



Wāhanga 3
**Tauwhirotia te
Hapūtanga**

Module 3
**Pregnancy
Care**



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Tirohanga Whānui – Overview	104
Ngā Kaupapa Matua – Key Messages	106
Ngā Tatauranga – Statistics	115
Rārangi Tohutoro – References	118

Tirohanga Whānui – Overview

Pregnancy and childbirth is a normal life event. Early antenatal care is essential for a healthy mother and baby. Early antenatal screening that includes full blood tests, urinary tests, vaginal swabs and ultrasound scan will be monitored throughout your pregnancy by your lead maternity carer (LMC). Maintaining regular antenatal visits with your chosen LMC will reduce many medical conditions that can arise in pregnancy, such as gestational diabetes, antenatal depression and pre-eclampsia. Knowing how to manage stress, anxiety and depression during pregnancy is equally important as monitoring mother's weight, blood pressure and urine testing, and baby's heartbeat and growth as they all can have a positive or a negative effect on mother and baby. Interviewed mothers¹ appreciated knowing about what they should or shouldn't do during pregnancy to ensure they were healthy. It is important to note that if further enquiries are needed at any stage during pregnancy regarding a medical condition, mothers and whanau value interactive discussions with their midwife or LMC, particularly with respect to the rationale behind the enquiry and possible interventions.

Ngā Whāinga – Objective

The aim of this module is to promote normal pregnancy care through regular antenatal visits with a chosen LMC. Pregnancy and childbirth is a normal life event. A birth plan prepared in partnership with your LMC details your plan to monitor and manage your pregnancy, birth and postnatal needs and those of the baby. If the pregnancy deviates from the normal, your LMC is trained to care for you, and to ensure appropriate referrals to a specialist. A further key element of this module is the importance of vaccinations during pregnancy and the identification of warning signs: if these are present, medical or LMC assistance should be sought immediately.

Ngā Huanga Ako – Learning Outcomes

By the end of this module, participants will be able to:

- appreciate the importance of regular pregnancy care checks
- appreciate the importance of vaccinations during pregnancy
- recognise health warning signs, especially those linked to pre-eclampsia and gestational diabetes
- plan, and know what to do in case of emergency or for major complications of pregnancy.

Ngā Ngohe Whakawhanaungatanga – Ice Breaker Activities

1. Invite participants to share their experiences to date, and if they are part of a returning group what, if any, key messages have been valuable or applied since the last group discussion.
2. Ask mothers how they are feeling. Use this as an opportunity to have a broader wellbeing discussion.



¹PPE Consultation interviews and focus groups with Māori and young mothers, 2015.

Ngā Kaupapa Matua – Key Messages

Key Messages and Tools	Delivery Guidelines, Details and Tips	Tools
<p>Discuss the need for regular pregnancy checks.</p> <p>Routine pregnancy checks may include taking blood pressure readings, urine tests, weight measurements (sometimes taken at intervals) and general antenatal care. Explain why regular checks are essential in ensuring mother and baby are healthy and in identifying signs of intrauterine growth retardation (IUGR), gestational diabetes, pre-eclampsia, depression and stress.</p> <p>Women may not understand how these medical conditions affect baby, but it is important that they know when to call their LMC.</p>	<p>Recommend discussions with the pregnant woman's LMC and/or doctor.</p> 	<p>Pregnancy checks</p> <p>Discuss tests and timelines these tests need to be undertaken within.</p> <p>Slides of photos/pictures could be developed showing the effects of gestational diabetes, pre-eclampsia, stress and depression on the growing baby.</p> <p>Information resources – National Screening Unit, Ministry of Health: https://www.nsu.govt.nz/health-professionals/tools-and-resources/information-resources</p>
<p>Pregnancy scans</p> <p>Two main scans are offered for pregnant women, one is the 6–12 weeks dating scan and the other is the 20 weeks anatomy scan.</p> <p>While some health care professionals offer both, others may only offer the 20-week foetal anatomy scan as standard.</p> <p>The nuchal fold scan that is usually carried out between 10 and 13 weeks gestation is offered as part of the National Screening Programme.</p>	<p>Explain the five different types of scans a pregnant woman can have:</p> <ul style="list-style-type: none"> • early pregnancy or dating scan • nuchal translucency (NT) scan • 20-week foetal anatomy scan • growth scans (if there are concerns regarding baby's growth). 	<p>Pregnancy Ultrasound Services in Auckland – Healthpoint http://www.healthpoint.co.nz/pregnancy-ultrasound/south-auckland/</p>
<p>Explain pregnancy screening/ tests and entitlements, including screening for Down syndrome and other conditions through either the first trimester combined screening or second trimester maternal serum screening.</p>	<p>Screening schedule at the National Screening Unit: https://www.nsu.govt.nz/pregnancy-newborn-screening</p>	
<p>Pregnancy and babies' movements</p> <p>Usually, an active baby is a healthy baby. Some women may not feel their baby move as much as others do, even though their baby is doing well. Midwives sometimes offer advice on how to monitor babies' movements such as a kick chart.</p>		<p>Information about what babies' movements are and what they mean – Australian and New Zealand Stillbirth Alliance: http://www.stillbirthalliance.org.au/doc/ANZSA_DFM_brochure_English.pdf</p>

Key Messages and Tools	Tools
<p>Gestational diabetes mellitus¹</p> <p>Discuss the effects of gestational diabetes mellitus (GDM). GDM is defined as diabetes that is diagnosed in pregnancy. It is a fairly common complication of pregnancy, is usually symptom free and is diagnosed during routine screening. GDM usually develops after the 24th week of pregnancy but can occur earlier. Women who are diagnosed in early pregnancy may have underlying diabetes that has not been recognised before.</p> <p>Recommended explanation for women and their families</p> <p>Diabetes is caused by an increase in pregnancy hormones affecting the balance between insulin and sugar in your blood. This results in abnormally high blood sugar levels. Diabetes in pregnancy affects about one in 20 pregnant women. It is unlikely that you will feel unwell with the condition; however, it can cause complications for you and your baby. For you, the complications might include urine infections, high blood pressure and caesarean section.</p> <p>For your baby the complications can include growing too large or not growing enough, breathing difficulties at birth, low blood sugar levels after birth and newborn jaundice. These may lead to a slightly longer stay in hospital or, in some cases, your baby needing to go to the special care baby unit (SCBU). In rare cases, there is a higher chance of stillbirth.</p> <p>The risks to the pregnant woman include²:</p> <ul style="list-style-type: none"> • an increased chance of needing a caesarean section to give birth • hypertensive disorders/pre-eclampsia • birth trauma. <p>Some women are at high risk of developing this condition. The risk factors include:</p> <ul style="list-style-type: none"> • overweight/obesity • excessive weight gain in pregnancy • family history of diabetes • over 30 years of age • previous history of GDM • poor obstetric history – unexplained stillbirth, miscarriage • previous large baby or babies • ethnicity (some women from certain ethnic backgrounds are at higher risk) • polycystic ovarian syndrome. <p>GDM can also occur in women who have none of these risk factors. Informing women about GDM includes:²</p> <ul style="list-style-type: none"> • discussing healthy diet, exercise, appropriate weight gain • information about diabetes in pregnancy – <p>Testing for GDM – if the woman agrees, request HbA1c when booking bloods (role of LMC).</p> <ul style="list-style-type: none"> • If HbA1c elevated, refer to the diabetes service (LMC). • If HbA1c within normal range, discuss importance of further testing for GDM between 24 and 28 weeks (LMC). • When the woman is seen between 24 and 28 weeks, give her a laboratory form to test for GDM before her visit at 28 weeks (LMC). • Routine antenatal bloods can be performed at the same time (LMC). 	<p>Use slides of photos/pictures to show the effects of GDM.</p> <p>Try to organise for GDM screening to occur during the session.</p> <p>Keeping Well with Diabetes</p> <p>Ministry of Health: https://www.health.govt.nz/system/files/resource-files/HE1154%20Keeping%20Well%20with%20Diabetes%20-%20English.pdf</p> <p>Testing urine for protein</p> <p>Gestational Diabetes – Diabetes NZ: http://www.diabetes.org.nz/about_diabetes/gestational_diabetes</p> <p>Gestational Diabetes Mellitus</p> <p>(GDM) – National Women's Hospital, Auckland District Health Board (ADHB): nationalwomenshealth.adhb.govt.nz/Portals/0/A%20to%20Z/G%20to%20L/G/G%20Gestational%20Diabetes.pdf</p> <p>Diabetes in Pregnancy – ADHB: nationalwomenshealth.adhb.govt.nz/Portals/0/Documents/Policies/Diabetes%20in%20Pregnancy_.pdf</p>

Key Messages and Tools	Tools
<p>Diabetes Testing</p> <p>Universal screening using glycated haemoglobin (HbA1c), as part of 'booking' antenatal blood tests (ideally before 20 weeks), will identify women with probable undiagnosed diabetes or prediabetes. Women with an HbA1c \geq 50 mmol/mol should be under the care of a service that specialises in diabetes in pregnancy. Women with HbA1c values in the range of 41–49 mmol/mol should be offered the diagnostic oral glucose tolerance test at 24–28 weeks as they are at an increased risk of gestational diabetes.</p> <p>At 24–28 weeks' gestation, all women not previously diagnosed with diabetes who are at high risk of gestational diabetes (HbA1c of 41–49 mmol/mol) should be offered the diagnostic two-hour, 75 g oral glucose tolerance test. (If fasting glucose \geq 5.5 mmol/L or two-hour value \geq 9.0 mmol/L, refer to services that specialise in diabetes in pregnancy.) All other women should be offered screening for gestational diabetes using the one-hour, 50 g, oral glucose challenge test known as the polydose test. (If glucose \geq 11.1 mmol/L, refer directly to services that specialise in diabetes in pregnancy without further testing; if glucose \geq 7.8–11.0 mmol/L, arrange a 75 g, two-hour oral glucose tolerance test (OGTT) without delay).</p>	<p>Screening, Diagnosis and Management of Gestational Diabetes in New Zealand: A Clinical Practice Guideline – Ministry of Health: http://www.health.govt.nz/publication/screening-diagnosis-and-management-gestational-diabetes-new-zealand-clinical-practice-guideline</p>
<p>Reinforce the healthy eating, weight management and exercise messages of Module 2.</p>	<p>Refer to Module 2.</p>

Key Messages and Tools	Tools
<p>Pre-eclampsia</p> <p>Pre-eclampsia is a condition that occurs only in pregnancy, most commonly antenatally, but it can occur up to two to three weeks postnatally. Pre-eclampsia may also be referred to as gestational proteinuric hypertension (GPH), pregnancy-induced hypertension (PIH) or toxemia.</p> <p>The exact cause of pre-eclampsia is unknown, but it occurs in approximately 10% of pregnancies. It usually occurs late in pregnancy but may occur as early as 20 weeks, with research also showing that poor nutrition, high body fat or insufficient blood flow to the uterus are possible causes.</p> <p>It is more common in women:</p> <ul style="list-style-type: none"> • having their first baby • having a baby to a new partner • with a previous history of high blood pressure • with diabetes • having a multiple birth • with a family history of pre-eclampsia. <p>Women don't necessarily feel unwell or have symptoms they notice. This is why urine and blood pressure are checked regularly: an increase in blood pressure and protein in the urine can be early signs of pre-eclampsia.</p> <p>The signs and symptoms associated with pre-eclampsia include:</p> <ul style="list-style-type: none"> • high blood pressure • protein in the urine • headaches • visual disturbances (e.g. lights in front of eyes/blurring of vision) • excessive swelling • pain in upper abdomen • nausea • brisk reflexes 	<p>Pre-eclampsia factsheet – ADHB: http://nationalwomenshealth.adhb.govt.nz/Portals/0/A%20to%20Z/M%20to%20S/P/P%20preeclampsia.pdf</p> <p>Advise women to attend all of their regular appointments with their LMC and to:</p> <ul style="list-style-type: none"> • be aware of signs of pre-eclampsia and to contact their midwife or doctor immediately if they occur • remember to always be aware of their baby's movements. <p>If a woman has any concerns about her pregnancy or the wellbeing of her baby, she should contact her midwife, doctor or clinic that is providing her pregnancy care.</p>
<p>Reinforce the healthy eating, weight management and exercise messages of Module 2.</p>	<p>Refer to Module 2.</p>

Key Messages and Tools	Delivery Guidelines, Details and Tips	Tools
<p>Pregnancy stress</p> <p>Pregnancy is a wonderful time; however, many women may feel worried or anxious, especially as they are experiencing many changes, including social, financial, emotional, relational and physical changes. Some stress in pregnancy is normal and does not adversely affect child development.³</p> <p>Many women may feel worried and anxious because of:</p> <ul style="list-style-type: none"> • hormonal and physical changes occurring in the body • thinking about how baby is developing internally • preparing for baby's arrival and labour • fears of finance problems when baby arrives • the impact of maternity leave on their work or career • an overload of information for new parents. <p>It is important to inform mothers that if they are experiencing stress during pregnancy, the brain releases high levels of stress hormones. These stress hormones cross into the placenta to baby. What baby hears and feels inside mum can shape the way baby's brain grows. All experiences – good or bad – will have an impact.⁴</p> <p>The more stress a woman feels during pregnancy, the more likely she is to experience depression symptoms. It is important to emphasise that if the pregnant woman is worried, feels completely overwhelmed and had depression or an anxiety disorder prior to getting pregnant, she will need to contact her midwife, LMC or GP to ensure she is well supported during her pregnancy.</p>	<p>Recommendations for addressing pregnancy stress include but are not limited to the following:</p> <ul style="list-style-type: none"> • Make sure she gets enough rest – fatigue is particularly common in the first and third trimesters. • If she is feeling tense or wound up, suggest a warm (not too hot) bath or going for a walk. Swimming can be quite relaxing, and can relieve the pain of pelvic ligament problems, even if only while she is in the water. • Ensure she eats healthy food even if she doesn't feel hungry. Make sure she is eating healthy food at regular intervals. Low blood sugar can exacerbate anxiety. • If she is working, suggest she try to schedule some long weekends, or a day off during the week. • Recommend finding someone to talk to whose judgement she trusts, such as her mother or mother in-law, a sister, cousin, partner, or friend. • Recommend she seek financial advice and assistance if it is related to personal finances. 	<p>Common questions and answers about pregnancy stress – OHbaby! http://www.ohbaby.co.nz/pregnancy/health-and-wellbeing/stress/</p> <p>Pregnancy Help Inc.: http://www.pregnancyhelp.org.nz/</p> <p>Pregnancy Counselling Services: http://www.pregnancycounselling.org.nz/</p> <p>Mothers Matter: http://www.mothersmatter.co.nz</p> <p>CALM – Computer Assisted Learning for the Mind: http://www.calm.auckland.ac.nz</p> <p>Beating the Blues: http://www.beatingtheblues.co.nz</p> <p>Trauma and Birth Stress – PTSD after Childbirth: http://www.tabs.org.nz</p> <p>Helpline: 0800 PREGNANT (0800 773 462)</p> <p>Workshops and resources on brain development from conception through to adolescence, including prenatal stress and the effect this has on baby – Brainwave Trust: http://www.brainwave.org.nz/</p>

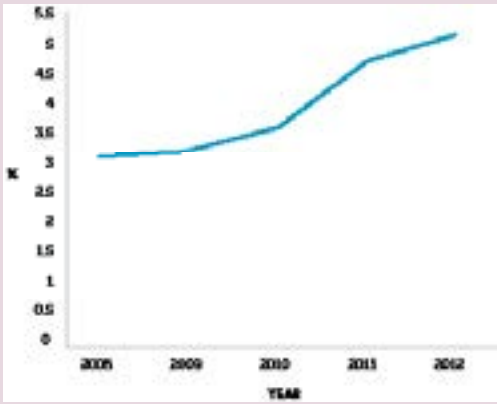
Key Messages and Tools	Delivery Guidelines, Details and Tips	Tools
<p>Antenatal depression⁵</p> <p>Depressive symptoms affect one in eight New Zealand women.</p> <p>Depression can range from mild to severe, and can occur at any time during pregnancy or after the baby is born (up to one year later).</p> <p>Explain to the pregnant woman and her partner that being pregnant and having a baby can be full of challenges no matter how prepared they are.</p> <p>It is important that women talk to someone about how they're feeling and get the right support, if they are experiencing any of the following:</p> <ul style="list-style-type: none"> • feeling tired • feeling worried all the time • not sleeping • getting angry easily • not thinking properly • having thoughts of harming baby • feeling sad • feeling empty. <p>Fathers can also experience depression, especially if their partner is depressed. Also acknowledge any experiences a father may be feeling.</p>	<p>Recommendations for depression during pregnancy are similar to those for pregnancy stress and include but are not limited to the following:</p> <ul style="list-style-type: none"> • Make sure she gets enough rest – fatigue is particularly common in the first and third trimesters. • If she is feeling tense or wound up, suggest a warm (not too hot) bath or going for a walk. Swimming can be quite relaxing, and can relieve the pain of pelvic ligament problems, even if only while she is in the water. • Ensure she eats healthy food. Even if she doesn't feel hungry, make sure she is eating healthy food at regular intervals. Low blood sugar can exacerbate anxiety. • If she is working, suggest she try to schedule some long weekends, or a day off during the week. • Recommend finding someone to talk to, whose judgement she trusts, such as her mother or mother in-law, a sister, cousin, partner, or friend. • Recommend she seek financial advice and assistance if it is related to personal finances. • If worried at any time, she should seek further assistance from a GP. 	<p>Depression during and after pregnancy factsheet – Ministry of Health http://www.depression.org.nz/ContentFiles/Media/PDF/Depression_and_pregnancy.pdf</p> <p>Who can women talk to?</p> <ul style="list-style-type: none"> • midwife • family doctor • Well Child nurse (if already registered with Well Child provider) <p>24-hour helplines</p> <p>Health Line 0800 611 116</p> <p>Plunket Line 0800 933 922</p> <p>National Depression Helpline 0800 111 757</p> <p>Text The Lowdown Team for free on 5626</p> <p>Websites</p> <p>Mothers Matter: mothersmatter.co.nz</p> <p>Mothers Helpers mothershelpers.co.nz</p> <p>Great Fathers greatfathers.org.nz</p> <p>The Low Down thelowdown.co.nz</p>

Key Messages and Tools	Delivery Guidelines, Details and Tips	Tools
<p>Vaccinations</p> <p>Influenza</p> <p>All pregnant women, particularly those with pre-existing medical conditions (such as diabetes or asthma) are at greater risk of severe influenza-related illnesses.¹</p> <p>The influenza (flu) vaccination is recommended and free for pregnant women, and may be offered to women at any stage of pregnancy. A pregnant woman and her foetus are at increased risk of influenza complications; influenza immunisation is therefore recommended during pregnancy to reduce this risk. Maternal influenza immunisation also offers protection to the neonate through maternal antibody transfer. There is no evidence that influenza vaccine prepared from inactivated virus causes harm to the foetus or to the neonate.</p> <p>Whooping cough (pertussis)</p> <p>Pertussis is a severe infection in infants too young to have been immunised. The vaccination is free to all pregnant woman between 28 and 38 weeks gestation to protect the mother and so that antibodies can pass to the foetus; post-partum maternal vaccination will reduce the risk of a mother infecting her baby but does not have the added benefit of providing passive antibodies.²</p>	<ul style="list-style-type: none"> • Discuss any concerns the pregnant woman or family may have about immunisation. • Explain Ministry of Health national guidelines for influenza vaccination and pertussis. • Explain the Ministry of Health national guidelines for childhood immunisation once baby is born and the importance of timeliness (Refer to Module 5 for detailed information). • Explain that the influenza and whooping cough vaccines are free for all pregnant women from their GP upon request. 	<p>Immunising against influenza and pertussis: https://www.youtube.com/watch?v=Q7AgNGihuAM</p> <p>Immunisation Handbook 2014 – Ministry of Health http://www.health.govt.nz/system/files/documents/publications/immunisation-handbook-may14-v5_0.pdf</p> <p>Immunisation for Pregnant Women – Ministry of Health http://www.health.govt.nz/your-health/healthy-living/immunisation/immunisation-pregnant-women</p> <p>Immunisation e-learning courses covering issues, policies and practices relevant to immunisation and tailored for midwives, LMCs and childbirth educators – Ministry of Health: http://learnonline.health.nz/course/category.php?id=6</p>
<p>Explain what medicines/drugs can be taken when pregnant and why, such as iron, safe antibiotics, iodine, folic acid and Vitamin D.</p>	<p>Play a game to test people's knowledge of what medicine can be taken during pregnancy and what can't.</p>	<p>Information about folic acid before and during pregnancy – Ministry of Health http://www.health.govt.nz/our-work/preventative-health-wellness/nutrition/folate-folic-acid</p> <p>Medication safety during pregnancy – Ministry of Health http://www.medsafe.govt.nz/profs/PUArticles/June2013MedsInPregnancy.htm</p>
<p>Explain why care needs to be taken with any form of massage, including traditional massage and or massage from machines/equipment. Generally discourage massage where possible.</p>		<p>Include appropriate pictures and diagrams to show how deep traditional massage can cause damage to the foetus.</p>

Key Messages and Tools	Delivery Guidelines, Details and Tips	Tools
<p>Warning Signs</p> <p>If any of the symptoms listed below occur, advise the pregnant woman to contact their midwife or doctor straight away.</p> <p>Advise her to discuss with her LMC when to immediately go to the hospital and/or dial 111. Explain specialist services and how to access them if needed. Emphasise the importance of contacting her midwife or doctor straight away if any of the following signs are shown.</p> <p>Warning signs include:</p> <ul style="list-style-type: none"> • leaking of vaginal fluid • any vaginal bleeding • pain on passing urine • vaginal discharge that becomes itchy or offensive (get women to note the colour, smell and amount of discharge) • contractions (particularly if they occur before 37th week of pregnancy) • slowing down of baby's movements (particularly the last three months) or if your baby's movements become unusually infrequent • changes in movements • any concerns including a feeling that something is not quite right feeling unwell, a rise in blood pressure and/or protein in urine can be signs of pre-eclampsia. <p>Other signs include:</p> <ul style="list-style-type: none"> • persistent or severe headaches • problems with vision such as blurring, flashing or spots before the eyes • bad pain just below the ribs on the right side or upper central abdomen • unexplained or severe vomiting • sudden swelling of the face, hands and feet/ankles (especially in the morning) • chills and fevers, feeling hot/fever and unwell with flulike symptoms. 	<p>It is important to encourage a pregnant woman to contact her midwife or doctor immediately if they experience any warning signs.</p>	<p>Pregnancy – Your Baby's Movements and What They Mean – Australian and New Zealand Stillbirth Alliance: http://www.stillbirthalliance.org.au/doc/ANZSA_DFM_brochure_English.pdf</p> <p>Premature Labour and Warning Signs – Health Navigator http://www.healthnavigator.org.nz/healthy-living/pregnancy/premature-labour-and-warning-signs/</p>
		

Key Messages and Tools	Delivery Guidelines, Details and Tips	Tools
<p>Unexpected Outcomes</p> <p>Preterm birth</p> <p>A baby is born premature if born before 37 completed weeks gestation. Preterm births account for approximately 8% of all births in New Zealand. A woman is at risk of a premature birth if she:</p> <ul style="list-style-type: none"> • is pregnant with twins, triplets or other multiples • conceived through in-vitro fertilisation • has problems with the uterus, cervix or placenta • has pre-eclampsia • is a smoker • has had a previous preterm birth. <p>The mother/parents can expect to be in a neonatal intensive care unit in hospital from birth up until baby is 40 weeks gestation or is considered well enough to be discharged. Both Auckland Hospital and Middlemore Hospitals have neonatal units for premature babies.</p>		
<p>Loss of a baby</p> <p>Losing a baby is one of the most difficult experiences that a parent will ever endure, and very often, it's something for which individuals are totally unprepared. Every year in New Zealand, over 700 babies die between 20 weeks gestation and 12 months of age. In excess of 10,000 die as a result of an early loss prior to 20 weeks gestation.</p> <p>Advise women it's normal to feel shock, grief, depression, guilt, anger, and a sense of failure and vulnerability when losing a pregnancy. The days, weeks, and even months following a loss can be incredibly difficult and painful — even more so if this wasn't your first pregnancy loss, or if you carefully planned this pregnancy and thought you'd done everything 'right'.</p> <p>If she would like to talk with someone, attend a support meeting and meet other bereaved parents and families, she will be able to find a list on the SANDS support group page.</p>		<p>SANDS New Zealand is a voluntary, parent-run, non-profit organisation set up to support parents and families who have experienced the death of a baby. SANDS provides awareness, understanding and support for those dealing with the death of a baby at any stage in pregnancy, birth or as a newborn, due to medical termination or other forms of reproductive loss.</p> <p>http://www.sands.org.nz/</p> <p>Baby Loss NZ supports the Counties Manukau DHB area by educating staff on the experience of baby loss and providing support items for them to give to parents.</p> <p>http://www.babyloss.co.nz/</p>

Ngā Tatauranga – Statistics

Topics	Statistics/Facts	Pregnancy or Infant Impact
Gestational diabetes	<p>Percentage of women with gestational diabetes in New Zealand (2008–2012)</p>  <p>Source: National Maternity Collection, Ministry of Health, 2012</p> <p>Gestational diabetes has increased in New Zealand from 3% of mothers in 2008 to around 5% in 2012.⁶</p> <p>For the Auckland District Health Board (DHB) in 2012 the proportion of gestational diabetes by ethnicity was Asian (13.8%), Pacific (11.8%), Middle Eastern, Latin American and African (7.4%), Māori (5.0%), European (3.3%).⁴</p> <p>In 2012, the percentage of women with gestational diabetes was Auckland DHB (8.2%), Waitemata DHB (7.1%) and Counties Manukau DHB (7.1%).⁴</p>	<p>Children whose mothers had diabetes during pregnancy are at increased risk of becoming obese and developing diabetes at young ages.⁷</p> <p>The most common foetal adverse outcomes found in pregnancies of women with diabetes are:⁸</p> <ul style="list-style-type: none"> • foetal and neonatal loss • a great variety of congenital abnormalities and malformations • premature delivery (delivery occurring before 37 weeks gestation) • foetal growth acceleration and macrosomia (defined as a birthweight above 4 kg and/or > 90th percentile weight for gestational age or large for gestational age), which are associated with several obstetric complications such as: <ul style="list-style-type: none"> – birth trauma – hypertrophic miocardiopathy – stillbirth –respiratory distress syndrome – neonatal hypoglycaemia, hypocalcaemia, hyperbilirubinemia and polycythaemia • maternal complications including pregnancy-induced hypertension, pre-eclampsia, haemolysis, elevated liver enzymes, low platelets (HELLP) syndrome • caesarean section • hypoglycaemia and the worsening of any degree of a pre-existing renal insufficiency and retinopathy.

Topics	Statistics/Facts	Pregnancy or Infant Impact
Pre-eclampsia	<p>There were no maternal deaths from pre-eclampsia/eclampsia in the period from 2010 to 2013 inclusive.</p> <p>Within the Auckland region, five women were diagnosed with eclampsia during birth admission in 2013 (Auckland DHB 2 out of 6,236 births; Counties Manukau 1 out of 8,145; Waitemata 2 out of 7,652). For New Zealand the total was 18 out of 59,212 births.⁹</p>	<p>Pre-eclampsia is a disorder of pregnancy characterised by high blood pressure and protein in the urine. Pre-eclampsia affects between 2% and 8% of pregnancies worldwide. Eclampsia is a serious complication of pre-eclampsia and results in high rates of perinatal and maternal morbidity and mortality. Eclampsia is considered preventable through early detection and management of pre-eclampsia. The purpose of this indicator is to drive local investigation, including case review, into the appropriate diagnosis and management of pre-eclampsia with a view to decreasing the incidence of eclampsia.¹⁰</p> <p>Pre-eclampsia left untreated can develop into eclampsia, the life-threatening occurrence of seizures during pregnancy.⁷</p>

Topics	Statistics/Facts	Pregnancy or Infant Impact
Antenatal depression	<p>According to the Growing Up in NZ study,¹¹ one in eight New Zealand women suffer from depression symptoms while pregnant. The risk is three times higher for women who were diagnosed with anxiety before and during pregnancy, regardless of their ethnicity.</p> <p>This report also found that:¹⁰</p> <ul style="list-style-type: none"> • About 12% of pregnant New Zealand women showed signs of antenatal depression (Edinburgh Postnatal Depression Scale [PDS] score >12). • Pacific and Asian women were twice as likely to experience antenatal depression compared with New Zealand European women. • Women who felt more stressed during pregnancy, and experienced anxiety before and during pregnancy were more likely to be affected by antenatal depression. • The likelihood of antenatal depression was also higher for women who were in a relationship but not living with their partner, women who had an unplanned pregnancy, those who lived in an unstable family setup and those who felt less integrated into their neighbourhood. <p>The articles can be downloaded from http://bit.ly/antenataldepression</p>	<p>Mothers who suffer from depression during pregnancy can struggle with taking care of their own health and wellbeing, which in turn can slow the foetus's growth, increase the risk of a premature birth and delay the child's motor and emotional development.¹²</p> <p>Women affected by antenatal depression are more likely to smoke and eat poorly, resulting in too much or not enough weight gain, which can affect the baby's development.¹⁰</p> <p>Being pregnant and having the prospect of raising a baby without the support of a partner has a negative effect on maternal mental health.¹⁰</p>
Pertussis vaccination	<p>The uptake of the pertussis vaccine in New Zealand in women who are pregnant is reported to be low (estimated at around 13%).¹³ There is evidence for the efficacy of pertussis vaccination in women who are pregnant, in providing immunity to both the mother and the infant, and it is considered safe. In one large United States study analysing a birth cohort of 131,019 infants, vaccination during pregnancy (between 28 and 38 weeks) reduced infant pertussis cases by 33%, hospitalisations by 38% and deaths by 49%.¹⁴</p>	<p>The highest-risk period for pertussis in infants is in the first six months of life, prior to the completion of their full course of infant immunisation. Almost all deaths due to pertussis occur in infants aged six months or under.¹⁵ Pertussis immunisation of a woman while pregnant provides some passive immunity to the infant during these first six months so is recommended.</p>

Rārangi Tohutoro – References

- 1 Auckland District Health Board. (2013). Gestational diabetes mellitus. Retrieved from <http://nationalwomenshealth.adhb.govt.nz/Portals/0/A%20to%20Z/G%20to%20L/G/G%20Gestational%20Diabetes.pdf>
- 2 Auckland District Health Board. (2013). Diabetes in pregnancy. Retrieved from http://nationalwomenshealth.adhb.govt.nz/Portals/0/Documents/Policies/Diabetes%20in%20Pregnancy_.pdf
- 3 Brainwave Trust. (2015). The early years last forever [brochure].
- 4 Brainwave Trust. <http://www.brainwave.org.nz/>
- 5 University of Auckland. (2015, 24 August). Depression an issue in some pregnancies. Retrieved from <https://www.auckland.ac.nz/en/about/news-events-and-notice/news/news-2015/08/depression-an-issue-in-some-pregnancies.html>
- 6 Ministry of Health. (2014). Screening, diagnosis and management of gestational diabetes in New Zealand: A clinical practice guideline. p. 110.
- 7 Dabalea, D. (2007). The predisposition to obesity and diabetes in offspring of diabetic mothers. *Diabetes Care*, 30 (Suppl. 2), S169–S174. Retrieved from http://care.diabetesjournals.org/content/30/Supplement_2/S169.full.pdf+html
- 8 Negrato, C. A., Mattar, R. & Gomes, M. B. (2012). Adverse pregnancy outcomes in women with diabetes. *Diabetology & Metabolic Syndrome*, 4. Retrieved from <http://www.dmsjournal.com/content/4/1/41>
- 9 Ministry of Health. (2015). New Zealand maternity clinical Indicators 2013. Wellington: Ministry of Health. p. 57.
- 10 Ibid. p. 55.
- 11 University of Auckland. (2015, 24 August). Depression an issue in some pregnancies. Retrieved from <https://www.auckland.ac.nz/en/about/news-events-and-notice/news/news-2015/08/depression-an-issue-in-some-pregnancies.html>
- 12 Ibid.
- 13 Best Practice Journal. (2014). Pertussis immunisation in pregnancy. *Best Practice Journal*, 60. Retrieved from <http://www.bpac.org.nz/BPJ/2014/April/pertussis.aspx>
- 14 Terranella, A., Asay, G. R., Messonnier, M, Clark, T. A. & Liang, J. L. (2013). Pregnancy dose Tdap and postpartum cocooning to prevent infant pertussis: A decision analysis. *Pediatrics*, 131, 1747–1757.
- 15 Gall, S., Myers J. & Pichichero, M. (2011). Maternal immunization with tetanus-diphtheria-pertussis vaccine: Effect on maternal and neonatal serum antibody levels. *American Journal of Obstetrics and Gynecology*, 204(4), 334–335.