



Auckland DHB and Waitemata DHB Collaboration Maternity Plan

Working together to plan future maternity services to 2025



Auckland DHB and Waitemata DHB Womens Health Collaboration Maternity Plan

Working together to plan future maternity services to 2025

Produced by: Auckland DHB and Waitemata DHB Womens Health Collaboration:
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Glossary

ACH	Auckland City Hospital
ADHB	Auckland DHB
APBU	Alongside primary birthing unit
CS	Caesarean section
DHB	District Health Board
FPBU	Freestanding primary birthing unit
GP	General practice
LMC	Lead maternity carer (midwife or obstetrician)
NHS	National Health Service UK
NGO	Non-Governmental Organisation
NICU	Neonatal intensive care unit
NSH	North Shore Hospital
PBU	Primary birthing unit
SCBU	Special care baby unit
WDHB	Waitemata DHB
WTH	Waitakere Hospital

NOTE: For detailed explanation of terms see Section 3: Definition of terms.

Executive summary

Since 2013, Women's Health services in Auckland DHB (ADHB) and Waitemata DHB (WDHB) have been working collaboratively with a range of stakeholders to determine how best to deliver primary and secondary maternity services to our populations and create better frameworks for primary maternity providers using District Health Board (DHB) services.

In order to inform future maternity system design, the Collaboration Steering Group has undertaken:

- a review of the current models of care and configuration of services across primary, and secondary services
- modelling of future demand for primary and secondary maternity volumes over the next 10 years
- development of a collaborative model of care that includes recommendations for location and configuration of future services.

Along with workshops, feedback from maternity consumers, stakeholders and DHB staff, this information has helped form a strategic direction for Auckland DHB and Waitemata DHB going forward to provide sustainable maternity services into the future.

Estimates of growth in birth numbers by 2025 for each secondary hospital through population modelling suggest that the following increases are likely: Auckland City – 0 to 300 births; North Shore – 0 to 300 births; and Waitakere – 200 to 700 births.

The ethnic makeup of our maternity population will likely change over the next 10 years. In Auckland, births to Asian women are expected to rise from 29% to 32% of all births by 2025. The number of births to Māori and Pacific women will likely fall in both number and proportion of the whole.

In Waitemata, births to Asian mothers are projected to increase from 21% of births to 27%. Births to Māori, Pacific, NZ European and other women are expected to increase only slightly in number, and to drop as a proportion of the total.

Overall, the care delivered by both DHBs is high quality and benchmarks well against both national and Australian maternity services. However, consistent with worldwide trends, the caesarean section rates have risen at both DHBs and are predicted to rise to from between 38% to 40% by 2025, if clinical practice remains unchanged.

We recognise that in many instances interventions are necessary and in some cases lifesaving, however it is clear that current intervention rates exceed those needed to support a reduction in perinatal deaths. This leads overall to an inefficient use of clinical resources, and mounting costs driven by additional operative births and greater numbers of wāhine/women requiring the longer postnatal stay subsequent to caesarean births.

We believe that we must critically examine our care, including our intervention rates, to ensure we deliver the best maternity care to our populations. As a consequence of our review of the maternity evidence, our care delivery models and facilities, and engagement with our stakeholders, we have identified five broad issues we wish to address:

1. Inequalities in health outcomes
2. Fragmented care
3. Inconsistency in the models of care
4. Quality and safety issues
5. Facility issues

In order to address these issues we have developed 22 strategies to build a high quality sustainable maternity services across our two DHBs, through changes to maternity facilities, and current care delivery models. These strategies, some of which are underway, are:

Theme one: Achieve Equity

1. Continue to focus on measures that can improve health outcomes for priority populations, working alongside partner organisations.
2. Develop and deliver a public awareness campaign targeted specifically towards priority populations, around the importance of early pregnancy care, to assist in early engagement with a LMC.
3. Expand Te Aka Ora and Wāhine Ora groups to include Well Child Tamariki Ora and community agencies/providers to include transition from maternity services.
4. Provide antenatal and postnatal maternity services in a 'health hub'. Potentially testing this model in Tamaki or Henderson, Te Atatu or Ranui, to co-locate primary healthcare, wellness and community services.
5. Develop a workforce that is more reflective of, and responsive to the needs of, the ethnically diverse communities we care for, through cultural competency training and increasing the diversity of our workforce.
6. Develop a workforce and service that builds the health literacy of priority populations in order to improve health outcomes.

Theme two: Enhance maternity quality and safety

7. Ensure Māori, Pacific, Asian and migrant services as well as a wider range of consumers and community partners are represented in our maternity clinical governance structures.
8. Develop a process to provide individual practitioner feedback to doctors and midwives to encourage reflective practice.
9. Transition to 24/7 obstetrician presence in secondary maternity units.

Theme three: Enhance continuity of care

10. Develop consistent care pathways, including for maternal mental health problems, between DHB and community care providers, supported by regionally agreed clinical guidelines.
11. Ensure an electronic maternity record remains a regional priority to support improved communication between primary, secondary and tertiary providers.

Theme four: Strengthen confidence in normal birth

12. Develop structured, evidence based information on birth outcomes and risk in relation to place of birth, including home birth, that enable Midwives, GPs and Obstetricians to endorse primary birth as a safe option for well wāhine/women.
13. Support and increase primary birthing options for women which will encourage women to give birth out of hospital.
14. Recognise and support wāhine/women, their whānau/families and their LMCs who choose home birth and provide the necessary support to ensure home birth becomes established as a normal part of the maternity continuum.
15. Create opportunities for midwives and trainee obstetricians to experience normal birth in a primary birthing unit or homebirth setting. Provide education that includes a training module that explores the evidence regarding the risks and benefits of places of birth.
16. Develop strategies to maintain as normal a birth experience as possible for women who have medical or obstetric complications that require them to birth in a hospital setting.

Theme five: Support transition to parenthood and infant attachment

17. Increase postnatal ward staffing to include a parent educator role seven days a week. Develop a series of mixed media information, including videos, that explain and demonstrate standard infant care practices, which could be used in hospital and at home.
18. Develop an agreed model for breastfeeding support in the community and the implementation of lactation support services.
19. Ensure future maternity facilities are designed to enable fathers or other key support people to remain overnight and participate in the care of mother and baby.
20. All future design of special care baby units (SCBU) and neonatal intensive care units (NICU) to incorporate principles that support keeping mothers and babies together.

Theme six: Ensure facilities meet population needs, including capacity for future growth

21. Design and build a Women's and Children's Centre on Waitakere Hospital site that will accommodate the growing West Auckland maternity, paediatric and child health requirements.

22. Increase the number of primary birthing beds across the region. Engage in broad public and stakeholder consultation to ensure the type and location of primary birthing unit best meets the needs of the communities served by the DHBs.

Section one: background

The collaboration

Since 2013, Women's Health services in Waitemata DHB (WDHB) and Auckland DHB (ADHB) have been working collaboratively to explore how best to deliver primary and secondary maternity services to their populations, and create better frameworks for primary healthcare providers using DHB services.

In 2014, a collaboration project was formally established. The ADHB and WDHB Collaboration Initiative is managed by the Women's Health Collaboration Steering Group, which comprises of: clinical leaders and managers from both DHBs, Planning and Funding, Māori, Pacific and Asian Health Gain Managers and consumer representatives.

Members of the steering group are:

Name	Title
Sue Fleming	Director, Womens Health ADHB
Linda Harun	General Manager, Child Women & Family Services WDHB
Karin Drummond	General Manager, Women's Health ADHB
Ruth Bijl	Funding & Development Manager ADHB/WDHB
Peter Van de Weijer	Head of Division Medicine, Child Women & Family Services WDHB
Maggie O'Brien	Directory of Midwifery, Women's Health ADHB
Emma Farmer	Head of Division Midwifery, Child, Women & Family Services WDHB
Leani Sandford	Pacific Health Portfolio Manager ADHB/WDHB
Lita Foliaki	Pacific Planning & Funding Manager ADHB/WDHB
Sangeeta Shah	Project Manager Asian, Migrant & Refugee Health ADHB/WDHB
Wai Vercoe	Māori Health Portfolio Manager, ADHB/WDHB
Isis McKay	Consumer Representative
Jesse Solomon	Consumer Representative
Wendy Devereux	Clinical Project Manager, Child Women & Family Services WDHB

Health Partners Consulting Group was engaged after a contestable process to provide independent analysis and advice, and to assist with the development of viable options for future maternity service configuration across the two DHBs in a way that ensured:

- increased responsiveness to the needs of wāhine/women and their whānau/families
- strengthened clinical practice
- equitable access to services, particularly for wāhine/women with high social needs and from minority ethnic groups
- improved system function and consistency
- the most efficient use of ADHB/WDHB combined resources.

The focus of this phase of our maternity collaboration has been on primary and secondary maternity services with particular focus on the community aspects of care and linkages to secondary services. Auckland City Hospital also provides highly specialised maternity and paediatric services for the entire Northern Region and for New Zealand – these tertiary services are outside the scope of this report.

Our planning process

In order to inform future maternity systems design the Collaboration Steering Group have:

- undertaken a review of the current models of care and configuration of services across primary and secondary services:
- modelled future demand for primary and secondary maternity volumes over the next 10 years
- developed a collaborative model of care that includes recommendations for location and configuration of future services.

Health Partners has provided independent qualitative and quantitative information and analysis in the following areas:

- birth and demographic analysis and projections to 2025
- analysis of the impact of 'no change' on service capacity
- literature review of current evidence regarding impact of birthplace on birth maternal and neonatal outcomes
- focus groups with consumers and stakeholders to gain some understanding of community needs.

Stakeholder engagement has been a critical and important part of our process to help us identify gaps in our current maternity services and issues related to how we deliver care.

Stakeholder engagement has included:

- interviews with a range of internal and external stakeholders
- focus groups with Māori, Pacific and Asian wāhine/women and their whānau/family
- stakeholder workshop in January 2015, where woman focussed scenarios were used to test our understanding of the issues and possible solutions.

For further reading regarding stakeholder engagement see section 3: Summary of Stakeholder engagement in plan development.

Current models of care and configuration of services

For service configuration see section 3: Maternity services across Auckland and Waitemata DHB; and Primary, secondary and tertiary maternity services by DHB catchment area, 2010.

Models of maternity care

Maternity services are responsible for supporting wāhine/women through their pregnancy (the antenatal period), the birth of the baby (perinatal), and the six weeks following birth (postnatal). The New Zealand maternity model encourages pregnant woman to choose a lead maternity carer (LMC) to provide maternity care throughout these three stages, and to coordinate services delivered by other providers.

The majority of LMCs are self-employed midwives and some are private obstetricians. A small number of general practitioners (GPs) also provide LMC services. Some wāhine/women have their care provided by DHB-employed community and hospital midwives.

Where there are any concerns about the well-being of the woman or baby, the LMC may refer the woman to a DHB's specialist maternity service for advice or for ongoing care. The hospital provides access to and support from clinicians including: obstetricians, midwives, physicians, nurses, physiotherapists, social workers, lactation consultants and dieticians..

Working together with her LMC each woman should develop a birth plan that best suits her and the needs of her baby and whānau; this will include a decision about preferred place of birth, which may be:

- **Home birth (HB):** suitable for wāhine/women who are well, whose pregnancies are without complications, and who feel safer giving birth in their own home surroundings. Such wāhine/women also need an LMC who is able to support this option

- **Primary birthing units (PBUs):** generally suited for wāhine/women who are well and whose pregnancies are without complications. Primary birthing units provide ‘home-like’ surroundings for labour and birth, and the immediate postnatal period
- **Secondary maternity units (SMUs):** best suited for wāhine/women or their babies with complications or risk factors that need additional maternity care involving obstetricians, paediatricians or other specialists (including allied health professionals), in addition to 24-hour on-site midwifery services.

Should complications arise in labour, wāhine/women who planned to birth in a primary setting (a primary birthing unit or at home) will be transferred to a secondary maternity unit for their births.

During pregnancy and following birth, the LMC will work with the woman’s GP to maintain effective linkages to ongoing primary medical care. The LMC will also help the woman link with other health and social services where required, and with Well Child Tamariki Ora (WCTO) service providers in the weeks following the birth.

Most maternity services are fully funded by the Ministry of Health in New Zealand, and so are free of charge to citizens and other wāhine/women identified through the Ministry of Health guidelines on eligibility for publicly funded health services. Depending on the choices made in conjunction with the LMC, wāhine/women may be charged by some providers of pregnancy and parenting education classes and ultrasound scans. Private obstetricians and primary birthing units may also charge fees for services that are additional to those funded by the Ministry of Health.

Current maternity facilities

In Auckland and Waitemata, there are currently four primary birthing units – one urban and three rural. Wāhine/women in central Auckland and rural areas of Waitemata have access to a local primary unit, but those living in the North and West of Auckland do not. Each of the primary birthing facilities is owned and operated by a private/community provider, and is funded by the DHBs. They are:

- Birthcare Auckland (Parnell)
- Helensville Birthing Centre
- Warkworth Birthing Centre
- Wellsford Birthing Centre.

The number of wāhine/women who give birth in a primary maternity unit is low for both Auckland and Waitemata DHBs. In 2014, only 4% of Auckland and Waitemata wāhine/women gave birth in a primary unit, compared with 11% for New Zealand as a whole, and 10% for Counties Manukau. Overall, the numbers of wāhine/women birthing in primary units has been declining.

Some primary births occur in the home: and while the Ministry of Health and DHBs do not collect this information, it is estimated that there were around 200 home births in Waitemata and 100 in Auckland in 2014.

The DHBs own and operate secondary maternity units at: Auckland City Hospital (Auckland DHB), North Shore Hospital (Waitemata DHB) and Waitakere Hospital (Waitemata DHB). Auckland DHB also provides tertiary maternity services for very complex pregnancies and births and specialist outpatient services at Greenlane Clinical Centre. Waitemata DHB provides a specialist outpatient clinic in Warkworth.

The DHBs' three secondary maternity facilities are large by international standards. Auckland City Hospital in Grafton had approximately 7,400 births in 2014, more than any other public hospital in New Zealand or Australia. North Shore Hospital had 3,700 births, making it the fourth largest in New Zealand. Waitakere Hospital had 3,000 births, the seventh largest in New Zealand. One in five New Zealand babies are born in maternity facilities in Auckland and Waitemata.

Major drivers for change to our maternity services

For further reading see additional source document on Collaboration web site: Projecting birth and population change

A range of drivers for change exist. These include:

Predicted change in birth numbers

Health Partners forecasted future demand for maternity services across Auckland and Waitemata. The methodology used for forecasting the number of births considered two main factors: the number of wāhine/women of childbearing age, and the number of babies those wāhine/women will have, on average. Even though wāhine/women are having babies at older ages and the number of babies per wāhine/woman (the 'fertility rate') is falling, the number of births each year is predicted to increase as the number of wāhine/women in Auckland and Waitemata continues to grow.

Since the year 2000, Statistics New Zealand has had difficulty accurately forecasting births in Auckland and Waitemata. During the early 2000s, the number of births exceeded expectations, but since 2009 the opposite happened: the number of babies born per woman did not meet forecasts, particularly in the younger age groups of wāhine/women. Where this reflects wāhine/women postponing having children, a 'catch-up' can be expected in future years. Where wāhine/women and their partners are planning reduced numbers of children, rates will stay low.

If the birth rate returns to Statistics New Zealand projections, then in 2025 there would be an additional 100 births for wāhine/women living in Auckland and 1,300 for Waitemata wāhine/women. If current patterns of maternity facility use continue into the future, in 2025 this would mean an extra 700 births at Waitakere Hospital (an extra

two births per day on average), 300 at North Shore Hospital and 300 at Auckland City Hospital. There would be little change in use of the primary birthing units. However, if the lower birth rates seen over the past five years continue, then the increases would be lower, perhaps halving the expected increases for each facility.

In summary, planning needs to consider a range of scenarios of growth in birth numbers by 2025 for each DHB. This range is: Auckland City 0 to 300 births; North Shore 0 to 300 births; and Waitakere 200 to 700 births.

Changing ethnic diversity of our mothers and babies

The ethnic mix of Auckland and Waitemata mothers is also changing, with the biggest change over the past 10 years being the increase in births to Asian mothers. Statistics New Zealand projections show that this trend is likely to continue into the future. In Auckland, the number of wāhine/women giving birth is expected to grow slowly, with births to Māori and Pacific wāhine/women falling in both number and proportion of the whole. Births to Asian wāhine/women are expected to rise from 29% to 32% of all births by 2025. Births to wāhine/women categorised as ‘European and other’ ethnicity are expected to increase in both number and percentage.

In Waitemata, births to Asian mothers have increased by 50% over the past six years, and a similar rate of increase is expected until 2025. In 2012 Asian women contributed 21% of the births of Waitemata wāhine/women; by 2025 they are projected to make up 27%. Births to Māori, Pacific and NZ European and Other women are expected to increase only slightly in number, and to drop as a proportion of the total.

Equity and Whānau Ora

In New Zealand, ethnic identity is an important dimension of disparity in health, and the principles of “Reducing Inequalities in Health Framework” (Ministry of Health 2002) focus on equity and Whānau Ora.

We also know that poorer health outcomes are also related to social determinants such as lower incomes, lower educational attainment, poorer housing and unemployment. A whānau ora, whānau centred and holistic approach to the delivery of quality health and social services will support an improvement in these health inequities.

Whānau Ora is an approach that places whānau/families at the centre of service delivery, requiring the integration of health, education and social services. To ensure improved outcomes and results for New Zealand whānau/families equity must be an integral component of quality and health system leadership.

The life expectancy gap between Māori, Pacific and non-Māori is an ongoing challenge for the health sector as a whole. While life expectancy at birth continues to improve for both Māori and Pacific peoples, life expectancy remains shorter compared with the total New Zealand population. Barriers to health care are recognised as multidimensional, and include health system and health care factors (e.g., institutional values, workforce

composition, service configuration and location), as well as patient factors (e.g., socioeconomic position, transportation and patient values).

A population-based health approach is required that involves both direct action from health and disability services and intersectorial action to address the social and economic determinants of health to improve outcomes (Ministry of Health 2002b).

A Whānau Ora approach to health care recognises that health and well-being are influenced and affected by the whānau. It is important to work with people in their social context and not just with their physical symptoms. Quality services that are integrated (across social sectors and within health), responsive and whānau-centred are needed to achieve improved health outcomes.

This plan will address equity for Māori wāhine/women, their pepi/babies and whānau/families in a number of ways, which are outlined later in this document.

This plan will also address the inequities that are experienced by other the priority populations particularly teenage, Pacific, Asian, refugee and new migrant women.

Rising intervention rates

Consistent with worldwide trends, the caesarean section rates at both DHBs has risen for all age groups. Rates by age across the two DHBs are similar, apart from the under 20 and 20 to 24 year age groups where Waitemata wāhine/women have tended to have higher intervention rates. The rise in caesarean rates apply to both emergency and planned caesarean births. If current trends continue, in the absence of actions to change current practice, caesarean rates for both DHBs are predicted to reach 38 to 40% by 2025.

We recognise that in many instances interventions are necessary and in some cases lifesaving. However the current rate exceeds that needed to reduce perinatal and maternal morbidity and mortality. We believe that we must critically examine our intervention rates and benchmark these results across New Zealand, and internationally.

Emerging evidence on importance of supporting normal birth

For further reading see additional document on Collaboration web site: Literature review

Emerging evidence suggests that by promoting birth as a normal life event and enhancing the opportunities for wāhine/women, where appropriate, to birth in midwifery-led primary birthing units, we will gradually re-establish a culture of confidence in normal birth.

The Birthplace Study (2011), an extensive research project in the UK, examined perinatal and maternal outcomes by planned place of birth. Overall, the study found that intervention rates were lower for wāhine/women who birthed in a primary birthing unit

compared with secondary maternity units with no significant difference in adverse perinatal and maternal outcomes.

A Cochrane Collaboration Review of midwifery-led models versus other models of care (2013) concluded that midwifery-led continuity of care was associated with several benefits for mothers and babies, and had no adverse effects compared to models of medical-led care and shared care. The benefits noted were a reduction in the use of epidurals, fewer episiotomies and instrumental births, and an increase in spontaneous vaginal births but with little impact on caesarean rates.

A Cochrane Review entitled Alternative versus Conventional Institutional Settings for Birth (2012) concluded:

“The results are consistent with a growing body of research which has demonstrated the independent effects of physical attributes of the hospital room on caregivers’ behaviour and patients’ health outcomes, including postsurgical complications and length of stay.

Pregnant wāhine/women should be informed that hospital birth centres (alongside primary birthing units) are associated with lower rates of medical interventions during labour and birth and higher levels of satisfaction, without increasing risk to themselves or their babies. Decision-makers who wish to decrease rates of medical interventions for wāhine/women experiencing normal pregnancies should consider developing birthing units with policies and practices to support normal labour and birth.”

An Australian database study (2014) of 240,000 low risk births concluded:

“The continual rise in obstetric intervention for low-risk women in Australia, especially in private hospitals, may be contributing to increased morbidity for healthy women and babies and higher cost of healthcare. The fact that these procedures which were initially life-saving are now so commonplace and do not appear to be associated with improved rates of perinatal mortality or morbidity demands close review. Early term birth and instrumental births may be associated with increased morbidity in neonates and this requires urgent attention. Previous claims that high-intervention rates in private hospitals lead to better perinatal outcomes than those seen in public hospitals need to be questioned.”

Issues identified through stakeholder engagement and review of evidence

We have identified five broad groups of issues during our review process:

1. **Quality and safety issues** Evidenced by: declining primary birthing and rising intervention rates.
2. **Inequalities in health outcomes** particularly for Māori, Pacific and some Asian women and babies. Evidenced by: lower birth weights in babies (Māori and Asian),

more gestational diabetes (Pacific and Asian), perineal trauma (Asian) and perinatal mortality (Māori and Pacific).

3. **Fragmented care** evidenced by: late registration with a Lead Maternity Carer, lack of access to timely availability of clinical information and duplication of activity.
4. **Inconsistency in the models of care** evidenced by: variation in care such as access to elective caesareans.
5. **Facility issues** evidenced by: current accessibility to primary birthing options, and projected future capacity issues.

This plan proposes a number of changes to the way we deliver maternity services across the two DHBs in order to address the most important care issues.

What happens if we do nothing?

The drivers of change described above compel Auckland DHB and Waitemata DHB to make changes to the way in which we currently provide maternity services. If we do not respond it is likely our services will experience:

- increasing demand pressure on our maternity services, resulting in poor experiences of care and continued inequity of outcomes for some of our wāhine/women and babies
- insufficient capacity in our maternity facilities, so services of the right type and in the right setting may not be available when needed
- further growth in intervention rates without accompanying improvement in maternal and perinatal outcomes
- inefficient use of clinical resources, and increasing costs driven by additional operative births and greater numbers of wāhine/women requiring the longer postnatal stay subsequent to caesarean births.

Your feedback on the plan

This Maternity Plan outlines the important activities needed to strengthen the provision of maternity services across the Auckland and Waitemata DHB catchments and ensure our maternity services continue to meet the needs of our population over the next 10 years. Our plan is grouped under six themes. Each theme and the associated strategies require considerable work to determine how best to translate these high level ideas into changes in the way we deliver care.

We are unable to do all of this work immediately and activity will need to be staged over a period of time. We would like you to help us and the working groups to determine the relative priority for the pieces of work that we have outlined. We recommend you read the information provided within this document, including the appendices that contain more detail about the planning context and our plan.

Next Steps

Once we have received and analysed feedback, and reviewed the expressions of interest (in early 2016) we will provide this to the newly developed working groups organised under the themes. Each working group will be led by a member of the collaboration steering group (which will then become the ADHB/WDHB Maternity Governance Group). Each group will have broad stakeholder and professional membership. The groups will use co-design principles to progress the activities.

Work on facilities theme will progress separately, however each DHB will develop its own working groups and consultation process to engage consumers and stakeholders.

Section two: Our approach

Theme one: Achieve equity

Summary

- Māori, Pacific, Asian, migrant and teenage wāhine/women and babies are likely to experience inequality in health outcomes
- Early pregnancy care before 10 weeks and registration with an LMC improves health outcomes
- Wāhine/women who have complex health or social needs require more support in both hospital and community settings
- Wāhine/women are more likely to access maternity care when it is provided by an ethnically diverse and culturally appropriate workforce
- Continued focus on health outcomes will allow us to measure and improve services and reduce inequities

For further reading see additional document on collaboration web site www.healthvoice.org.nz: MOH Report on Maternity 2012; National Womens Annual Clinical Report 2014, Waitemata DHB Maternity Quality and Safety Programme Annual Report 2014-2015.

Improving outcomes and reducing disparities

Wāhine/women who identify as Māori, Pacific and Asian have poorer health outcomes than New Zealand European wāhine/women. The most recent Perinatal and Maternal Mortality Review Committee report shows that Māori, Pacific and Indian women experience a higher rate of perinatal death than New Zealand European women. With Indian women having a disproportionately high rate of stillbirth and neonatal death.

Key health outcome indicators (e.g. MoH maternity clinical indicators, smoking, perinatal mortality) will be measured for the overall DHB maternity population and by sub-groups (ethnicity, age, geography). The priority populations thus identified will be targeted with appropriate evidence-based interventions to address the health disparities. Continual monitoring is needed to examine the effectiveness of the interventions.

STRATEGY 1

Continue to focus on measures that can improve health outcomes for priority populations, working alongside partner organisations.

Access to and engagement with maternity care

Early pregnancy care provides an opportunity to offer health screening and to discuss possible lifestyle changes. This early care puts wāhine/women on the path towards a healthy pregnancy. It is therefore important that all wāhine/women are seen by a health professional within the first 10 weeks of their pregnancies. We know that wāhine/women who identify as Māori or Pacific and teenage wāhine/women tend to register later for maternity care, have more fragmented care and fewer antenatal appointments than wāhine/women from other backgrounds. Feedback from these wāhine/women tells us that many do not fully understand our maternity system or know how to make contact with a midwife. Consequently they access maternity care later, missing out on important early pregnancy care.

A number of regional early engagement initiatives are already underway to encourage and enable early engagement with a LMC. Women using maternity services have high rates of smart phone usage. One strategy being explored aims to utilise this high use of technology to develop a phone application (App) to provide wāhine/women with key information to navigate the maternity system.

We would also like to open opportunities for women to engage earlier in pregnancy, and choose a suitable LMC 'the first time' they seek assistance in their pregnancy, by developing linkages between GPs and LMC practice.

We propose to increase community awareness about the importance of early pregnancy care by developing information resources for health professionals and a public campaign to build community knowledge.

STRATEGY 2

Develop and deliver a public awareness campaign targeted specifically towards priority populations, around the importance of early pregnancy care, to assist in early engagement with a LMC.

Support for wāhine/women and whānau/families with complex social problems

Many women in our region have complex and changeable social circumstances, and may experience issues such as family violence, substance abuse, isolation, homelessness, and complex mental health problems. These families are vulnerable and need skilled multidisciplinary care to ensure a safe environment to thrive.

Both DHBs already run specialist multidisciplinary groups: Wāhine Ora (Auckland DHB) and Te Aka Ora (Waitemata DHB) for wāhine/women during their pregnancy and postnatal period. These groups are a multidisciplinary team of experienced professionals who provide oversight, advice and skilled care planning for these families. This care

planning system ends at six-weeks postpartum with a transfer of responsibility over to primary care providers.

We propose to enhance support for these whānau/families by expanding the group membership to include Well Child Tamariki Ora providers and community agencies (as appropriate). This will improve continuity of care and better ensure support continues into the child's early years.

STRATEGY 3

Expand Te Aka Ora and Wāhine Ora groups to include Well Child Tamariki Ora and community agencies/providers to include transition from maternity services.

Access to hospital based services and secondary care

Wāhine/women who have complex health needs are often required to attend more frequent hospital-based appointments. Some wāhine/women tell us that the cost of travel and parking has a financial impact on them and their families and is one of the reasons that they do not always attend appointments. Other barriers to attending hospital-based appointments include lack of childcare and inability to get time off from work, confusion regarding appointments where written information is in a different language than their own. We see evidence of these access difficulties in the higher numbers of Māori and Pacific women who do not attend appointments. These wāhine/women would be most likely to benefit from services delivered closer to home.

In order to bring services closer to these priority populations, we intend to further develop the 'community health hub' concept. Health hubs bring health, wellness and social providers together in a community space with easy access. These hubs would include antenatal, postnatal and infant services, and provide an opportunity to co-locate midwives, Well Child providers, obstetric outreach clinics, allied health providers, and community based support agencies.

We would showcase this approach through a pilot site as part of the Tamaki Whānau Ora Iwi/Auckland DHB partnership, and extend it to other localities over time as appropriate.

STRATEGY 4

Provide antenatal and postnatal maternity services in a 'health hub'. Potentially testing this model in Tamaki or Henderson, Te Atatu or Ranui, to co-locate primary healthcare, wellness and community services.

Workforce cultural competency

Wāhine/women of Māori, Pacific and Asian background have told us that they would prefer to receive care from healthcare professionals from their own ethnic background,

or if that is not possible, from professionals who understand their culture and are able to provide culturally sensitive care. It is often not possible for wāhine/women from these backgrounds to find a suitable LMC in Auckland and Waitemata.

Creating a pipeline approach that focuses on developing Māori, Pacific and Asian peoples into a clinically and culturally competent workforce will be a key priority. To assist this process we will explore strategies to attract people of Māori, Pacific and Asian background into all aspects of care across our maternity workforce. Recruitment initiatives to attract Māori and Pacific people into the midwifery workforce, and Māori youth into health professions within Auckland and Waitemata, are already underway. In addition, we will work collaboratively with tertiary education providers such as AUT University (midwifery and allied health) and Auckland University (medical) to encourage people from our minority ethnic groups to engage in maternity training. We will ensure that support networks are in place for new graduates of Māori and Pacific backgrounds and those LMCs from other backgrounds who wish to work with our priority populations.

We will ensure our maternity services are responsive to the diverse needs of wāhine/women and their families by lifting the cultural capability of the workforce. We will provide cultural training (such as CALD, Pacific Best Practice, Tikanga and Treaty of Waitangi training), including training around the importance of traditional birthing practices, for all new and existing employees who work within maternity services at Auckland and Waitemata DHBs. We will report on the uptake of this training by our workforce. We will also work to enhance communication with migrants and refugees from Asian, Middle Eastern, Latin American and African (MELAA) backgrounds. We will ensure our policies, pathways and information reflect the diverse needs of our population. By doing so, we plan to create a positive experience for the wāhine/women and their whānau/families, so that they are more engaged and satisfied with their care.

STRATEGY 5

Develop a workforce that is more reflective of, and responsive to the needs of, the ethnically diverse communities we care for, through cultural competency training and increasing the diversity of our workforce.

STRATEGY 6

Develop a workforce and service that builds the health literacy of priority populations in order to improve health outcomes.

Theme two: Enhance maternity quality and safety

Summary

- **The Ministry of Health implemented the Maternity Quality & Safety Programme in 2013, this provides a framework to improve maternity care, including equity of access and outcomes**
- **Maternity clinical governance could be strengthened to include representation from Māori, Pacific, Asian and migrant services, as well as consumers and community partners such as sonographers and GPs**
- **DHBs are required to monitor and report on the maternity outcomes for mothers and babies who birth at their facilities. Outcomes are dependent upon care delivered both in the community and in hospital facilities**
- **DHBs already collect and publish outcome data at a DHB and practitioner group level but do not consistently provide individual practitioner feedback, an approach which is known to encourage reflective practice**
- **Current staffing models for senior doctors are based on an on-call after-hours model. These models may contribute to higher intervention rates**

For further reading see section 3: Background to maternity quality and safety programmes

Maternity clinical governance

The Maternity Quality and Safety Programme (MQSP) provides a framework for the oversight of the maternity continuum of care. The programme includes the mandate for maternity stakeholders to work together to improve care for mothers and babies, including equity of access and outcomes. The programme is overseen by the National Maternity Monitoring Group and requires each DHB to report annually on maternity outcomes and improvements that have occurred in the previous year.

The Ministry of Health supports the MQSP programme and provides national benchmarking data on key performance indicators that are agreed nationally, and reported by DHBs nationwide. MQSP encourages DHBs to bring together professional and consumer stakeholders to collaboratively monitor and improve maternity care. This encourages a structured approach to maternity quality improvement, and has already contributed to a more robust clinical governance structure across Auckland and Waitemata DHBs.

Both DHBs already involve consumers actively within their maternity quality and safety programmes, however we believe there is potential for even greater consumer input, that reflects our diverse population.

Representation from Māori, Pacific, Asian and migrant services would help create a voice to our diverse population and ensure that priority populations remain at the forefront of decision making within our maternity services.

We also believe that we should build on the work that has already occurred and ensure that other community partners, such as GPs and radiologists, have a voice and are appropriately represented in our quality framework.

STRATEGY 7

Ensure Māori, Pacific, Asian and migrant services as well as a wider range of consumers and community partners are represented in our maternity clinical governance structures.

Providing individual practitioner feedback

Outcomes data for each DHB is now published in the MQSP annual report by each DHB. This data enables comparisons between DHBs, and broadly, between different provider groups.

DHBs have the potential to provide outcome data at practitioner level to allow individual benchmarking. Detailed outcome data provided at practitioner level has been shown to be a driver of quality improvement by encouraging reflective practice. This is one approach that will assist us to improve normal birth rates and reduce unnecessary interventions.

We propose to provide individual outcome data to all of our clinicians. Each practitioner will see their individual outcomes but the outcomes of other practitioners will be aggregated and de-identified so comparison to the mean can be made.

STRATEGY 8

Develop a process to provide individual practitioner feedback to doctors and midwives to encourage reflective practice.

Obstetric staffing models for secondary maternity units

The current model of obstetric staffing in Auckland and North Shore hospitals is for a Specialist Obstetrician to be on call after-hours. This leaves junior medical staff (i.e., Obstetric Registrars) making key decisions around mode of birth, albeit with access to telephone advice from an obstetrician. International evidence suggests that a model with 24/7 on-site senior obstetric staff presence increases the normal birth rate because

their greater clinical experience leads to a more watchful approach. Counties Manukau transitioned to an onsite obstetrician model 10 years ago.

This senior obstetric staffing model, in combination with policies and information to support greater confidence in normal birth among wāhine/women and maternity staff, has been shown to reduce both planned and emergency caesarean section rates.

STRATEGY 9

Transition to 24/7 obstetrician presence in secondary maternity units.



Theme three: Enhance continuity of care

Summary

- **Guidelines for some maternity conditions differ between DHBs, creating challenges for wāhine/women and LMCs**
- **Communication between health care professionals who share responsibility for care is hampered by hospital IT systems that are not easily accessible by community-based providers**
- **Transition back to community-based care after a pregnancy episode does not always occur in a way that optimises care for the wāhine/woman and her baby**
- **GPs have an important role to play in supporting wāhine/women with ongoing medical problems during pregnancy, and would benefit from better connectivity with maternity services**

Regional guidelines and pathways to care

The LMC model provides the opportunity for each woman to have a health professional (usually a midwife) who will care for her during pregnancy, birth and for the first few weeks after birth. The LMC also acts as a care navigator, referring wāhine/women to support services and working alongside the hospital team if there are pregnancy complications. This approach, referred to as ‘continuity of care’ is popular with wāhine/women and is a cornerstone of maternity care in New Zealand.

Although there are national referral guidelines which guide LMCs on conditions that require consultation or referral to a hospital team, LMCs tell us that referral pathways to secondary and tertiary care are inconsistent across our DHBs. There is also variation and lack of clarity around when wāhine/women should be transferred back to primary care. This means that joint care planning does not always happen, and this can result in wāhine/women missing out on important care. Consistent care pathways across our DHB districts would improve care delivery.

Care guidelines are frequently different between the two DHBs. This can be confusing for LMCs who may work across hospitals. In 2014 the three Metro Auckland DHBs completed a regional evidence-based guideline on induction of labour. The guideline development process built consensus across the region and the guideline has been well received by clinicians. Early evidence would suggest that it has led to a reduction in the number of inductions at Waitemata DHB.

Enhancements supporting women with acute maternal mental health problems have received priority from the Ministry of Health over the past two years. However, wāhine/women with mental health conditions such as depression and anxiety often do

not meet the threshold for maternal mental health services. We have heard from wāhine/women and LMCs that this group are currently under-served and do not have clear and consistent pathways to care.

We plan to build on this work through collaboration between primary care providers, mental health and LMCs to develop agreed best practice models of care and guidelines to ensure that wāhine/women receive the right care, at the right time, in the right place, reducing the gaps in mental health support. These will be evidence-based and will ensure a standardised approach, but allow DHB variation, where appropriate, based on the local resources and population characteristics. Our guidelines will incorporate the principles of care in the community as close to a wāhine/woman's home as possible. We will further ensure that pathways take account of the social and cultural needs of our wāhine/women and their whānau/families as well as their specific health needs.

STRATEGY 10

Develop consistent care pathways, including for maternal mental health problems, between DHB and community care providers, supported by regionally agreed clinical guidelines.

National maternity electronic record

When pregnancy complications arise there are frequently numerous clinicians and services involved. This complexity makes communication between all parties difficult, and there is a risk that important information may be overlooked, leaving the woman and her carers vulnerable. In the stakeholder interviews, LMCs reported that they were concerned about communication between them and hospital-based staff.

An important factor in communication difficulties is that health information systems are currently structured to support communication between the hospital and general practices, rather than other health professional groups such as LMCs. Currently, each DHB has its own clinical records and system, which leads to gaps in communication, duplication of information and inconsistency across DHBs. This also allows discrepancy between hospitals in the information shared with primary care.

GPs tell us that although woman often come to them when first pregnant, when the woman is registered with an LMC they do not then receive any updates until the mother and baby are referred back to them six weeks after the birth. We recognise it is important to the ongoing health of the woman and her baby that she is linked to her GP during and after pregnancy. This is particularly important for priority populations within our DHBs. We know that communication between LMCs and other primary care providers, especially GPs and Well Child providers, is not always ideal and important information can be missed.

The National Health IT Board, in conjunction with DHBs, has endorsed the development of a consistent national electronic maternity record system. This is in the process of roll out across a number of early adopter DHBs. Implementation of a national system will better enable flow of information between community and hospital services and thereby improve maternity care. Wāhine/women who are transient or need to receive care from another DHB will particularly benefit. A national electronic medical record would also enable wāhine/women to have easier access to their own healthcare records in pregnancy.

STRATEGY 11

Ensure an electronic maternity record remains a regional priority to support improved communication between primary, secondary and tertiary providers.

Theme four: Strengthen confidence in normal birth

Summary

- **Normal vaginal birth offers the best health outcome for mothers and babies**
- **Wāhine/women's confidence in normal birth is declining**
- **Clinicians are also less confident providing care outside a hospital setting**
- **Home birth is an unacknowledged birthing option for low risk wāhine/women**

For further reading see additional document on collaboration web site www.healthvoice.org.nz: Primary birthing models and evidence.

Community loss of confidence in normal birth

From our research and discussions with wāhine/women and maternity professionals, it appears that confidence in normal birth is declining. The reasons for this are complex. However, they are likely to include the negative media commentary that surrounds adverse events, which contributes to the pervasive view that birth is safer in a hospital setting. We believe that this loss of confidence means that many wāhine/women who would be suitable to birth in a primary unit or at home do not do so.

One approach taken in the UK is to provide structured, evidence-based information on birth outcomes and risk in relation to place of birth for well wāhine/women. This appears to have been a useful tool to encourage use of PBUs. We propose that we similarly produce comparable tools based on New Zealand data, to ensure wāhine/women are given appropriate information to make informed choices about place of birth, including home birth.

STRATEGY 12

Develop structured, evidence based information on birth outcomes and risk in relation to place of birth, including home birth, that enable Midwives, GPs and Obstetricians to endorse primary birth as a safe option for well wāhine/women.

STRATEGY 13

Support and increase primary birthing options for women which will encourage women to give birth out of hospital.

Home birth is under-acknowledged and supported

Home birth is currently an option chosen by around 300 wāhine/women per year across Auckland and Waitemata DHB. Evidence suggests that home birth increases the normal birth rate and is safe for well wāhine/women, especially those having their second or subsequent babies. LMCs who provide this service should be supported and should expect to receive collegial support and advice from DHB staff when needed.

We will encourage LMCs to work with women to provide home birth in a manner that is clinically safe and culturally appropriate. In planning for home birth we will encourage, especially for Māori, a Whānau Ora approach that seeks to include the whole whānau/family in planning for the birth.

In order to ensure a greater visibility of home birth in our DHBs, we would propose that home birth data is included in DHB maternity outcome data. DHBs will encourage LMC midwives facilitating home births to register their clients with the DHBs to ensure streamlined access to care if the need arises and to enable the link to free child health services following birth.

We propose to assist midwives supporting home births by providing practical measures such as equipment, and system support such as generation of an NHI number for the baby immediately after birth.

STRATEGY 14

Recognise and support wāhine/women, their whānau/families and their LMCs who choose home birth and provide the necessary support to ensure home birth becomes established as a normal part of the maternity continuum.

Clinician confidence in normal birth

Providing safe maternity care in a community setting requires clinicians to have a high level of competence in assessing risk, anticipating complications and managing emergencies. Feedback from clinicians indicates that many work entirely in a hospital setting, and some lack the confidence or experience to practise in a community environment. This lack of confidence may influence their presentation of information to wāhine/women, and therefore affect the choices that wāhine/women make regarding place of birth.

We need to increase the teaching and learning opportunities for midwifery and medical students to learn about normal birth.

Enable women who have medical or obstetric complications to maintain as normal a birth experience as possible within the hospital setting; through clinician education, environmental adaptations and improving information for wāhine/women on normal birth options available within the hospital environment.

STRATEGY 15

Create opportunities for midwives and trainee obstetricians to experience normal birth in a primary birthing unit or homebirth setting. Provide education that includes a training module that explores the evidence regarding the risks and benefits of places of birth.

STRATEGY 16

Develop strategies to maintain as normal a birth experience as possible for women who have medical or obstetric complications that require them to birth in a hospital setting.



Theme five: Support transition to parenthood and infant attachment

Summary

- **Parents, particularly first time parents, need support and advice to feel confident with newborn care**
- **Our hospital facilities are not designed or organised in a way that supports fathers/partners and whānau/families to participate in care**
- **Keeping mothers and babies together assists early infant attachment, but our special care and intensive care nurseries do not consistently provide overnight facilities for mothers**
- **Community-based breastfeeding support for complex problems is inconsistent and there is less access to help for ADHB families**
- **Current postnatal facilities do not consistently enable partners to support wāhine/women during their stay in a maternity facility**

Support the transition of wāhine/women and their whānau/family into parenthood

Many parents find the transition to parenthood challenging, particularly first time parents. New parents tell us that they want to have more help in the first few days after birth when they were getting to know their babies and learning baby care for the first time. Although antenatal education programmes provide a foundation of knowledge they do not fully prepare new parents for the sometimes daunting prospect of bathing or changing their baby for the first time. A new pregnancy and parenting education specification has been developed by the Ministry of Health. This allows for greater flexibility in how pregnancy and parenting education is delivered. This will support the development of models that work better for women and their families who not had their needs met through traditional antenatal classes.

However, the days immediately following birth provide an important opportunity to strengthen parenting skills and pass on important safety messages such as ‘safe sleep’. Hospital midwives and nurses are often occupied providing essential care for unwell wāhine/women and babies and often do not have enough time to provide the support and education that new mothers need.

We plan to enhance our postnatal care by adding a parent educator role to our core staff (health care assistant or similar role) with responsibility for ensuring that all parents receive the information and support they require to be confident parents.

We also believe that this education can be enhanced by providing mixed media information, including web based videos available through social media. Our teenage parents are particularly keen to receive education in this format.

STRATEGY 17

Increase postnatal ward staffing to include a parent educator role seven days a week. Develop a series of mixed media information, including videos, that explain and demonstrate standard infant care practices, which could be used in hospital and at home.

Community support for breastfeeding problems

The baby friendly hospital initiative (BFHI) has increased exclusive breastfeeding in our facilities to over 80%. However, this rate decreases rapidly in the weeks following birth. One reason may be a lack of specialised breastfeeding support in the community.

Recent evidence has shown that tongue-tie can significantly reduce the rate of breastfeeding success. There is no regionally agreed pathway for assessing or treating tongue-tie and there is limited availability of community lactation consultant support and tongue-tie services.

STRATEGY 18

Develop an agreed model for breastfeeding support in the community and the implementation of lactation support services.

Partner support during postnatal stay

We believe that all wāhine/women should feel safe, nurtured and supported in our maternity units. Wāhine/women from all communities' value having whānau/family support during their postnatal stay. Fathers/partners say they would like to play a larger role in caring for their partners and new babies but sometimes feel excluded because visiting restrictions prevent them from staying overnight. This is particularly challenging when a women are sharing multi-bedded postnatal rooms. Māori, Pacific and teenage wāhine/women are more likely to leave hospital early after giving birth and before they have become confident mothers. The reasons for this are complex but these wāhine/women tell us they need their families to support them, and in the hospital they may feel unsafe and vulnerable when their family members are asked to leave.

Auckland Hospital has recently developed a programme that allows fathers/partners or an alternate support person to stay overnight. This approach has been well received and is possible because of the high proportion of single rooms.

We believe that, where possible, fathers/partners should be enabled to remain overnight. Future facilities should be co-designed with wāhine/women and their whānau/families to enable fathers/partners, or other support person as appropriate, to stay at all times.

STRATEGY 19

Ensure future maternity facilities are designed to enable fathers or other key support people to remain overnight and participate in the care of mother and baby.

Babies requiring special care

In order to promote infant attachment and breastfeeding, mothers and babies need to be together at all times. Current design of our Special Care Baby Units (SCBU) and Neonatal Intensive Care Units (NICU) does not allow for a mother to stay with her infant. Wāhine/women tell us that being separated from their babies adds to the stress of having a sick baby. Future design of these facilities needs to take parents' needs to remain close into account and be co-designed with families.

STRATEGY 20

All future design of special care baby units (SCBU) and neonatal intensive care units (NICU) to incorporate principles that support keeping mothers and babies together.

Theme six: Ensure facilities meet population needs, including capacity for future growth

Summary

- **The number of babies born across Auckland and Waitemata districts is expected to increase over the next 10 years, with the biggest growth expected in West Auckland**
- **Waitakere Hospital maternity facilities are unlikely to adequately meet future needs**
- **Evidence suggests that where wāhine/women give birth is an important factor influencing birth outcomes**
- **Well wāhine/women who start their labour at home or in a primary birthing unit are significantly more likely to have a normal birth than those wāhine/women who choose to give birth in a hospital**
- **The DHBs intend to manage some of the increased demand by giving priority to increasing the availability of primary birthing and postnatal capacity. This will reduce pressure on secondary facilities and promote normal birth**
- **Waitemata DHB does not have an urban primary birthing unit available for either its North Shore or West Auckland domiciled women**
- **Auckland Hospital has low risk women birth in its secondary facilities**

For further reading see additional document on collaboration web site www.healthvoice.org.nz: Projected birth and population change. Primary birthing models and evidence.

Pressure on existing facilities

Planning for future maternity facilities needs to consider not only forecasts of future birth numbers, but also assumptions about how many wāhine/women would use primary and secondary birthing facilities. Some factors likely to significantly influence facility use include:

- availability of local primary birthing units
- need for medical interventions during labour such as inductions, epidurals and instrumental or caesarean births (as these require admission to a secondary care hospital)
- the age at which wāhine/women have their babies, with older mothers having higher use of secondary care hospitals

- the proportion of wāhine/women having emergency and planned caesarean sections, with both having risen steadily across New Zealand (and other developed countries) in wāhine/women of all ages
- wāhine/women's choice of birth place and type, including for planned elective caesarean section.

The number of babies born each year in Auckland and Waitemata DHB is predicted to increase as the overall population grows. This will place increasing pressure on existing maternity facility capacity.

Planning needs to consider a range of scenarios for growth in birth numbers. Estimations for 2025 are for up to an additional 300 births in Auckland City Hospital, and a similar number in North Shore Hospital.

Auckland City Hospital is expected to be able to manage the increased numbers of births within their existing birthing suite and theatre capacity, particularly if there is increased uptake of birthing in primary settings. There is capacity within Birthcare (Parnell), we will continue to work with them to increase the number of women who birth at the facility.

North Shore Hospital is expected to have an increase of up to 300 births by 2025, however, there is no capacity for additional beds within the current footprint of the second floor of the hospital. We propose to reassess demand for primary and secondary birthing options in three to five years, and make a decision around a primary birthing unit based on clinical evidence, community feedback, cost, and uptake of other local models as the need arises.

The largest increase in birth numbers is expected in the Waitakere area, with up to 700 more babies forecast to be born in 2025, an increase of one-third from births in 2013. To accommodate this, Waitakere Hospital's Maternity Unit will need to expand its capacity by adding two birthing rooms and seven postnatal beds (although this increase in capacity may be moderated by the strategy to also build a primary birthing unit in West Auckland). The current Waitakere Hospital Maternity Unit has a number of significant flaws in ward layout and in services. Waitemata DHB has already committed to a rebuild of the Maternity Unit on the hospital campus, with the increased capacity described above. As Waitakere Hospital is also the base for Waitemata DHB's provision of services to children, consideration should be given to the development of a consolidated Centre for Women's and Children's Services for Waitemata DHB, as we expect the majority of our young families to be living in West Auckland in the future.

STRATEGY 21

Design and build a Women's and Children's Centre on Waitakere Hospital site that will accommodate the growing West Auckland maternity, paediatric and child health requirements.

Need for increased primary birthing options

Increasing evidence demonstrates that where wāhine/women give birth is an important factor influencing birth outcomes. Well wāhine/women who start their labour at home or in a primary birthing unit are significantly more likely to have a normal birth than those wāhine/women who choose to give birth in a hospital. The evidence is also clear that for well wāhine/women giving birth in the community, the outcome for the baby is as good as giving birth in a hospital.

However, use of our PBUs is low and declining at Birthcare (see table 1). Two factors would appear to be contributing to low usage. Wāhine/women and LMCs have told us that one barrier to use of PBUs is that all communities are not served equally and this means some wāhine/women have difficulty accessing a PBU. It is also apparent that some wāhine/women who would be suitable to use a PBU do not because they feel more confident giving birth in a hospital and believe that this is safer.

Table 1. Numbers of Wāhine/women Birthing in Primary Facilities (ADHB &WDHB)

Year	Birthcare	Warkworth	Helensville	Wellsford
2011/12	451	148	60	30
2012/13	375	124	49	28
2013/14	348	129	39	19
2014/15	325	128	40	30

** by financial year as indicated in Primary birthing analysis (Health Partners)*

Types of primary birthing facilities

There are two types of midwifery-led primary birthing units. One is a freestanding primary birthing unit (FPBU) which could be located on a hospital site (detached from existing facilities) or located in the community such as Birthcare Auckland (Parnell) or Helensville Birthing Centre. For wāhine/women birthing in these units, transfer to a secondary maternity unit needs to be by car or ambulance. The other model is an alongside primary birthing unit (APBU), and is situated either within or adjoining a secondary care hospital where transfer is possible by bed or wheel chair. There are currently no examples of the alongside model in New Zealand, although an APBU is currently under construction by Hawkes Bay DHB. Internationally, APBUs are well established and becoming more popular.

The table below provides detailed comparison information on the models of primary birthing units that could be considered.

Type of unit	Alongside	Freestanding
Description	A midwifery-staffed unit, located in the same building or an adjacent building to a secondary maternity unit.	A midwifery-staffed unit that is located in the community. The building could be purpose built or refurbished from an existing building. It could be DHB or privately owned/ operated.
Effect on uptake	Uptake may be greater than for freestanding unit for wāhine/women and their families who feel safer closer to a secondary maternity unit.	Uptake may be greater for wāhine/women who value birthing in their community in more homely surroundings. Overall, declining use across New Zealand.
Effect on normal birth	Normal birth rate is higher than in a secondary unit but lower than a freestanding unit	Normal birth rate is higher than secondary unit and higher than an alongside unit
Effect on health of baby	No evidence of difference	No evidence of difference
Effect on intervention rates	Reduced maternal intervention rates compared to secondary units	Lowest intervention rate of PBU models.
Effect on transfer rate in labour	The transfer rate is higher than free standing but lower than a secondary obstetric unit.	The transfer rate is lowest with this model.
Numbers of wāhine/women attending (internationally)	Stable or Decreasing (local evidence)	Increasing (only international evidence)
Capital cost	Least (assuming refit only required)	Greatest (dependant on provider)

Strategies for primary birthing facilities

In order to support wāhine/women's choice and maximise the number of normal births, we believe there is value in both models of PBUs. The FPBU model produces the lowest intervention rates and the APBU model appears to be more attractive to wāhine/women who are more risk averse.

Auckland DHB currently has a FPBU at Parnell (Birthcare). Despite this approximately 2000 low risk wāhine/women choose to birth at Auckland City Hospital in birthing suite designed for secondary and tertiary care. ADHB will continue to work with Birthcare on ways to increase births at that facility. The need for additional primary birthing options, will be explored.

Waitemata DHB has no urban options for primary birthing, with current facilities located within rural areas (Helensville, Warkworth and Wellsford). Birth numbers are predicted to increase primarily in West Auckland, with additional birthing and postnatal capacity required most in this region. Waitemata DHB proposes that priority will be given to a development of a primary birthing unit in West Auckland to provide additional birthing and postnatal bed capacity, and provide the wāhine/women with the opportunity to give birth in a local primary birthing unit. We will be planning to undertake a public consultation on the type of primary birthing unit that would be most acceptable to our community. To assist us in determining the best model going forward taking into consideration, clinical evidence, community preference and cost.

The North Shore secondary maternity unit, unlike Waitakere and Auckland based on population modelling, is less likely to experience pressure on birthing facilities in the short to medium term. It is therefore proposed that any decision about the establishment of a primary birthing unit on the North Shore Hospital, and what form it may take, is delayed until the results from the establishment of additional PBUs at Auckland and Waitakere are known.

STRATEGY 22

Increase the number of primary birthing beds across the region. Engage in broad public and stakeholder consultation to ensure the type and location of primary birthing unit best meets the needs of the communities served by the DHBs.

Section three: Background information

Definition of terms

Term	Description
Antenatal	During pregnancy
BFHI, Baby-friendly Hospital Initiative	A UNICEF and WHO initiative involving 10 steps to promote, protect and support breastfeeding in the hospital or birth setting. Facilities meeting the criteria receive the 'Baby Friendly' designation
Caesarean section	An operative birth through an abdominal incision
Caesarean section, elective	A caesarean section performed as a planned procedure before or following the onset of labour when the decision to have a caesarean section was made before labour
Caesarean section, emergency	A caesarean section performed urgently for clinical reasons (such as the health of the mother or baby) after labour has started
DHB	District Health Board
Domicile code	A code representing a mother's or baby's usual residential address
GP, General practitioner	Also known as a family doctor or family physician
Induction (of labour)	An intervention to stimulate the onset of labour by pharmacological or other means
Labour anaesthesia	Includes epidurals and spinal anaesthetics. The majority are epidurals. In line with common usage the term epidural in this report means all labour anaesthesia
LMC – Lead Maternity Carer	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. The majority of wāhine/women choose a midwife as their LMC
Midwife	A health practitioner who is educated and registered with the Midwifery Council to practice midwifery. Provides the necessary support, care and advice during pregnancy, labour and birth and the postpartum period and care for the newborn
MoH, Ministry of Health.	The Government's principal advisor on health and disability in New Zealand
Multipara or multip	A woman who has given birth more than once
National Health Index (NHI) number	A unique identifier number allocated to individual service users by the National Health Index, managed by the Ministry of Health
NGO	Non-governmental organisation
Normal birth	Labour that starts, progresses and ends naturally or spontaneously
Nullipara	A woman who has never given birth
NZCOM	New Zealand College of Midwives

Term	Description
Obstetrician	A health practitioner who is educated and registered with the Medical Council in the vocational scope of obstetrics and gynaecology. Obstetricians provide medical care before, during and after childbirth
Parity	Number of previous births a woman has had
Perinatal	The time immediately before, during and after birth
PMMRC	Perinatal and Maternal Mortality Review Committee
Postnatal	The period of time after birth until the baby is six weeks old
Primary Birthing Unit	A primary maternity facility designed for healthy wāhine/women who have no complications during pregnancy. They are run and staffed by midwives and have a more relaxed and 'home-like' atmosphere than larger secondary or tertiary hospitals. Epidural pain relief and caesareans are not provided
Primary healthcare	The first-contact professional health care received in the community, usually from an LMC, GP, practice nurse or sonographer
Primary Maternity Services	Care provided by an LMC or GP
Primipara or primip	A woman who has given birth for the first time. In this document the term also applies to wāhine/women about to give birth for the first time
Priority populations	Priority populations are populations with a higher risk of adverse maternity outcomes arising from their demographic profile, where they live and/or an accumulation of risk factors
RANZCOG	Royal Australasian College of Obstetrics and Gynaecology
Regional partners	Counties Manukau DHB, Northland DHB
RN	Registered Nurse
Secondary Maternity Services	Care provided by an obstetrician or multi-disciplinary team
Tertiary Maternity Services	Care provided by a specialised team for wāhine/women with highly complex pregnancy-related problems
Well Child Tamariki Ora	A free service that is offered to all New Zealand children from birth to five years.

Maternity services across Auckland and Waitemata DHB

Current maternity facilities are spread across the wider Auckland and Waitemata districts.

Auckland maternity facilities

- **Auckland City Hospital:** secondary (and tertiary*) maternity services, including obstetrics, community midwifery, and diabetes in pregnancy clinics, 14 women's assessment ward rooms, 18 birthing rooms, 77 antenatal and postnatal rooms (paediatrics services *)
- **Greenlane Clinical Centre:** specialist outpatient services
- **Birthcare Auckland (Parnell):** primary maternity services (birthing and postnatal), four birthing rooms, 42 postnatal rooms.

* NB: tertiary maternity and paediatrics services not included within the scope of this plan

Waitemata maternity facilities

- **North Shore Hospital:** secondary maternity services: **obstetrics**, community midwifery and diabetes in pregnancy clinics, four assessment rooms, 10 birthing rooms, 32 postnatal rooms (Special care baby unit for infants 32 weeks and above⁺)
- **Waitakere Hospital:** secondary maternity services, obstetrics, community midwifery and diabetes in pregnancy clinics, two assessment rooms, eight birthing rooms, 26 postnatal rooms (Special care baby unit for infants 32 weeks and above⁺)
- **Helensville Birthing Centre:** primary maternity services (birthing and postnatal), two birthing rooms, four postnatal rooms
- **Warkworth Birthing Centre:** primary maternity services (birthing and postnatal), two birthing rooms, 10 postnatal rooms, one assessment room
- **Wellsford Birthing Unit:** primary maternity services, two birth/postnatal rooms.

⁺ NB: paediatric services not included within this strategy

Birth numbers 2014

Births	Hospital	District Health Board
7,400	Auckland City	Auckland
336	Birthcare Auckland	Auckland
3971	North Shore Hospital	Waitemata
2896	Waitakere Hospital	Waitemata
40	Helensville Birthing Centre	Waitemata

Births	Hospital	District Health Board
129	Warkworth Birthing Centre	Waitemata
21	Wellsford Birthing Unit	Waitemata

Primary, secondary and tertiary maternity services by DHB catchment area, 2010

DHB region	Tertiary maternity and level 3 specialist neonatal services	Secondary maternity and level 2 specialist neonatal services	Primary maternity services
Auckland	Auckland City	Auckland City	Birthcare Auckland
Northland		Whangarei	Bay of Islands (Kawakawa)
			Dargaville
			Kaitaia
			Hokianga
Waitemata		North Shore Waitakere	Wellsford
			Warkworth
	Helensville		
Counties Manukau	Middlemore	Middlemore	Pukekohe
			Papakura
			Botany Downs

Summary of stakeholder engagement in plan development

Consumer engagement has been a strong feature of the process to clarify the key issues and develop the strategies for enhancement of maternity services that are outlined in this draft plan. Expressions of interest for consumer membership of the Steering Group were canvassed from key consumer organisations, and two consumer representatives were appointed on the basis of their strong background and links with consumer organisations and networks (including Women’s Health Action, Playcentre, national maternity consumer networks, and home birth community and breastfeeding networks).

A number of small targeted focus groups with Māori, Pacific, Asian and general maternity consumers were carried out to gain some understanding of community issues, concerns and expectations.

In addition, key stakeholders including representation from Pacific and Māori health providers, Asian health stakeholders, consumer groups, and teenage parenting specialist groups were invited to attend a stakeholder workshop in January 2015 where the key issues and service enhancement strategies were tested using case vignettes.

The following community organisations and provider groups were engaged through attending the stakeholder workshop and / or via individual and small group interviews undertaken for the Steering Group by Health Partners:

- Health Link North
- Kidz First
- La Leche League
- MAMA Maternity
- Maternity Services Consumer Council
- Tani Health Babies, Healthy Futures
- Te Haoranga
- The Fono
- Thrive Teen Parents
- Waitakere Health Link
- Whakawhetu
- Women’s Health Action.

Clinician engagement

The Steering Group includes clinical leaders for obstetrics and midwifery from both Auckland and Waitemata DHBs.

In addition, Health Partners conducted individual and small group stakeholder interviews with representatives from following professional groups:

- Obstetrics (both employed and self-employed practitioners)
- Midwifery (both employed and self-employed practitioners)

- General practice
- New Zealand College of Midwives.

Representatives from the above professional groups also attended the January stakeholder workshop, together with anaesthetics and paediatrics and representatives from the Royal Australasian College of Obstetricians and Gynaecologists.

Key issues and proposed service enhancements were also explored within each DHB at multi-disciplinary meetings, and key clinicians attended the Stakeholder Workshop.

Key findings from the stakeholder workshop (January 2015)

Participants worked in 11 small groups to consider eight representative case vignettes, and how services could be improved to meet client needs. Key themes emerging from the groups' work were:

General

- consistent support for explicit and transparent risk categorisation, pathways and associated policies
- commitment to increasing primary birthing and reducing interventions in low risk wāhine/women
- adoption of active clinical governance and practice audit to reduce clinical variation.

Wāhine/women, families and communities

- engage local communities and practitioners early in facility and service design
- support wāhine/women and LMCs who choose home birth
- communicate consistent and sustained messages to wāhine/women to promote primary birthing (including risk criteria/pathways), need for early engagement, and choices /decisions
- tailor antenatal education for different groups, and promote supportive postnatal groups.

Resourcing to match risk

- allocate resources commensurate with risk categories (ie, funding model to support risk profiles and pathways)
- take a holistic approach with higher risk/complexity wāhine/women – whole person, whole family/whānau, multidisciplinary team
- share clinical information and care (birth) plan amongst the wider team
- ensure continuity of carer for higher risk wāhine/women, and managed care (not just referral).

Workforce

- develop the workforce to provide culturally appropriate care (workforce profile to match birthing demographics)

- support professional collaboration and teamwork

Infrastructure

- develop local primary-only units, as part of community hubs for wāhine/women/families
- ensure the hospital environment is wāhine/women and family/whānau friendly
- need for alignment with national policies, and active Ministry of Health support
- an off-site planned caesarean facility would create significant logistic issues.

Summary of feedback from consumer focus groups (July-August 2014)

Themes	Summary
Antenatal care	<ul style="list-style-type: none"> • Wāhine/women lack information on how the maternity system works, eg, the LMC role; how to engage a midwife; the difference between a self-employed midwife and a midwife employed by the hospital • Pacific women are most likely to obtain their LMC via word of mouth, a friend, whānau, sibling or parent • Maternity information provided verbally is preferred over brochures and written material, eg, kanohi ki te kanohi. Communication media that are engaging and interactive are preferred – websites are often used • Māori wāhine/women’s first point of contact is usually with their GP. Better education and information about the LMC’s role and function must be available and should be a required component of GP/practice nurse engagement. LMC service promotion could help • A preference for same culture LMC, especially among Pacific and Asian women. Such LMCs are often not available • Wāhine/women across Māori, Pacific and Asian focus groups all identified wanting more culturally targeted antenatal classes as these enable easier engagement and discussion of culturally specific issues • Māori wāhine/women seldom attend antenatal classes for a variety of reasons, eg too generic, not comfortable/welcoming. Mothers identified instead watching ‘One born every minute’ & ‘Teen mum’ on television for information • Appointment times are not always suited to family life and this is a barrier to attendance • Māori wāhine/women found the antenatal check-ups useful and exciting for mothers as they see how their baby is growing • Some Pacific wāhine/women didn’t see the value in attending antenatal check-up appointments as they felt well

Themes	Summary
	<ul style="list-style-type: none"> Wāhine/women wanted midwives to instil confidence and to listen to them; they did not want to feel rushed and so they wanted longer consultations
Labour and birthing	<ul style="list-style-type: none"> Wāhine/women generally had a good experience with their LMCs during labour and birth Some continuity of care issues were noted Some wāhine/women would like better access to birthing pools Some wāhine/women talked of feeling disrespected or not in control of their choices Wāhine/women want to choose the hospital where they give birth
Postnatal care	<ul style="list-style-type: none"> Wāhine/women feel pressured to leave the hospital soon after birth or see the environment as not conducive to them staying (e.g., overcrowded; busy staff who couldn't give them time or support they need) There was often conflicting information from postnatal staff, particularly around breastfeeding support Pacific wāhine/women believed care would be better at home, because they did not feel supported in hospital Wāhine/women found it difficult sharing rooms and asked for single rooms that offered more privacy and a more restful place for recovery Wāhine/women want more flexibility for whānau members to stay overnight Pacific wāhine/women want more room for family to stay to offer support. Staff do not always allow this Asian women noted common problem with breastfeeding and expressing, and sometimes felt pressure to breastfeed. Infant formula was not available and formula feeding was not supported Some wāhine/women were embarrassed to continue to ask for help if no-one attended immediately, and sometimes call bells were not answered. Noted that there seemed to be fewer staff on at night to support wāhine/women Parking fees at the hospital were expensive and this prevented family members from staying all day in support
Cultural needs	<ul style="list-style-type: none"> Pacific and Māori wāhine/women were not likely to complain if the quality of service was not good Wāhine/women wanted culturally focused antenatal classes that are more engaging

Themes	Summary
	<ul style="list-style-type: none"> • English is often a second language for Pacific and Asian wāhine/women, and therefore they sometimes preferred verbal than written information • Hospital environments not always welcoming for families • Some Māori wāhine/women didn't identify any cultural issues; they wanted to be treated 'the same' • Asian women commented on the lack of cultural sensitivity around washing after birth. They felt uncomfortable being helped by a stranger • Asian women wanted hot/warm food and drinks after birth. Cold water and cold 'kiwi' food was not culturally appropriate

Background to maternity quality and safety programmes

Reflective practice: closing the loop around clinical practice

Auckland and Waitemata DHBs already have strong clinical governance frameworks, subject to external scrutiny through the MQSP, and the Perinatal and Maternal Mortality and Morbidity Review Committee.

All DHBs are required under the MQSP to bring together professional and consumer stakeholders to collaboratively monitor and improve maternity care. This programme requires DHBs to collect quantitative and qualitative data that help identify areas for improvement and/or further investigation. DHBs are also required to have systems in place to enable sharing of information and monitoring of the data.

Auckland DHB has a long history of providing publicly available and critiqued outcome data. Through the MQSP, Waitemata DHB has strengthened the quality and breadth of its maternity outcomes data.

Although the DHBs' outcome data is presented by provider group, to date it has not been provided at an individual practitioner level. We propose to increase the emphasis on measurable outcomes of care and providing this data to practitioners, including community-based clinicians, in a way that encourages reflective practice and reduces unnecessary variation in clinical practice.

Improving health outcomes: DHB requirements

DHBs are required to plan and deliver services regionally, as well as in their own individual areas. The New Zealand Public Health and Disability Act 2000 created DHBs and set their objectives, which include:

- improving, promoting and protecting the health of people and communities
- promoting the integration of health services, especially primary and secondary care services
- seeking the optimum arrangement for the most effective and efficient delivery of health services in order to meet local, regional, and national needs
- promoting effective care or support of those in need of personal health services or disability support.

Other DHB objectives include:

- promoting the inclusion and participation in society and the independence of people with disabilities
- reducing health disparities by improving health outcomes for Māori and other population groups
- reducing – with a view toward elimination – health outcome disparities between various population groups.

As such, DHBs take a system's view of health services and though we may be a direct provider of only some components of health care we have a responsibility across the health system with key partners and other providers. In maternity care, the quality of outcomes is directly related to social determinants of health and to the care provided by independent providers including general practitioners and general practices, self-employed midwives, self-employed obstetricians, community radiology providers and Well Child Tamariki Ora (WCTO) providers, to name just some of the provider groups. The DHB has a range of relationships with providers from formal contractual relationships through to relationships of influence with, but not direct control of, others. This complicates the DHB's ability to achieve the best possible outcomes for every wāhine/woman, baby and their whānau. The DHB acknowledges that a huge amount of good work occurs in community settings but recognises that parts of this work could be better linked.

Early LMC engagement has been promoted by the Perinatal and Maternal Mortality Review Committee (PMMRC) since 2009 as a central element of their work to improve maternal and infant health. The PMMRC recommend early initiation of care (before 10 weeks gestation), which aligns with the United Kingdom National Institute of Clinical Excellence (NICE) antenatal care guidelines. This timeframe is also supported by the Parliamentary Health Select Committee Report 2013 *Inquiry into improving child health outcomes and preventing child abuse*. The *Early Engagement with a LMC* indicator monitored by the NMMG is registration within the first trimester of pregnancy.

There are at least three areas of intersecting work driven by Ministry of Health indicators that reflect the intent of system integration around health care provision for pregnancy and early infancy. These are:

- the MQSP indicator of Early Engagement with a LMC;
- the proposed Integrated Performance and Incentive Framework (IPIF) indicator LMC registrations in the first trimester, and;
- the WCTO Quality Improvement Framework indicator Families and whānau are referred from their lead maternity carer to a WCTO provider.

These indicators reflect the importance of connections across the health system and the risk of wāhine/women and their new-borns losing contact with their health care professionals at the vulnerable time of transition between care providers.

While there are some subtle differences between early engagement indicators, through the MQSP indicator of *Early Engagement with a LMC* DHBs have, since 2012, been directed to include this indicator in their annual plans, along with activities to improve engagement with a LMC in the first trimester.

While the 'measure' of early engagement is the receipt of a registration form from the LMC, it is likely that a woman has already received care from a GP or other health

professional before registering with her LMC. Approximately 70% of wāhine/women see a GP first. Current evidence shows that there is considerable variability of services from 'confirmation of pregnancy' only through to the full suite of first trimester services (as outlined in the section 88 service specifications).

The rationale for recommending early initiation of pregnancy care is the time sensitive nature of first trimester screening tests (for Down syndrome and other conditions), as well as the early provision of health promotion, education and nutritional information for pregnant wāhine/women, and risk assessment with timely referral to specialist services if required.

The current MQSP Early Engagement indicator captures only those wāhine/women cared for by a self-employed LMC (a self-employed midwife, obstetrician or an obstetrically trained general practitioner who completes a LMC registration form). This is problematic in the Auckland region as this does not include wāhine/women who book with a DHB employed LMC (10-20% of wāhine/women depending on DHB), though this is expected to change to include DHB-led care later in 2015.

According to the current indicator, in 2013, 67% of pregnant wāhine/women in Auckland DHB and 64% of pregnant wāhine/women in Waitemata DHB (both similar to the national average) were registered with a LMC in the first trimester. There has been little change in the three years since this indicator was first established.

There is currently no way of knowing how many pregnant wāhine/women are seen in primary care as primary care does not routinely 'code' pregnancy in their electronic records. Also not all GPs provide first trimester care, and not all GPs who do provide this care claim under section 88 for doing so. This draft plan sits within the context of work already underway to improve wider maternity healthcare system integration as a means of improving outcomes for wāhine/women, their babies and whānau.

Broader governance framework

Maternity care in New Zealand is governed by a number of agencies and statutory bodies and colleges:

- Health and Disability Commissioner's Code of Health and Disability Services Consumers' Rights
- Health Practitioners Competence Assurance Act 2003 (including the setting of professional standards, requirements for ongoing competence and professional development, competence reviews, and recertification programmes)
- Health and Disability Services (Safety) Act 2001 regulation of maternity services provided in hospitals
- New Zealand Public Health and Disability Act 2000 requiring a reduction of health disparities, by improving the health outcomes of Māori and other groups,

- Primary Maternity Services Notice 2007 and specifications for DHB-funded maternity facilities and services.
- NZ Maternity Standards.
- NZ Midwifery Council
- Medical Council of NZ
- Royal Australian & NZ College of Obstetrics and Gynaecology (RANZCOG)

Information sources used to inform strategies and enhancements

Consumer surveys

In order to gain a broad understanding of consumer perspectives, a number of key maternity service documents were reviewed by the Steering Group, including:

- National Maternity Consumer Survey in 2011
- survey undertaken by Auckland and Waitemata DHBs in 2013 to establish the values of wāhine/women currently using our services
- survey undertaken by Waitemata DHB in 2011
- looking at attitudes to place of birth; and a concurrent report from focus groups of Māori, Pacific and teenage wāhine/women looking at attitudes to place of birth
- Report completed in 2013 by Waitemata DHB looking at services provided to teenage wāhine/women, including key stakeholder interviews and a focus group of young mothers
- Counties Manukau DHB 2013 commissioned report exploring maternity care experiences of Māori, Pacific, teenage and vulnerable families
- 2006 report looking at adjustment to parenthood for new migrant mothers.

Publicly available reports on maternity outcomes

- National Women's Annual Clinical Report's 2014
<http://nationalwomenshealth.adhb.govt.nz/Portals/0/Annual%20Reports/ACR%20master%20MOH%20July%202015.pdf>
- ADHB Maternity, Quality and Safety Report 2013-2014
<http://nationalwomenshealth.adhb.govt.nz/Portals/0/Documents/Quality%20and%20Safety/ADHB%20MQSP%20Report%20July%202014.pdf>
- Waitemata DHB Maternity Quality and Safety Programme Annual Report 2014-2015. <http://www.waitematadhb.govt.nz/LinkClick.aspx?fileticket=Ff-YIm9n4A4%3D&tabid=65>
- MOH Report on Maternity 2012. <http://www.health.govt.nz/publication/report-maternity-2012>
- Eight Annual Perinatal and Maternal Morbidity and Mortality Reports 2014.
<http://www.hqsc.govt.nz/assets/PMMRC/Publications/eighth-PMMRC-report-June-2014.pdf>

Health Partners' information reports

Available on: www.healthvoice.org.nz, provide detailed information on: Projecting birth and population change, Literature review, stakeholder feedback.

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