
</tr>
</tbody>
</table>

Source: National Maternity Collection (MAT), Ministry of Health, 2011

Table 19: Māori & Non-Māori Women Without Gestational Diabetes Who Sustained A Third Or Fourth Degree Tear By Birthweight For The Five Year Period 2005 - 2010

<table>
<thead>
<tr>
<th>Birthweight</th>
<th>2005-2010</th>
<th>Māori</th>
<th>non-Māori</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3rd degree tear</td>
<td>4th degree tear</td>
<td>3rd degree tear</td>
</tr>
<tr>
<td>1000-1499g</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500-1999g</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000-2499g</td>
<td>4</td>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td>2500-2999g</td>
<td>39</td>
<td>3</td>
<td>282</td>
</tr>
<tr>
<td>3000-3499g</td>
<td>174</td>
<td>23</td>
<td>1090</td>
</tr>
<tr>
<td>3500-3999g</td>
<td>270</td>
<td>22</td>
<td>1372</td>
</tr>
<tr>
<td>4000-4499g</td>
<td>125</td>
<td>12</td>
<td>659</td>
</tr>
<tr>
<td>4500g and over</td>
<td>49</td>
<td>2</td>
<td>146</td>
</tr>
<tr>
<td>weight not stated</td>
<td>15</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td>5 year period Total</td>
<td>676</td>
<td>63</td>
<td>3623</td>
</tr>
</tbody>
</table>

Source: National Maternity Collection (MAT), Ministry of Health, 2011.
Table 20: Mode Of Delivery, Third & Fourth Degree Tear & Tear Unspecified; With Or Without Diabetes For Māori & Non-Māori Women, For The Five Year Period 2005 - 2010

<table>
<thead>
<tr>
<th>Mode of delivery</th>
<th>Diagnostics</th>
<th>3rd Degree Tear</th>
<th>4th Degree Tear</th>
<th>Tear not specified</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Māori</td>
<td>non-Māori</td>
<td>Māori</td>
<td>non-Māori</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Assisted Breech</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Breech Extraction</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Vacuum</td>
<td>4</td>
<td>97</td>
<td>36</td>
<td>904</td>
<td>1</td>
</tr>
<tr>
<td>Forceps</td>
<td>2</td>
<td>104</td>
<td>41</td>
<td>81</td>
<td>1</td>
</tr>
<tr>
<td>Forceps &amp; Vacuum</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>Normal Vaginal Delivery</td>
<td>50</td>
<td>521</td>
<td>97</td>
<td>2661</td>
<td>0</td>
</tr>
<tr>
<td>Total known mode of delivery</td>
<td>56</td>
<td>725</td>
<td>177</td>
<td>3682</td>
<td>4</td>
</tr>
<tr>
<td>Mode of delivery not stated</td>
<td>0</td>
<td>16</td>
<td>0</td>
<td>85</td>
<td>2</td>
</tr>
</tbody>
</table>

Notes:
1. Accuracy of this data is impeded by the number of tears that are not specified and the number of deliveries where the mode of delivery is not recorded.
2. Where the mode of delivery is unspecified and where the tear has not been specified there are also a high number of other inaccuracies in the data, such as: the DHB has not been recorded, no GDM data is recorded, no birth weights have been recorded.
3. The total number of deliveries where the mode of delivery has been identified still has a high rate of tears that have not been identified.
4. Any further analysis of this data requires more accurate data collection.
5. This table merely represents the information that could have been better recorded.
6. The third and fourth degree tear statistics in this Table may be significantly underestimated because of the number of tears not specified and the incompleteness of the database.
7. There were 6 elective caesarean sections recorded within the data for vaginal tears.
8. There were 6 elective caesarean sections recorded within the data for vaginal tears.
9. Assisted delivery: ventouse/vacuum and/or forceps, including multiple births and breech delivery. Normal vaginal delivery; including normal multiple births and normal breech delivery.

Notes:
1. Accuracy of this data is impeded by the number of tears that are not specified and the number of deliveries where the mode of delivery is not recorded.
2. Where the mode of delivery is unspecified and where the tear has not been specified there are also a high number of other inaccuracies in the data, such as: the DHB has not been recorded, no GDM data is recorded, no birth weights have been recorded.
3. The total number of deliveries where the mode of delivery has been identified still has a high rate of tears that have not been identified.
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2. Where the mode of delivery is unspecified and where the tear has not been specified there are also a high number of other inaccuracies in the data, such as: the DHB has not been recorded, no GDM data is recorded, no birth weights have been recorded.
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Notes:
1. Accuracy of this data is impeded by the number of tears that are not specified and the number of deliveries where the mode of delivery is not recorded.
2. Where the mode of delivery is unspecified and where the tear has not been specified there are also a high number of other inaccuracies in the data, such as: the DHB has not been recorded, no GDM data is recorded, no birth weights have been recorded.
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Notes:
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2. Where the mode of delivery is unspecified and where the tear has not been specified there are also a high number of other inaccuracies in the data, such as: the DHB has not been recorded, no GDM data is recorded, no birth weights have been recorded.
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8. There were 6 elective caesarean sections recorded within the data for vaginal tears.
9. Assisted delivery: ventouse/vacuum and/or forceps, including multiple births and breech delivery. Normal vaginal delivery; including normal multiple births and normal breech delivery.
The following two tables (Tables 21 & 22) present caesarean and vaginal deliveries where dystocia/shoulder or dystocia/obstruction of labour have been recorded in relationship to Māori women. The data that I had requested for dystocia/shoulder dystocia, third and fourth degree tears, whether a woman had diabetes or not in pregnancy, and mode of delivery could not be supplied.

Risk factors for shoulder dystocia/dystocia are difficult to predict; shoulder dystocia is more likely for women who give birth to babies with larger birth weights and diabetic women who have macrosomic babies have a higher risk.

The total data illustrated in these tables seems too small to represent actual numbers within New Zealand.

Table 21 illustrates that in the period 2005/6, 94% of Māori women with a recorded shoulder dystocia at birth delivered vaginally whereas 6% of Māori women went on to deliver by caesarean section after a diagnosis of shoulder dystocia at birth.

For the same year, when Māori women are part of the Total NZ women population 9.7% were Māori women who had a diagnosis of shoulder dystocia at the time of delivery and who proceeded to vaginal delivery, and 15.4% of Māori women as part of the Total NZ women population had a diagnosis of shoulder dystocia at the time of delivery and proceeded to deliver by caesarean section.

When we compare this with the year 2010/11, when Māori women had a diagnosis of shoulder dystocia, 96.5% went on to deliver by vaginal delivery and 3.4% went on to deliver by caesarean section.

For the same year, when Māori women are part of the Total NZ women population who had a diagnosis of shoulder dystocia at the time of delivery, Māori women represented 13.6% of the Total NZ women population that proceeded to deliver by vaginal delivery and 23% of the Total NZ women population who proceeded to caesarean delivery with a diagnosis for shoulder dystocia.

Table 22 represents Māori women and Total NZ women who had a diagnosis of obstructed labour and whether these women proceeded to deliver by vaginal delivery or caesarean section in the period 2005/6 to 2010/11. In 2005/6, from the total number of Māori women recorded to have experienced obstructed labour, 27% proceeded to deliver by vaginal delivery and 73% went on to deliver by caesarean section. As part of the Total NZ women population, Māori women represented 20%
of Total NZ women that delivered vaginally with a diagnosis of obstructed labour and Māori women represented 18% of Total NZ women who proceeded to caesarean delivery with a diagnosis of obstructed labour. Compared to the year 2010/11, Māori women with a diagnosis of obstructed labour, 12.5% proceeded to deliver by vaginal delivery and 87.5% proceeded to deliver by caesarean section. Māori women, as part of the Total NZ women population represented 10% of NZ women that had a diagnosis of obstructed labour and who proceeded to deliver by vaginal delivery and 7.4% of NZ women who proceeded to deliver by caesarean section.
Table 21: Number Of Publicly Funded Hospitalisations Involving A Delivery Complicated By Shoulder Dystocia & Caesarean Section For Māori & Non-Māori Women, For The Six Year Period 2005 - 2011

<table>
<thead>
<tr>
<th></th>
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<td>12,634</td>
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</table>

Source: National Minimum Dataset (NMDS), 2012, Ministry of Health

Notes:
1. All deliveries were identified by any procedure code in 9046700, 9046800, 9046801, 9046802, 9046803, 9046804, 9046805, 9046900, 9046901, 9047000, 9047001, 9047002, 9047003, 9047004, 1652000, 1652001, 1652002, 1652003 [Blocks 1336-1340] or any diagnosis code in O80-O82 or Z37 (ICD-10-AM-I)
2. Shoulder dystocia flag was set to Y if any diagnosis of O66.0 (ICD-10-AM-I) was present on the delivery event
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Source: National Minimum Dataset (NMDS), 2012, Ministry of Health

Notes:
1. All deliveries were identified by any procedure code in 9046700, 9046800, 9046801, 9046802, 9046803, 9046804, 9046805, 9046900, 9046901, 9047000, 9047001, 9047002, 9047003, 9047004, 1652000, 1652001, 1652002, 1652003 [Blocks 1336-1340] or any diagnosis code in O80-O82 or Z37 (ICD-10-AM-I)
2. Obstruction of labour, unspecified flag was set to Y if any diagnosis of O66.9 (ICD-10-AM-I) was present on the delivery event
3. If the same woman had two publicly funded hospitalisations involving a delivery in a single financial year, she was counted twice in that financial year
4. Caesarean section flag was set to Y if any procedure in 1652000, 1652001, 1652002, 1652003 [Block 1340] (ICD-10-AM-I) was present on the delivery event
ANTEPARTUM HAEMORRHAGE (APH) & POSTPARTUM HAEMORRHAGE (PPH)

As mentioned in the literature review from the Sixth Annual Report of the Perinatal and Maternal Mortality Review Committee’s Mortality 2010 report:

- Antepartum haemorrhage is a more common antecedent to death for Māori women.
- APH is the second highest cause for stillbirth, after ‘unexplained causes for stillbirth’ for Māori babies.

The Report identifies that the risk factors for APH are: hypertension, smoking, ethnicity and parity. Intrauterine growth restriction is associated with APH.

In New Zealand, antepartum haemorrhage has an association with pregnant women under the age of 21 and perinatal related deaths. Māori women on average give birth at the age of 22 and 35% of Māori women have their first baby before 23 years of age.

Smoking is a known risk factor for APH and placental abruption, and there is a dose-relationship for placenta-associated syndromes (placental abruption, placenta praevia, pre-eclampsia, small-for-gestation baby, pre-term birth, and still birth). The percentage of pregnant Māori women smoking at the time of registration with a lead maternity carer is 38.4%. Women who smoke accounted for 28% of maternal deaths (PMMRC 2010). Young Māori women in low socioeconomic areas are most likely to smoke (Glover and Kira, 2011). Glover & Kira found that Māori women knew they needed to cease smoking during pregnancy, however continued smoking when pregnant because they perceived themselves to be generally healthy. They found cessation difficult because of the higher number of smokers in their work, home and social environments and they smoked to help cope with stressful circumstances and to alleviate stress. Young Māori women were unaware of the risks associated with smoking during pregnancy.

When antepartum haemorrhage occurs and there is no fetal or maternal compromise, the pregnancy becomes high risk if there has been a history of previous placental abruption or if the APH is unexplained (Green Top Guidelines No. 63).
More research needs to be undertaken with regards to Māori women, APH, and management of care during pregnancy and type of delivery. According to the UK Green Top Guideline No. 63:

*there is an increased risk of delivering by caesarean section when there is an antepartum haemorrhage and maternal or fetal compromise; or if the APH is unexplained, or when placenta praevia is diagnosed.*

Postpartum haemorrhage occurred for two women in this research who subsequently required multiple blood transfusions, and it is a risk factor for hysterectomy which was a complication for one of the women.

The ICD-10 code for postpartum haemorrhage (PPH) for vaginal deliveries and caesarean sections for Māori women and Total New Zealand women are displayed in the table on the next page (Table 23).

Table 23 illustrates women who have a diagnosis of postpartum haemorrhage in relationship to their mode of delivery – caesarean section or vaginal delivery. In the year 2005/6, Māori women who experienced a postpartum haemorrhage, 71% delivered vaginally and 29% delivered by caesarean section. Compared with 2010/11, when Māori women experienced a postpartum haemorrhage 83% were associated with a vaginal delivery and 17% were associated with caesarean delivery.

When Māori women are illustrated as part of the Total NZ women population in the year 2005/6, Māori women represented 22% of NZ women who experienced a postpartum haemorrhage after a vaginal delivery and 16.7% of NZ women who experienced a postpartum haemorrhage after a caesarean delivery. When Māori women are illustrated as part of the Total NZ women population in the year 2010/11, Māori women represent 22% of NZ women who experience a postpartum haemorrhage after a vaginal delivery and 15.6% of NZ women who experience a postpartum haemorrhage after a caesarean delivery.
Table 23: Number Of Publicly Funded Hospitalisations Involving A Delivery Complicated By Postpartum Haemorrhage & Caesarean Section For Māori Women & Non-Māori Women For The Six Year Period 2005 - 2011

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<tr>
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<td>Non-Māori</td>
<td>Māori</td>
<td>Non-Māori</td>
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<td>Non-Māori</td>
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Source: National Minimum Dataset (NMDS), 2012, Ministry of Health

Notes:
1. All deliveries were identified by any procedure code in 9046700, 9046800, 9046801, 9046802, 9046803, 9046804, 9046805, 9046900, 9046901, 9047000, 9047001, 9047002, 9047003, 9047004, 1652000, 1652001, 1652002, 1652003 [Blocks 1336-1340] or any diagnosis code in O80-O82 or Z37 (ICD-10-AM-I)
2. Caesarean section flag was set to Y if any procedure in 1652000, 1652001, 1652002, 1652003 [Block 1340] (ICD-10-AM-I) was present on the delivery event
3. Postpartum haemorrhage flag was set to Y if any diagnosis of O72 (ICD-10-AM-I) was present on the delivery event
4. If the same woman had two publicly funded hospitalisations involving a delivery in a single financial year, she was counted twice in that financial year
MĀORI BABIES & HIGH RISK VAGINAL DELIVERIES

Historical data provides an overall neonatal encephalopathy (NE) rate as 1.26/1000 registered births (gestation 34 weeks or greater). More recent Auckland-based studies have reported rates of 1.7-1.8/1000 births. This figure is clarified by the Neonatal Encephalopathy Working Group (NEWG) of the New Zealand Perinatal Mortality and Morbidity Review Committee (PMMRC) as probably being a higher rate because the data was from higher-risk populations.

In 2010, 82 cases of moderate to severe neonatal encephalopathy were recorded. 59 babies survived the first 28 days of life (NEWG Report). Forty-four percent (36) were born by caesarean section. Forty-four percent (16) of those born by caesarean section were born prior to labour. The remaining 56% (20) were delivered by caesarean section during labour.

Neurological conditions, most frequently peripartum hypoxic insult, are the third most common neonatal cause of death (NEWG Report, Section 3, Page 90 of the PMMRC 2010 report).

In the 2009 PMMRC report: contributory and avoidable factors were thought to be present in almost 50% of hypoxic peripartum deaths.

The following data was not in the NEWG Report but in another section of the 2010 PMMRC report (Page 45, Figure 24) and in a graph: Perinatal Death Classification Specific To Perinatal Related Death Rates by Ethnicity 2007-2010 illustrates that babies born to Māori and Pacific peoples have the highest rate of hypoxic peripartum death.

Māori women have more emergency than elective caesarean sections, and more emergency caesarean sections compared with non-Māori women. Māori women are more likely to have a repeat emergency caesarean section than a repeat elective caesarean section.

A recent Irish Study (Walsh et al., 2013) reports that neonatal encephalopathy is more likely with emergency caesarean sections when a women is in labour at full dilatation; and with assisted (forceps, vacuum, ventouse extractions) vaginal deliveries.
Appendix One is an addition to Chapter Three Maternity Data Relevant to this Research. High Risk Vaginal Deliveries were explored when the associated diagnoses included one or more of the following: gestational diabetes mellitus, assisted deliveries, third and fourth degree lacerations to the perineum, increased birth weight, obstructed labour, shoulder dystocia, antepartum haemorrhage, postpartum haemorrhage, and hypoxia induced encephalopathy; and placed Māori women in the forefront of this exploration to provide a background for this research question.

The most consistent limiting factor to the data illustrated is the inaccuracy of data especially where the data explored often had the diagnosis unstated. The numbers of unstated or unspecified conditions were at times higher than the numbers for the data for Māori women and this is a serious flaw in data input and collection when it comes to being able to accurately represent Māori women and Māori in maternity statistics.
APPENDIX TWO – COMPLETE LIST OF ICD-10 CODES

Table 24: Specific Pregnancy, Childbirth And Puerperium Diagnoses Present On Publicly Funded Hospital Discharges Involving A Caesarean Section, For The Six Year Period 2005 – 2011 For Māori Women & Total NZ Women

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Source: National Minimum Dataset (NMDS), 2012, Ministry of Health

Notes:
1. Caesarean sections were identified by the following procedure codes: any procedure code in 1652000, 1652001, 1652002, 1652003 [Block 1340] (ICD-10-AM-I)
2. The following diagnoses were selected: O10-O16, O20, O24, O25, O26, O28, O30-O36, O40-O46, O48, O60-O71, O73, O75, O82, O90, O94, O98, O99 (ICD-10-AM-I)

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Source: National Minimum Dataset (NMDS), 2012, Ministry of Health

Notes:
1. Caesarean sections were identified by the following procedure codes: any procedure code in 1652000, 1652001, 1652002, 1652003 [Block 1340] (ICD-10-AM-I)
2. The following diagnoses were selected: O10-O16, O20, O24, O25, O26, O28, O30-O36, O40-O46, O48, O60-O71, O73, O75, O82, O90, O94, O98, O99 (ICD-10-AM-I)
APPENDIX THREE – INFORMATION SHEET

INFORMATION SHEET (PAGE 23 OF NAFG) V.5 July 2012

Obstetrics: How is decision making by whānau altered when the birth plan is repeat caesarean section?


Thank you for considering this research project. The following is to provide you with further information before we start interviews together.

With ethics approval, I have permission to find women from hospital databases who have the following in common: Māori women who have had three or more caesarean deliveries; or who have been advised not to have further caesarean section deliveries; or who have had a caesarean hysterectomy.

Another way that you could have been identified as a possible participant of the research project is by existing networks that both you and I are connected to (e.g. a whānau member, friend, or a person working in the area of women’s health and who knows both you and me).

As mentioned, with your permission, I would like to invite members of your whānau to be a part of this research also.
The research has a consent form that both you and I sign. This form gives you an assurance that I will protect your rights while you are part of this research process. The form also indicates that you have consented to participating in this research - *ngā mihi ki a koe.*

If you decide not to take part in this research, thank you for your time to consider this research project.

**Research Question:**

How is decision-making by whānau altered when the birth plan is repeat caesarean delivery?

**Participants:**

Approximately 6-8 women and their nominated whānau (the woman chooses whānau members that will be included in the interviewing process).

The women would have:

- delivered by 3 caesarean sections or more; or
- been advised not to have further caesarean section deliveries; or
- had a caesarean hysterectomy.

Relevant network groups will also be a part of the research.

**Aim of the Research:**

To explore with the participants (women, their nominated whānau and relevant network groups) whether whānau decision making is altered when delivering babies requires repeat caesarean section deliveries. This information will be collected from in-depth interviews and small group sessions.

**Researcher**

Dr Patricia Boyd  
Iwi: Te Rarawa, Ngati Kuri  
This research project is part of a Master’s Degree in Medical Sciences  
3rd year registrar in O&G and trainee with RANZCOG (Royal Australian & New Zealand College of Obstetricians & Gynaecologists)  
Email: herball@clear.net.nz, or contact me via my primary supervisor, Dr Chrys Jaye

**Supervisors (3)**

1. **Primary Supervisor: Dr Chrystal Jaye**  
   Senior Lecturer & Deputy Head of Department of General Practice & Rural Health  
   Dunedin School of Medicine  
   University of Otago  
   P O Box 913, Dunedin  
   Telephone: 03 479 5767
Email: chrys.jaye@otago.ac.nz

2. **Associate Professor Joanne Baxter**  
   Associate Dean Māori, Dunedin School of Medicine  
   University of Otago  
   P O Box 913, Dunedin  
   Telephone: 03 479 7176  
   Email: jo.baxter@otago.ac.nz

3. **Dr Celia Devenish**  
   Obstetrician & Gynaecologist  
   Women’s & Children’s & Public Health Department  
   P O Box 913, Dunedin  
   Telephone: 03 474 0999 ext. 8569  
   Email: celia.devenish@otago.ac.nz

**Contact Person if you have any queries or concerns regarding your rights in this research project (Health & Disability Advocate)**

- **Free phone:** 0800 555 050  
- **Free fax:** 0800 2 SUPPORT (0800 2787 7678)  
- **Email:** advocacy@hdc.org.nz

**If there is a specific Māori issue/concern, please contact Linda Grennell at 0800 37 77 66**

**This research has received Ethical Approval from:**  
- Multi-region Ethics Committee which reviews national and multi-regional studies  
  Multi Region Ethics Committee Reference number: **MEC/11/EXP/061**

**The Research Process**

The interviews will be held in a place that you choose for you and your whānau. I will provide an interview room at your request. I have set aside up to 28 hours over a period up to 12 weeks to interview you and your whānau, either collectively, individually or both.

The interview(s) provide an opportunity for me to hear and record your experiences around delivery by repeat caesarean section. I am interested in the decision making for you, you and your partner, and your whānau from conception to delivery and long term plans around family planning, in particular, what impact repeat caesarean section may have had on your decisions. I will be recording our conversations to determine common issues and themes amongst the women and whānau that are interviewed.

I am asking your permission to interview members of your whānau that you nominate, to hear their perspectives on the decision making processes around delivery by repeat caesarean section and to establish if decision making within the whānau is altered by this procedure.
This is not a survey or a questionnaire. The interview will proceed according to where your dialogue takes us around the issue of repeat caesarean section (a fluid process – ‘go with the flow’).

After in-depth dialogue, I may ask open ended questions to answer any relevant issues that were not covered.

Part of collecting information will be to take your medical history. This will occur at the beginning of the first interview. This can be between you and me or with your whānau present (your choice).

Also, I will be asking for your permission to read your medical files to find out about your care during your pregnancies and after your babies were born.

At any time during the research process, you can choose to stop participating in the research and you do not have to provide a reason.

Our interviews will be recorded. You may stop the interviews at any stage, or ask for the recordings to stop. You do not have to answer any questions that you are uncomfortable answering.

The recorded interviews will be typed (transcribed) and common themes, issues and unique situations will be identified. You will have an opportunity to read the transcriptions, to ensure that these are correct, or in case we need to edit the notes. The transcriptions will be discussed with my supervisors, and it is likely that the processed data, and the identified common themes and issues will be discussed with the research advisory discussion group(s).

Once themes and issues have been identified from the interviews with women and whānau; there may be the opportunity to meet in groups to discuss the themes and issues common to you. These group sessions will also be recorded. You can edit or modify your personal contributions within these groups.
It is important that participants’ provide respect and confidentiality toward all other participants and group members during interviews and group sessions. This respect and confidentiality should be maintained outside of the research environment also.

Quotes from participant’s interviews may be written in the final publications; however the identity of the participants will not be exposed when quoted. The participants can assist with editing the quotations to prevent recognition.

I will keep all identifiable data in a secure place. This can be returned to you, or copies will be given to you.

Should you feel that you need further information about the births of your babies, then I advise that you contact your GP or Lead Maternity carer, or both.

Should I feel that you are in an unsafe environment during the research process, I may discuss this with my supervisors and the relevant ethics committees, to obtain advice on how to proceed in a way that keeps you safe.

Any expenses that you incur because you are a participant will be reimbursed or vouchers will be provided (e.g. petrol vouchers, childcare).

This is my first effort to produce research, and should you consent to being part of this research study, then I would like to express my appreciation that you have chosen to invest in this research knowing that this is my first effort to produce research.

**Outcomes & Significance of the Research**

A proposed outcome would be to increase health professionals’ awareness of how repeat caesarean section as the way of delivering babies impacts upon whānau decision making. Another outcome would be to provide more information to Māori women and their whānau about repeat caesarean section delivery with respect to short term and long term outcomes. By undertaking kaupapa Māori research, the knowledge base for Māori researchers and Māori as recipients of health care in New Zealand are improved.

This research process and outcomes will be part of my Master’s Degree Thesis. The outcomes may be reproduced in health journals. A copy of the thesis will be held in the University of Otago Library.
Your participation is entirely your choice, ngā mihi ki a koe

Yours faithfully,
Dr. Patricia Boyd
Sole Researcher, MBChB, DipOMG, Member of Te ORA Māori Doctors’ Association
APPENDIX FOUR – CONSENT FORM

CONSENT FORM – Available in Maori
Version 2, June 2011

Obstetrics: How is decision making by whānau altered when the birth plan is repeat caesarean section?

Request For Interpreter

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CONSENT PROCESS

1. The researcher has given proof of who she is _____
2. I have contact details for the researcher’s supervisors and details of other people that I can contact to ask questions about this research project (provided in the information sheet) _____
3. The researcher will honour any agreements made with me during the interviews
4. This research project abides by the law of New Zealand
5. I can participate in this research as I have: (please tick which applies)
   Had three or more caesarean section deliveries ____ or
   Been advised not to have any further caesarean section deliveries ____ or
   Had a Caesarean hysterectomy ____ and, I am Maori ____
   A member of my whānau can tick the requirements above ____
6. I have read and I understand the information sheet dated 2 June 2011, Version 2, for volunteers taking part in the study. The study is designed to answer the research question above by recorded interviews and small group sessions.
7. I have had the opportunity to have whānau support or a friend to help me ask questions and understand the study.
8. I understand that taking part in this study is my choice, and that I may withdraw from the study at any time, and that I do not have to provide a reason for withdrawing from the research.

9. I understand that my participation in this study is confidential and that no material that could identify me will be used in any reports on this study.

10. I will keep the information of other participants anonymous and I will keep group discussions confidential. I will not pass on any information to people not involved in the research.

11. I have had time to consider whether to take part in the study.

12. I consent to my interview being audiotaped.

13. I consent to small group sessions being audiotaped.

14. Personal identifying information represented by digital audio recordings will be destroyed at the conclusion of the project unless I request that it be returned to me. Any raw data on which results of the project depend will be kept in secure storage for ten years. Please return recordings to me: Yes___ No___

15. Please indicate any of the following which are suitable for you:
   - I wish to receive a copy of the results.
     (I realise that there will be some time delay between the interviews and the publication of results.
   - Or, I would like the researcher to discuss the outcomes with me.
   - Or, I would like the researcher to discuss the outcomes with me and my whānau.
   - Or, I would be happy to attend a hui for the participants, so that the researcher can discuss the results.

16. Do you want your GP to be notified that you are part of this study?

I ________________________ (your name) agree to take part in this study.

Signature: ________________________

Sole Researcher:  Dr Patricia Boyd  Signature: ________________________

Date: ________________________
Kia ora __________

Ethics reference number: MEC/11/EXP/061

Please can you fill out this form which gives me your contact details and preferred method of contacting you? Nga mihi ki a koe

My non-identifying name is __________________________ (choose a name)

Address: __________________________  Alternative Address: __________________________

Address: __________________________  Alternative Address: __________________________

□ I am happy with mail going to the address above. □ I prefer the above address to be used

My telephone numbers in order of preference are:

1. ______________ Best time(s) to phone me ______________

2. ______________ Best time(s) to phone me ______________

3. ______________ Best time(s) to phone me ______________

My email address is: __________________________

I prefer to be contacted by mail □

I prefer to be contacted by phone □

Text if appropriate  Yes / No

I prefer to be contacted by email □

Please sign here __________________________  Whānau # Member#
APPENDIX FIVE – RESEARCH INTERVIEW GUIDES

INTERVIEW GUIDELINE V3, Nov 2011

The interview guide is intended for people who have an interest in the content and process of the interviews for this research project. The interviews will be in-depth dialogue exploring the experiences of a woman and her whānau with regards to decision making around delivery by caesarean section.

The interview guide is likely to undergo further development and refinement and it will be tested before being used in the project.

The interviews will be for approximately 2 hours. The number of interviews will vary according to the experiences of the women and her nominated whānau members. A two month interviewing period has been allocated for interviewing the 6-8 women and whānau. This is a flexible time period.

At the start of each interview, the participants will be reminded that participation is voluntary, that participants can choose to opt out of the research at any time, and that they can choose not to answer questions nor share their experiences at any stage during the interviews.

The participants will be reminded that the interview will be recorded and that the recording can stop during the interview if the participant requests this. The participants will be aware that I will also write a few notes if necessary to accompany the recordings.

At the end of each interview, and before proceeding to organize a further interview with participants, I will ask the participants if they are happy to continue with the interview process or not. Also, I will give the participants an opportunity to discuss whether they were happy, or not, with the interview that had just concluded. This will enable changes to be made to the interview process that best suit each participant and it will give participants an opportunity to share what part of the interview process does not work well for them. (Kavanaugh K 2006). Prompting visual experiences, visual aids
The in-depth dialogue within the interview is about the woman and her whānau sharing their experiences with the expectation that by listening I may learn about their experiences in relationship to their babies being delivered by caesarean section. *Concept of participant as author and researcher as editor – cocreation (Polkinghorne 2005 p 143; Mishler 1986 p 82.)*

The less structure in the interview, will allow the unpredicted to surface. Structured interviews must predict what will be said in advance and thereby influence the outcome of the interview. The interviewer’s objective is to determine patterns more than having questions answered *(Crabtree & Miller Chapter 4 Key Informants P77).*

After introductions, I will discuss with the woman that the first part of the interview includes her typical medical history and a focus on her obstetric and gynaecological history, family history, if she is taking any medication, and whether she was taking any medications during her pregnancies. Once the woman is aware that this is the first part of the interview and that it is prior to in-depth dialogue, the woman can choose whether this will be shared information with other whānau members that are present or whether this is a short one-on-one interview.

After the initial medical history above, the following starting cues, or similar, will arise. This will allow a lead into the in-depth dialogue, which will subsequently be built upon.

- Currently pregnant?
  - Have you ever thought about how many children you may have? If so, how many?
  - Has your partner, your/ his whānau ever thought about how many children you will have?

*The interview guideline will be adapted for each whānau member.*
HOWE IS DECISION MAKING BY WHANAU ALTERED WHEN THE BIRTH PLAN IS REPEAT CAESAEAN SECTION?

INTERVIEW GUIDE

Pregnancy course & Relationships: woman, couple, whānau, LMC, GP/obstetrician

Birth plan – who’s plan?
Antenatal care
Third trimester planning
Labour
Delivery
Whenua, placenta
Post-partum course.
Altered birth plan, altered care plan, altered whānau planning, altered support vs. factors that remained stable

Birth setting

Mode of delivery

Personal mode of deliveries, experienced by woman, couple, whānau
Altered birth plans, vs. birth plans achieved
Whenua, placenta
Personal complications of delivery
Different modes of delivery
Knowledge of each, indication for each
Do you have any questions for me?
Advice provided by antenatal team or postnatal team about each mode of delivery?

Personal experience of caesarean section

Emergency or Elective Caesarean Section
The time during your pregnancies or labours that the decision for c/s was raised.
People present at that time.
People involved in the decision making at that time. Couple, whānau, LMC, core midwife, GP obstetrician, obstetrician, other
Decision for c/s vs. previous plans for antenatal care, labour, delivery, postnatal plans, whānau plans
Any complications from your caesarean section deliveries
Recalling the surgical consent process. Recall most important information.
Missed information. Extra information that would be helpful.
Recalling the caesarean deliveries. Best part, worst part. Your feelings, your partner’s feelings, your whānau feelings.
Whenua, placenta
Length of hospital stay, readmission, further surgical procedures
Delivery occurred in planned birth centre
Distance from home to antenatal clinic, and c/s delivery centre
Distance from home to whānau
Distance between whānau and c/s delivery centre
Areas of Decision Making To Explore

- Repeat caesarean delivery and your decision on number of children.
- Permanent sterilisation with caesarean delivery. Explore decision making.
- Whāngai
- Infertility within your whānau
- Grandparents and first born child

Whānau

- Partner experience of the above, decision they made, care planned
- Whānau experience of the above, decisions they made, care planned
- Decisions changed
- Short term or long term plans changed, Interpregnancy interval
- Discuss with whānau from their perspectives, whether activities for the woman,
couple,
whānau
were altered during the antenatal, labour, delivery, post natal period.

Caesarean section

- What do whānau understand to be the risks associated with repeat caesarean section? Knowledge on caesarean section
- Knowledge on repeat caesarean section
- Number of caesarean sections for one woman
- Risk factors for caesarean section
- Risk factors for repeat caesarean section
- Complications of caesarean section
- Complications of repeat caesarean section

Do you have any questions for me?

How have you found this interview? Is anything concerning you?

What has worked best for you in this interview? Are there any other ways that you would prefer the interviews to proceed?

Are you happy to proceed with the rest of the research process?

Do you feel safe?

End of Interview Guideline


Research Question – HOW IS DECISION MAKING BY WHĀNAU ALTERED WHEN THE BIRTH PLAN IS REPEAT CAESAREAN SECTION

Ethics Approval MEC/11/EXP/O61 Participant Code ____

The following two survey sections were informed by Dr Hope Tupara’s PhD Thesis Whānau Decision Processes Survey for Participants (Tupara, 2009a) and with her permission. This survey was sent to participants after edited transcriptions had been received from participants and during the analysis and production of themes.

Section One: General Personal Information Survey  (Nov 2012)

List as many of these that you are involved with as you wish

<table>
<thead>
<tr>
<th>Employed (full time)</th>
<th>How many hours a week?</th>
<th>What area of work?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed (part time)</td>
<td>How many hours a week?</td>
<td>What area of work?</td>
</tr>
<tr>
<td>Involved in sport as a player</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involved in sport for coaching or administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caring for children or grandchildren or grand parents</td>
<td>How many in your care and for how many hours a week?</td>
<td></td>
</tr>
<tr>
<td>Marae Committee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Studying</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Church Activities</td>
<td>How often and what?</td>
<td></td>
</tr>
<tr>
<td>Any other commitments?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Gender:  Male ☐  Female ☐

Age:  18-25  25-34  35-44  45-54  55-64  65+
Cultural Diversity:  (based on Te Hoe Nuku Roa schedule)

1. Do you identify as Māori?  Yes □  No □

2. If you had to choose one of these options that best describes you, which would you choose?
   - kiwi
   - New Zealander
   - Māori/Pakeha
   - Part Māori
   - Polynesian
   - Māori
   - Other

3. How would you rate your overall ability with Māori language?
   - Excellent
   - Very good
   - Good
   - Fair
   - Poor
   - Not applicable

4. How did you acquire your ability with Māori language?
   - Was the main language you were brought up to speak
   - You taught yourself
   - Learned as a second language from family/whānau
   - Learned as a second language at an education institution
   - Other (specify)
5. In terms of your involvement with your whānau (blood relations) outside of your usual household. Would you say that your whānau plays:

<table>
<thead>
<tr>
<th>Option</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A very large part of your life</td>
<td></td>
</tr>
<tr>
<td>A large part in your life</td>
<td></td>
</tr>
<tr>
<td>A small part in your life</td>
<td></td>
</tr>
<tr>
<td>A very small part/no part in your life</td>
<td></td>
</tr>
</tbody>
</table>

6. How many generations of your whakapapa can you name at this point in time, without referring elsewhere?

<table>
<thead>
<tr>
<th>Option</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 generation</td>
<td></td>
</tr>
<tr>
<td>2 generations (grandparents)</td>
<td></td>
</tr>
<tr>
<td>3 generations (great grandparents)</td>
<td></td>
</tr>
<tr>
<td>More than 3 generations</td>
<td></td>
</tr>
</tbody>
</table>

7. This question considers your contacts with people. In general, would you say that your contacts with:

<table>
<thead>
<tr>
<th></th>
<th>Mainly Māori</th>
<th>Some Māori</th>
<th>Few Māori</th>
<th>No Māori</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>At work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At sport</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At church</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At school/study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elsewhere that is a significant part of your week. (Please state where)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Have you ever been to a marae? Yes ☐ No ☐

9. How often did you go to a marae in the past 12 months?

<table>
<thead>
<tr>
<th>Frequency</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 visit</td>
<td></td>
</tr>
<tr>
<td>2 visits</td>
<td></td>
</tr>
<tr>
<td>3-5 visits</td>
<td></td>
</tr>
<tr>
<td>6-12 visits</td>
<td></td>
</tr>
<tr>
<td>&gt;12 visits</td>
<td></td>
</tr>
</tbody>
</table>

10. Is there at least one marae that you regard as your marae? Yes ☐ No ☐

11. How often did you go to your marae in the past 12 months?

<table>
<thead>
<tr>
<th>Frequency</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 visit</td>
<td></td>
</tr>
<tr>
<td>2 visits</td>
<td></td>
</tr>
<tr>
<td>3-5 visits</td>
<td></td>
</tr>
<tr>
<td>6-12 visits</td>
<td></td>
</tr>
<tr>
<td>&gt;12 visits</td>
<td></td>
</tr>
</tbody>
</table>
12. Do you have an interest in Māori land, fisheries or forestry? Do you...

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have any financial interest in Māori land as an owner, part/potential owner or beneficiary</td>
<td></td>
</tr>
<tr>
<td>Attend owners meeting</td>
<td></td>
</tr>
<tr>
<td>Visit land regularly</td>
<td></td>
</tr>
<tr>
<td>Attend Māori land court hearings</td>
<td></td>
</tr>
<tr>
<td>Keep well informed about your land</td>
<td></td>
</tr>
<tr>
<td>Live on the land</td>
<td></td>
</tr>
<tr>
<td>Receive monies from Māori land/fisheries or forestry?</td>
<td></td>
</tr>
<tr>
<td>Receive any benefit from Māori land/fisheries or forestry</td>
<td></td>
</tr>
<tr>
<td>Receive monies from minerals or geothermal resources</td>
<td></td>
</tr>
</tbody>
</table>

13. Have you had formal science education?  
Yes  No

14. How would you characterise your knowledge of medicine?

| Very well informed |
| Well informed |
| Not well informed |
| No knowledge |

15. How would you characterise your interest in medicine?

| Positively interested |
| Interested |
| Not interested |
| Suspicious |

16. In particular complicated pregnancies and/or repeat caesarean sections?

| Very well informed |
| Well informed |
| Not well informed |
| No knowledge |
Section Two: Interview Guide For Whānau Decision Making

Adapted from Dr Hope Tupara’s PhD Thesis, Appendix 6 Interview Schedule. This Section was part of the Interview Guide outlined above, however, it is placed here as part of the information referenced to Tupara, and for which Tupara gave her permission.

If you have to get together to make a decision, how does this happen?

Does someone usually lead this?

Are there certain people in your whānau who the others listen to?

Were there key people your whānau spoke to before participating in this research?

Did you have special hui/meetings? If so, where?

Did you have one hui or several when it came to making major decisions?

If someone in your whānau strongly objected to a decision, how would you deal with this?

Who do you call whānau?

Where in your whānau are you?

How many brothers, sisters, children, and grandchildren do you have?

What’s the difference between you and your children, and say your sister and her children?

Are they whānau?

In decision-making, did you think you have a lot of influence about the end decisions that you arrived at?

Who do you think has the most influence over decisions?

Who has the least influence over decisions?

Do you still feel happy about your decisions regardless?

What would you do differently?

Do you think the make-up of your whānau influences the process of decision-making?
Confidentiality Agreement between Transcriber and Researcher

How is decision making by whānau altered when the birth plan is repeat caesarean section?

For the purposes of this Agreement, "Confidential Information" includes any information that is part of this research project, in particular, participant documents, tape recordings of interviews or group meetings, and transcriptions of these tape recordings.

All Confidential Information is the property of the researcher, Patricia Boyd, and the property of participants who have indicated ownership.

The identity of any participant, or other people associated with the research, or mentioned in recordings will remain confidential.

You agree not to disclose any Confidential Information directly or indirectly to any third party or use it in any way whilst transcribing and once transcribing has completed.

All transcriptions and material associated with transcriptions will be returned to the researcher on completion of contracted work.

You agree to notify the researcher if you become aware, or have reason to believe that, Confidential Information may have been accidentally or deliberately passed to a third party by you or by any other person.

In signing this Agreement you acknowledge that you have read and understood this Agreement, been advised of your right to seek independent advice, and given the opportunity to do so.

Name of Transcriber __________________________

Signed by __________________________ Transcriber. Date: _______________

Signed by __________________________ Researcher. Date: _______________
# APPENDIX SEVEN – THEMES FROM IN-DEPTH INTERVIEWS WITH WHĀNAU

## LIST A – FINAL THEMES LIST

<table>
<thead>
<tr>
<th>Kōrero that supports the Research Method &amp; Methodology</th>
<th>Pilot Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenges to method</td>
<td></td>
</tr>
<tr>
<td>Second level of data</td>
<td></td>
</tr>
<tr>
<td>Supports Mixed Methods</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who is whānau?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Te Hoe Nuku Noa Survey</td>
<td></td>
</tr>
<tr>
<td>Whānau kōrero</td>
<td></td>
</tr>
<tr>
<td>Whāngai</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Themes from whānau members</th>
<th>Spirituality</th>
<th>Mana</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Womb</td>
<td>Men's view</td>
</tr>
<tr>
<td></td>
<td>Placenta</td>
<td>Vew of Men</td>
</tr>
<tr>
<td></td>
<td>Burial Grounds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Karakia</td>
<td></td>
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<tr>
<td></td>
<td>Waiata</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Protective Factors</th>
<th>Whānau</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tuakana Teina</td>
</tr>
<tr>
<td></td>
<td>Resourcefulness</td>
</tr>
<tr>
<td></td>
<td>Mana</td>
</tr>
<tr>
<td></td>
<td>Aroha</td>
</tr>
<tr>
<td></td>
<td>Women as Skilful Weavers</td>
</tr>
<tr>
<td></td>
<td>Inquiring Mind</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other issues happening at the same time</th>
<th>during pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>during labour</td>
</tr>
<tr>
<td></td>
<td>baseline level of stress</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Emotional aspects of caesarean section</th>
<th>anger</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>distraught</td>
</tr>
<tr>
<td></td>
<td>on-going effects on whānau</td>
</tr>
<tr>
<td></td>
<td>everyone cries in interviews</td>
</tr>
<tr>
<td></td>
<td>regret</td>
</tr>
<tr>
<td></td>
<td>blame</td>
</tr>
<tr>
<td></td>
<td>guilt</td>
</tr>
<tr>
<td></td>
<td>depression</td>
</tr>
<tr>
<td></td>
<td>grief</td>
</tr>
<tr>
<td></td>
<td>pregnancy &amp; delivery as a sensitive issue for discussion</td>
</tr>
<tr>
<td></td>
<td>humour</td>
</tr>
<tr>
<td></td>
<td>disappointment</td>
</tr>
<tr>
<td></td>
<td>mana</td>
</tr>
<tr>
<td>Care &amp; Connecting</td>
<td>Antenatal care and classes</td>
</tr>
<tr>
<td></td>
<td>Postnatal care, including at home</td>
</tr>
<tr>
<td>Patient Respect &amp; Care, Mana</td>
<td>Making a Connection, Mana</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Literacy</td>
<td>Of the Health Professional</td>
</tr>
<tr>
<td></td>
<td>Lack of referral for follow up</td>
</tr>
<tr>
<td></td>
<td>Not recognising seriousness of situation</td>
</tr>
<tr>
<td></td>
<td>Postpartum contraception</td>
</tr>
<tr>
<td></td>
<td>Barriers to literacy</td>
</tr>
<tr>
<td></td>
<td>Lack of counselling, lack of referral to services</td>
</tr>
<tr>
<td></td>
<td>Health professionals discussion on number of children</td>
</tr>
<tr>
<td></td>
<td>Care from hospital staff</td>
</tr>
<tr>
<td></td>
<td>Researcher's medical knowledge enabling deeper enquiry</td>
</tr>
<tr>
<td></td>
<td>Researcher providing medical knowledge for participant to process emotional issues</td>
</tr>
<tr>
<td></td>
<td>Dispelling myths</td>
</tr>
<tr>
<td></td>
<td>Degree of knowledge</td>
</tr>
<tr>
<td></td>
<td>Knowledge not imparted by health professionals</td>
</tr>
<tr>
<td></td>
<td>Communication</td>
</tr>
<tr>
<td>Whānau knowledge</td>
<td>Whānau knowledge for others</td>
</tr>
<tr>
<td></td>
<td>During the delivery by c-s</td>
</tr>
<tr>
<td></td>
<td>Before delivery by c-s</td>
</tr>
<tr>
<td></td>
<td>After delivery by c-s</td>
</tr>
<tr>
<td>Decision-making</td>
<td>Planning</td>
</tr>
<tr>
<td></td>
<td>Unnatural transition to motherhood</td>
</tr>
<tr>
<td></td>
<td>Financial</td>
</tr>
<tr>
<td></td>
<td>Support</td>
</tr>
<tr>
<td></td>
<td>Naming baby</td>
</tr>
<tr>
<td>Whānau 1</td>
<td>in general</td>
</tr>
<tr>
<td></td>
<td>in this situation</td>
</tr>
<tr>
<td>Whānau 2</td>
<td>in general</td>
</tr>
<tr>
<td></td>
<td>in this situation</td>
</tr>
<tr>
<td>Whānau 3</td>
<td>in general</td>
</tr>
<tr>
<td></td>
<td>in this situation</td>
</tr>
<tr>
<td>Whānau 4</td>
<td>in general</td>
</tr>
<tr>
<td></td>
<td>in this situation</td>
</tr>
<tr>
<td>Risks &amp; Indications for Caesarean Section</td>
<td>Women Participants' Medical History</td>
</tr>
<tr>
<td></td>
<td>Women Participants' O&amp;G History</td>
</tr>
<tr>
<td>Presenting Theme</td>
<td>Related Theme</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>1. Questions For Women &amp; Whānau That Arise From Transcriptions. 2. Current Transcription.</td>
<td></td>
</tr>
<tr>
<td>3. Whānau Kōrero Supports Methods</td>
<td>Supports Methods</td>
</tr>
<tr>
<td>5. Challenges To Method</td>
<td>Supports Methods</td>
</tr>
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<td>6. Period Of Time Between Whānau Members Interviews</td>
<td>Supports Methods</td>
</tr>
<tr>
<td>7. Second Level Of Data</td>
<td>Supports Methods</td>
</tr>
<tr>
<td>8. Pilot Process</td>
<td>Supports Methods</td>
</tr>
<tr>
<td>9. Spirituality - Womb</td>
<td></td>
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<tr>
<td>10. Tuakana - Teina</td>
<td>Decision-Making</td>
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<tr>
<td>11. Decision-Making</td>
<td>Decision-Making</td>
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<tr>
<td>12. Who Is Whānau</td>
<td>Whānau</td>
</tr>
<tr>
<td>13. Risk Factors And Indications</td>
<td>Risk Factors And Indications</td>
</tr>
<tr>
<td>14. Whānau Knowledge Around Deliveries</td>
<td>Literacy Or Delivery</td>
</tr>
<tr>
<td>15. Patient Respect And Care</td>
<td>Health Literacy Of Whānau And Health Professional</td>
</tr>
<tr>
<td>16. Emotional Issues</td>
<td>Effects On Whānau/Who Is Affected</td>
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<td>18</td>
<td>Aroha</td>
</tr>
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<td>19</td>
<td>Planning</td>
</tr>
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<td>20</td>
<td>Antenatal And Postnatal Care</td>
</tr>
<tr>
<td>21</td>
<td>Other Issues Occurring At The Same Time As The Pregnancy</td>
</tr>
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<td>22</td>
<td>LMC</td>
</tr>
<tr>
<td>23</td>
<td>Making A Connection</td>
</tr>
<tr>
<td>24</td>
<td>Statistics To Research, Literature To Review. That Has Been Raised By Whānau In Interviews</td>
</tr>
<tr>
<td>25</td>
<td>Whāngai</td>
</tr>
<tr>
<td>26</td>
<td>Men</td>
</tr>
<tr>
<td>27</td>
<td>O&amp;G History</td>
</tr>
<tr>
<td>28</td>
<td>Medical Co-Morbidities</td>
</tr>
<tr>
<td>29</td>
<td>Future Research</td>
</tr>
</tbody>
</table>
APPENDIX EIGHT – LETTER TO PARTICIPANTS WITH TRANSCRIPTIONS

C/- Associate Professor Chrystal Jaye
Head of Department
General Practice and Rural Health Department
Dunedin School of Medicine
University of Otago
Dunedin

3 December 2012

Kia ora

Re: Research with Dr. Patricia Boyd, Ethics Approval MEC/11/EXP/061

Please find enclosed the typed recordings (transcriptions) from our research interview(s). Please could you read these carefully and make any changes, additions, deletions that you are not happy with. Please do this:

• in pen if these are paper copies,
• otherwise in brackets and in red if the transcriptions have been emailed to you, or by using the ‘Review’ Program for Word Documents.

Your name will not be used; your chosen unidentified name (pseudonym) will be used, unless you specifically request your own name to be used. If you have not chosen a pseudonym then an anonymous name will be chosen by the researcher to represent your comments. This is to keep your identity confidential.

The amended transcript will be used in the research. As discussed in our first meeting, the consent form you have signed at the beginning of interviews allows the use of the amended transcripts for research purposes.

If this is a paper copy, please find enclosed a stamped envelope for you to return the documents to me once you have read these. Please could this be returned by 14 December 2012 so that I can determine themes over the University Break (you may want to mark this date on your calendar).
Once I have received your edited transcriptions, two brief surveys for this research will be sent to you. One is a General Personal Information Questionnaire – some questions may seem irrelevant to you. You do not need to be Māori to answer these, you belong to a whānau and that means you can answer the questionnaire.

I will also be reading your transcriptions. I will contact you if any changes that you have made when editing your transcriptions need to be clarified.

Once themes have been identified, I will contact you, probably by phone or email, to let you know which themes were identified.

Thank you for being a part of this research, and I wish you and your whānau a very happy Christmas and summer.

Yours faithfully,

Dr. Patricia Boyd
Postgraduate Researcher, MBChB, DipOMG
GP & Rural Health Department
Dunedin School of Medicine
Tēnā koe

Re: RESEARCH with Dr. Patricia Boyd, Ethics Approval MEC/011/EXP/061

Thank you for your participation so far, and thank you for returning your edited transcripts. If you haven’t returned your transcription already, then at this stage I will assume that you have no concerns with the transcription and that you do not have any edits for your transcription.

Please find enclosed two surveys. These are the last two pieces of information required for the research, thank you.

1. General Personal Information questionnaire. This is whānau focused (family focused). This is your whānau, and it does not matter if you are Māori or not, this survey can be completed by you.

2. This is a general knowledge questionnaire about risks and indication for caesarean section. Please answer this by yourself (that is, no help from whānau or friends or Google!).

There is a stamped envelope for you to return the survey.

I would like to express again to you my appreciation that you chose to work with me on this research question. I hand in my thesis in mid-March 2013. I will contact you around that time, to provide feedback. I may contact you earlier to discuss themes that have been identified from this research. Your view and your knowledge is always appreciated.

Yours faithfully,

Dr. Patricia Boyd

Postgraduate Researcher, MbChB, DipOMG
APPENDIX NINE – PRELIMINARY LITERATURE REVIEW A & B

Preliminary Literature Review A: Literature Search to September 2010


Ministry of Health 2010 *Tatau Kahukura Māori Health Chart Book*


Manson (2010) *Strengthening the Health Resilience of Whānau* Nursing New Zealand 16(4):24


Wilson (2009) *Whānau Ora: Rethinking the way in which health services are delivered to Māori* Nursing Praxis in New Zealand 25(3):2-3


Boyle, Rumbold, Clarke, Hughes, Kane (2008) *Aboriginal and Torres Strait Islander Women’s health: Acting now for a healthy future* ANZJOG 48(6):526-528


**Patient Information Pamphlets:**
The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG):


Frost, Shaw, Montgomery, Murphy (2009) Women’s Views on the Use of Decision Aids for Decision Making about the Method of Delivery following a previous Caesarean section: Qualitative interview study BJOG: 116 (7):896-905


Murray (2000) Relation between private health insurance and high rates of caesarean section in Chile: qualitative and quantitative study BMJ 321:1501-1501


Preliminary Literature Review B: October 2011 to March 2012:


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Wong, Hutton, Zuccollo, Tait, Pringle (2008) *The maternal outcome in placenta accrete; the significance of antenatal diagnosis and non-separation of placenta at delivery* Journal of the New Zealand Medical Association July Vol. 121 No.1277


Lau, Fung, Rogers (1997) *Ten years experience of caesarean and postpartum hysterectomy in a teaching hospital in Hong Kong* European Journal of Obstetrics & Gynaecology and Reproductive Biology 74:133-137


Perinatal and Maternal Mortality Review Committee Publications:

2008 *Perinatal and Maternal Mortality in New Zealand*
2009 *Fifth Annual Report of the Perinatal and Maternal Mortality Review Committee*

**Seminars:**


Data collection from NZ Ministry of Health Department of Statistics with regards to background statistics for this research project.
APPENDIX TEN – GLOSSARY OF MĀORI WORDS

The definitions in this glossary have been discussed and agreed by reference people. As mentioned in the content of this thesis, definitions provided do not fully expose the reader to the deeper context of the word in Te Ao Māori, however it does provide understanding for the text.

<table>
<thead>
<tr>
<th>Māori Word</th>
<th>English Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>aroha</td>
<td>love</td>
</tr>
<tr>
<td>hapū</td>
<td>sub tribe or to be pregnant</td>
</tr>
<tr>
<td>hinengaro</td>
<td>mind</td>
</tr>
<tr>
<td>hononga</td>
<td>link</td>
</tr>
<tr>
<td>hui</td>
<td>meeting or gathering of people</td>
</tr>
<tr>
<td>kai</td>
<td>food</td>
</tr>
<tr>
<td>kaikaranga</td>
<td>the female caller</td>
</tr>
<tr>
<td>kaitiaki</td>
<td>guardian</td>
</tr>
<tr>
<td>kaitiakitanga</td>
<td>guardianship</td>
</tr>
<tr>
<td>kanohi ki te kanohi</td>
<td>face to face</td>
</tr>
<tr>
<td>karakia</td>
<td>Prayer or chant</td>
</tr>
<tr>
<td>kaupapa</td>
<td>topic, philosophy</td>
</tr>
<tr>
<td>Kaupapa Māori</td>
<td>Māori based framework</td>
</tr>
<tr>
<td>kawa</td>
<td>Māori protocols</td>
</tr>
<tr>
<td>koha</td>
<td>gift or donation</td>
</tr>
<tr>
<td>kōhanga reo</td>
<td>language nest, Māori immersion pre-school</td>
</tr>
<tr>
<td>kōrero</td>
<td>speak</td>
</tr>
<tr>
<td>koroua</td>
<td>elderly male, grandfather</td>
</tr>
<tr>
<td>kuia</td>
<td>elderly female, grandmother</td>
</tr>
<tr>
<td>mahi</td>
<td>work</td>
</tr>
<tr>
<td>mana</td>
<td>power or authority</td>
</tr>
<tr>
<td>mana wahine</td>
<td>strength that a women possesses</td>
</tr>
<tr>
<td>manaakitanga</td>
<td>hospitality or kindness</td>
</tr>
<tr>
<td>marae</td>
<td>meeting place or house</td>
</tr>
<tr>
<td>māramatanga</td>
<td>enlightenment</td>
</tr>
<tr>
<td>mihi whakatau</td>
<td>official Māori welcome, usually not on a marae but follows the same protocol (without kaikaranga)</td>
</tr>
<tr>
<td>mihimihī</td>
<td>speech of greeting</td>
</tr>
<tr>
<td>moko, mokopuna</td>
<td>grandchild</td>
</tr>
<tr>
<td>noa</td>
<td>unrestricted</td>
</tr>
<tr>
<td>pātai</td>
<td>question</td>
</tr>
<tr>
<td>pepeha</td>
<td>recitation of tribal landmarks and proverbs</td>
</tr>
<tr>
<td>pōwhiri</td>
<td>rituals of encounter, welcome ceremony on to the marae</td>
</tr>
<tr>
<td>rangatiratanga</td>
<td>Māori Leadership/chieftainship</td>
</tr>
<tr>
<td>Word</td>
<td>Translation</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>rohe</td>
<td>region</td>
</tr>
<tr>
<td>rōpū</td>
<td>group</td>
</tr>
<tr>
<td>tangata whenua</td>
<td>people of the land</td>
</tr>
<tr>
<td>tapu</td>
<td>restricted</td>
</tr>
<tr>
<td>Te Ao Māori</td>
<td>Māori World</td>
</tr>
<tr>
<td>tīna</td>
<td>younger brother (of a male), younger sister (of a female), cousin (of the same gender) of a junior line, junior relative</td>
</tr>
<tr>
<td>tika</td>
<td>correct or right</td>
</tr>
<tr>
<td>tikanga</td>
<td>customs</td>
</tr>
<tr>
<td>tinana</td>
<td>body</td>
</tr>
<tr>
<td>tuakana</td>
<td>older brother (of a male), older sister (of a female), cousin (of the same gender) of a senior line, senior relative</td>
</tr>
<tr>
<td>waiata</td>
<td>song</td>
</tr>
<tr>
<td>wairua</td>
<td>spirit</td>
</tr>
<tr>
<td>whakakotahitanga</td>
<td>to be as one</td>
</tr>
<tr>
<td>whakapakari</td>
<td>to strengthen</td>
</tr>
<tr>
<td>whakapapa</td>
<td>genealogy or lineage</td>
</tr>
<tr>
<td>whakawhānaungatanga</td>
<td>relationships, developing relationships</td>
</tr>
<tr>
<td>whakawhānuitanga</td>
<td>diversity</td>
</tr>
<tr>
<td>whakawhitihiti kōrero</td>
<td>conversing, allowing everyone to participate with their view</td>
</tr>
<tr>
<td>whānau</td>
<td>family/s</td>
</tr>
<tr>
<td>whānau tāonga tuku iho</td>
<td>management and control mechanisms in a whānau, the collected wisdom of ages</td>
</tr>
<tr>
<td>whāngai</td>
<td>foster</td>
</tr>
<tr>
<td>whare</td>
<td>house</td>
</tr>
<tr>
<td>whenua</td>
<td>placenta</td>
</tr>
</tbody>
</table>
The following glossary was provided by a Māori Pharmacist.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amniotic fluid embolism</strong></td>
<td>Obstruction and constriction of maternal pulmonary blood vessels by amniotic fluid entering the maternal circulation, causing obstetric shock</td>
</tr>
<tr>
<td><strong>Analgesia</strong></td>
<td>A neurologic or pharmacologic state in which painful stimuli are moderated such that, although still perceived, they are no longer painful</td>
</tr>
<tr>
<td><strong>Antepartum haemorrhage (APH)</strong></td>
<td>Before labour, or childbirth, bleeding occurs. Greentop Guidelines definition: Antepartum haemorrhage (APH) is defined as bleeding from or in to the genital tract, occurring from 24+0 weeks of pregnancy and prior to the birth of the baby.</td>
</tr>
<tr>
<td><strong>ARM Artificially Rupture the Membranes</strong></td>
<td>Break the (bag of) waters. Use a device to break the membranes that contain the amniotic fluid and the fetus, as part of the labour process.</td>
</tr>
<tr>
<td><strong>Aseptic</strong></td>
<td>Under a condition in which living pathogenic organisms are absent; a state of sterility</td>
</tr>
<tr>
<td><strong>Bladder</strong></td>
<td>A musculomembranous elastic bag serving as a storage place for the urine, filled via the ureters and drained via the urethra</td>
</tr>
<tr>
<td><strong>Body Mass Index (BMI)</strong></td>
<td>An measure of body mass, defined as weight in kilograms divided by height in meters squared; a method of determining caloric nutritional status; determining states of weight e.g. overweight, underweight</td>
</tr>
<tr>
<td><strong>Breech extraction</strong></td>
<td>Obstetric extraction of a fetus that has presented by the buttocks</td>
</tr>
<tr>
<td><strong>Caesarean section (CS)</strong></td>
<td>Incision through the abdominal wall and the uterus (abdominal hysterotomy) for extraction of the fetus</td>
</tr>
<tr>
<td><strong>Cardiotocography</strong></td>
<td>Fetal heart monitoring during labour and monitoring of contractions</td>
</tr>
<tr>
<td><strong>Cephalic presentation</strong></td>
<td>Presentation of any part of the fetal head, usually the upper and back part, as a result of flexion such that the chin is in contact with the thorax in vertex presentation; there may be degrees of flexion so that the presenting part is the large fontanel in sincipital (upper part of the head) presentation, the brow in brow presentation, or the face in face presentation</td>
</tr>
<tr>
<td><strong>Cephalopelvic disproportion (CPD)</strong></td>
<td>A condition in which the fetal head is too large to transverse the maternal pelvis</td>
</tr>
<tr>
<td><strong>Cerebral infarction</strong></td>
<td>An ischaemic condition of the brain, causing a persistent focal neurological deficit in the area affected</td>
</tr>
<tr>
<td><strong>Cervical</strong></td>
<td>Relating to cervix, the lower part of the uterus extending from the isthmus of the uterus into the vagina. It is divided into supravaginal and vaginal parts by its passage through the vaginal wall</td>
</tr>
<tr>
<td><strong>Conceive/conception</strong></td>
<td>A process which begins with fertilisation of an egg by sperm and ends with successful implantation of the embryo</td>
</tr>
<tr>
<td><strong>Congenital</strong></td>
<td>Existing at birth, referring to certain mental or physical</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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</tr>
<tr>
<td>abnormality/malformation</td>
<td>malformations, which may be hereditary or due to an influence occurring during gestation up to the moment of birth</td>
</tr>
<tr>
<td>Cord prolapse</td>
<td>Relating to the prolapse of the umbilical cord which may present in the vagina while the baby is still in-utero; it may cause fetal death due to compression of the cord between the presenting part of the fetus and the maternal pelvis</td>
</tr>
<tr>
<td>Curettage</td>
<td>A scraping, usually of the interior of a cavity or tract, for the removal of new growths or other abnormal tissues, or to obtain material for tissue diagnosis (dilatation and curettage of the uterus to obtain a sample of the womb lining, or to remove products of a miscarriage)</td>
</tr>
<tr>
<td>Cyanotic heart disease</td>
<td>deficient oxygenation of the blood, causing heart disease</td>
</tr>
<tr>
<td>Diabetes (Diabetes mellitus DM)</td>
<td>a chronic metabolic disorder in which the use of carbohydrate is impaired and that of lipid and protein is enhanced. It is caused by an absolute or relative deficiency of insulin. GDM – gestational diabetes mellitus – diabetes relating to the state of pregnancy</td>
</tr>
<tr>
<td>Engaged</td>
<td>Fixation of the presenting part of the fetus in the maternal true pelvis</td>
</tr>
<tr>
<td>Epidural</td>
<td>regional anaesthesia produced by injection of the local anaesthetic into the peridural space</td>
</tr>
<tr>
<td>Episiotomy, and midline episiotomy</td>
<td>surgical incision of the perineum to prevent laceration at the time of delivery or to facilitate vaginal delivery</td>
</tr>
<tr>
<td>Faecal</td>
<td>relating to faeces; the matter discharged from the bowel during defecation</td>
</tr>
<tr>
<td>Failure to progress</td>
<td>cervical changes of approximately less than 1cm/hr for two consecutive hours. Use of a partogram (a chart of labour progress) assists in diagnosis.</td>
</tr>
<tr>
<td>Fertility</td>
<td>The ability to conceive a baby and, for a woman, to become pregnant</td>
</tr>
<tr>
<td>Flatus</td>
<td>gas or air in the gastrointestinal tract that may be expelled through the anus</td>
</tr>
<tr>
<td>Fetus/fetus</td>
<td>the product of conception from the end of the eighth week of gestation to the moment of birth</td>
</tr>
<tr>
<td>Fetal distress</td>
<td>abnormal fetal heart rate rhythm on electronic monitoring, suggesting fetal hypoxia or stress</td>
</tr>
<tr>
<td>Forceps</td>
<td>assisted childbirth by means of an instrument designed to grasp the fetal head</td>
</tr>
<tr>
<td>Fourth Degree Tear</td>
<td>disruption of the anal sphincter muscles with a breach of the rectal mucosa</td>
</tr>
<tr>
<td>General anaesthesia (GA)</td>
<td>loss of ability to perceive pain associated with loss of consciousness produced by intravenous or inhalation anaesthetic agents; may include amnesia and muscle relaxation</td>
</tr>
<tr>
<td>Genetic syndrome</td>
<td>autosomal or sex-linked, recessive or dominant conditions, occurring in those who share a common genetic factor or express a common gene</td>
</tr>
<tr>
<td>Gestation</td>
<td>The period between conception and birth, when the fetus grows and develops inside the mother's womb</td>
</tr>
<tr>
<td>Gravida</td>
<td>the condition of giving birth to live infant(s)</td>
</tr>
<tr>
<td>Haemorrhage</td>
<td>To bleed</td>
</tr>
<tr>
<td>Hyperemesis</td>
<td>excessive vomiting</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Hypertension</strong></td>
<td>relating to gestational hypertension or pregnancy induced hypertension or PIH: hypertension during pregnancy in a previously normotensive woman or aggravation of hypertension during pregnancy in a hypertensive woman. Hypertensive: marked by an increase in blood pressure</td>
</tr>
<tr>
<td><strong>Hypoxia Induced Encephalopathy (HIE)</strong></td>
<td>generally permanent brain injury resulting from a lack of oxygen or inadequate blood flow to the brain</td>
</tr>
<tr>
<td><strong>Hysterectomy</strong></td>
<td>removal of the uterus, usually the complete removal of the uterus</td>
</tr>
<tr>
<td><strong>IOL Induction of Labour</strong></td>
<td>Different means used by obstetricians to bring on labour other than spontaneous labour</td>
</tr>
<tr>
<td><strong>In-born errors of metabolism</strong></td>
<td>a group of disorders, each of which involves a disorder of a single unique enzyme, genetic in origin and operating from birth</td>
</tr>
<tr>
<td><strong>In utero</strong></td>
<td>within the womb; not yet born</td>
</tr>
<tr>
<td><strong>Infection</strong></td>
<td>invasion of the body with organisms that have the potential to cause disease</td>
</tr>
<tr>
<td><strong>Intracranial haemorrhage</strong></td>
<td>bleeding within the cranial vault; includes cerebral haemorrhage and subarachnoid haemorrhage</td>
</tr>
<tr>
<td><strong>Intrapartum</strong></td>
<td>during labour and delivery or childbirth: First, second and third stages of labour.</td>
</tr>
<tr>
<td><strong>Intrauterine growth restriction (IUGR)</strong></td>
<td>A generic term for any delay in achieving intrauterine developmental milestones as detected by the physical size of the pregnancy (fundal height) or by ultrasound scan for growth. aceration a torn or jagged wound, or an accidental cut wound. The process or act of tearing the tissue</td>
</tr>
<tr>
<td><strong>Lead Maternity Care (LMC)</strong></td>
<td>Pregnant women are required to choose a Lead Maternity Carer (LMC) who coordinates their maternity care. Lead Maternity Carers can be midwives, GPs with a diploma in obstetrics or obstetricians. LMCs are contracted through the Ministry of Health to provide a complete maternity service</td>
</tr>
<tr>
<td><strong>LGA – Large for gestational age</strong></td>
<td>Usually implies a birth weight &gt;90th percentile for gestational age or birthweight 4000 g or more at term (also see definition below for macrosomic baby)</td>
</tr>
<tr>
<td><strong>Ligament</strong></td>
<td>a cord like bundle of fibres</td>
</tr>
<tr>
<td><strong>Macrosomic baby</strong></td>
<td>Macrosomia is a term used for newborns with a birthweight above a certain limit but there is no consensus on this limit. RCOG defines this as more than 4500g. A baby that has had the effects of higher maternal blood sugar levels during pregnancy</td>
</tr>
<tr>
<td><strong>Malpresentation</strong></td>
<td>abnormal presentation of the fetus; presentation of any part of the fetus other than the occiput (back part of the head)</td>
</tr>
<tr>
<td><strong>Maternal</strong></td>
<td>relating to or derived from the mother</td>
</tr>
<tr>
<td><strong>Maternity</strong></td>
<td>Motherhood</td>
</tr>
<tr>
<td><strong>Miscarriage</strong></td>
<td>a pregnancy that is no longer viable usually in the first trimester or first half of the second trimester</td>
</tr>
<tr>
<td><strong>Morbidity</strong></td>
<td>a diseased state. The ratio of sick to well people in a community. The frequency of the appearance of complications following a surgical procedure or other treatment</td>
</tr>
<tr>
<td><strong>Mortality</strong></td>
<td>the state of being mortal. A fatal outcome</td>
</tr>
<tr>
<td><strong>Multiparity</strong></td>
<td>a woman who has given birth at least twice to an infant, liveborn or not, weighing 500g or more, or having an</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
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</tr>
<tr>
<td>Estimated length of gestation of at least 20 weeks</td>
<td>Any disorder of the brain in neonates</td>
</tr>
<tr>
<td>Neonatal encephalopathy</td>
<td>The fetus is not ‘head down’</td>
</tr>
<tr>
<td>Non-cephalic presentation</td>
<td>Never having born a child</td>
</tr>
<tr>
<td>Nulliparous</td>
<td>Obstetrics anal sphincter injuries</td>
</tr>
<tr>
<td>OASIS</td>
<td>A doctor who specialises in the care of pregnant women</td>
</tr>
<tr>
<td>Parity</td>
<td>The area within the bony structure that includes the hip bones, in the lower part of the abdomen</td>
</tr>
<tr>
<td>Pelvis</td>
<td>Any disorder of the brain in neonates</td>
</tr>
<tr>
<td>Pelvic organs</td>
<td>The fetus is not ‘head down’</td>
</tr>
<tr>
<td>Perinatal</td>
<td>The area within the bony structure that includes the hip bones, in the lower part of the abdomen</td>
</tr>
<tr>
<td>Perinatal hypoxic ischaemia</td>
<td>The organs inside of the body that are located within the confines of the pelvis, this includes the bladder and rectum in both sexes and the uterus, fallopian tubes and ovaries in females</td>
</tr>
<tr>
<td>Perineum</td>
<td>occurring during or pertaining to, the periods before, during, or after the time of birth; before delivery from the 22nd week of gestation through the first 28 days after delivery</td>
</tr>
<tr>
<td>Peripartum hysterectomy</td>
<td>A reduction of blood flow and subsequent reduction oxygen supply to the fetus while in utero</td>
</tr>
<tr>
<td>Placenta</td>
<td>External surface of the central tendon of the perineum, lying between the vulva and the anus in the female</td>
</tr>
<tr>
<td>Placenta accreta</td>
<td>After delivery, the removal of the uterus</td>
</tr>
<tr>
<td>Placenta percreta</td>
<td>fetal maternal organ of metabolic interchange between the embryo or fetus and mother</td>
</tr>
<tr>
<td>Placenta praevia</td>
<td>the abnormal adherence of the chorionic villi to the myometrium, associated with partial or complete absence of the decidua basalis and, in particular, the stratum spongiosum</td>
</tr>
<tr>
<td>Placenta praevia</td>
<td>the term applied when the villi have invaded the full thickness of myometrium to or through the serosa of the uterus, causing incomplete or complete uterine rupture, respectively</td>
</tr>
<tr>
<td>Placenta praevia</td>
<td>the condition in which the placenta is implanted in the lower segment of the uterus, extending to the margin of the internal os of the uterus or partially or completely obstructing the os</td>
</tr>
<tr>
<td>Pneumatic compression stockings</td>
<td>Compression stockings worn on the legs and feet to reduce the risk of developing a blood clot in the legs</td>
</tr>
<tr>
<td>Polyhydramnios</td>
<td>The presence of an excessive amount of amniotic fluid</td>
</tr>
<tr>
<td>Polycystic ovarian syndrome (PCOS)</td>
<td>a condition commonly characterized by hirsutism, obesity, menstrual abnormalities, infertility, insulin resistance, and enlarged ovaries; commonly associated with insulin resistance and thought to reflect excessive androgen secretion of ovarian origin. Women with PCOS are frequently at increased risk for cardiovascular disease and breast cancer</td>
</tr>
<tr>
<td>Post-term</td>
<td>After delivery of the baby</td>
</tr>
<tr>
<td>Postpartum haemorrhage (PPH)</td>
<td>Haemorrhage from the birth canal after vaginal delivery or after a caesarean delivery during the first 24 hours after birth</td>
</tr>
<tr>
<td>Preconception</td>
<td>Before fertilisation of the egg</td>
</tr>
<tr>
<td>Premature rupture of membranes (PROM)</td>
<td>rupture of the amniotic sac before onset of labour</td>
</tr>
<tr>
<td>Preterm</td>
<td>before delivery of the baby</td>
</tr>
<tr>
<td><strong>Preterm labour</strong></td>
<td>PTL. Labour that occurs before the expected due date</td>
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<tr>
<td><strong>Pre-eclampsia</strong></td>
<td>Development of hypertension with proteinuria or oedema, or both, due to pregnancy or the influence of a recent pregnancy. Usually occurs after the 20th week of gestation, but may develop before this time in the presence of trophoblastic disease</td>
</tr>
<tr>
<td><strong>Prolapse</strong></td>
<td>A hernia where the bladder, womb or bowel pushes through the wall of the vagina</td>
</tr>
<tr>
<td><strong>Puerperium</strong></td>
<td>The time after childbirth, lasting approximately 6 weeks, during which the anatomic and physiologic changes brought about by pregnancy resolve and a woman adjusts to the new or expanded responsibilities of motherhood and non-pregnant life</td>
</tr>
<tr>
<td><strong>Shoulder dystocia</strong></td>
<td>A situation during birth when the baby's head has been born but one of the shoulders becomes stuck behind the mother's pelvic bone, preventing the birth of the baby's body</td>
</tr>
<tr>
<td><strong>Spinal Anaesthesia</strong></td>
<td>Level of sensory denervation occurs in the spinal area</td>
</tr>
<tr>
<td><strong>Spontaneous rupture of membranes (SROM)</strong></td>
<td>Spontaneous rupture of the amniotic and chorionic membranes, with or without associated labour (bag of waters that baby is in, breaks and the fluid around baby leaks out, generally a term associated with progress to labour, or whilst in labour. Compare with PROM)</td>
</tr>
<tr>
<td><strong>Standard primiparae</strong></td>
<td>A standard primipara is defined as a woman aged between 20 and 34 years at the time of birth in a hospital or birthing unit, with no record of any previous birth event in a New Zealand hospital, whose birth is at term (from 37 weeks 0 days to 41 weeks 6 days gestation), where the outcome of the birth is a singleton baby, presentation is cephalic, and the pregnancy has had no recorded obstetric complications that are indications for specific obstetric intervention</td>
</tr>
<tr>
<td><strong>Stillbirth</strong></td>
<td>The birth of an infant who has died before delivery</td>
</tr>
<tr>
<td><strong>Termination of pregnancy</strong></td>
<td>TOP. Induced ending to a pregnancy</td>
</tr>
<tr>
<td><strong>Third degree tear</strong></td>
<td>A third-degree perineal tear is defined as a partial or complete disruption of the anal sphincter muscles, which may involve either or both the external (EAS) and internal anal sphincter (IAS) muscles.</td>
</tr>
<tr>
<td><strong>Transverse</strong></td>
<td>When the baby is lying across the womb</td>
</tr>
<tr>
<td><strong>Trimester</strong></td>
<td>A three-month period of time. Pregnancy is divided into three trimesters: First trimester – up to around 13 weeks; Second trimester – to around 13 to 26 weeks; Third trimester – around 27 to 40 weeks</td>
</tr>
<tr>
<td><strong>Tubal ligation</strong></td>
<td>Interruption of the continuity of the oviducts by cutting, cauterity or by a plastic or metal device to prevent future conception</td>
</tr>
<tr>
<td><strong>Ultrasound</strong></td>
<td>High frequency sound waves used to provide images of the body, tissues and internal organs</td>
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<tr>
<td><strong>Umbilical cord</strong></td>
<td>The cord that connects a mother's blood system with a baby's (through its navel) and is cut after the birth</td>
</tr>
<tr>
<td><strong>USS</strong></td>
<td>Ultrasound scan</td>
</tr>
<tr>
<td><strong>Uterus</strong></td>
<td>The hollow muscular organ in which the embryo and fetus develop</td>
</tr>
<tr>
<td><strong>Uterine rupture</strong></td>
<td>A rupture of the uterus</td>
</tr>
<tr>
<td><strong>Utero-placental</strong></td>
<td>Late decelerations of fetal heart rate as measured by</td>
</tr>
<tr>
<td><strong>insufficiency</strong></td>
<td>electronic monitoring, even if there is no other evidence of reduced blood flow to the placenta</td>
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<tr>
<td><strong>Vacuum</strong></td>
<td>facilitation of vaginal birth by attachment of a suction cup to the presenting fetal part (generally the head) and application of traction during maternal pushing</td>
</tr>
<tr>
<td><strong>Vaginal</strong></td>
<td>relating to the vagina</td>
</tr>
<tr>
<td><strong>Ventouse</strong></td>
<td>is a vacuum device used to assist the delivery of a baby to enable vaginal delivery</td>
</tr>
<tr>
<td><strong>Vessels</strong></td>
<td>blood vessels transport blood throughout the body</td>
</tr>
<tr>
<td><strong>Vulval</strong></td>
<td>external genital organs of a female</td>
</tr>
</tbody>
</table>

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