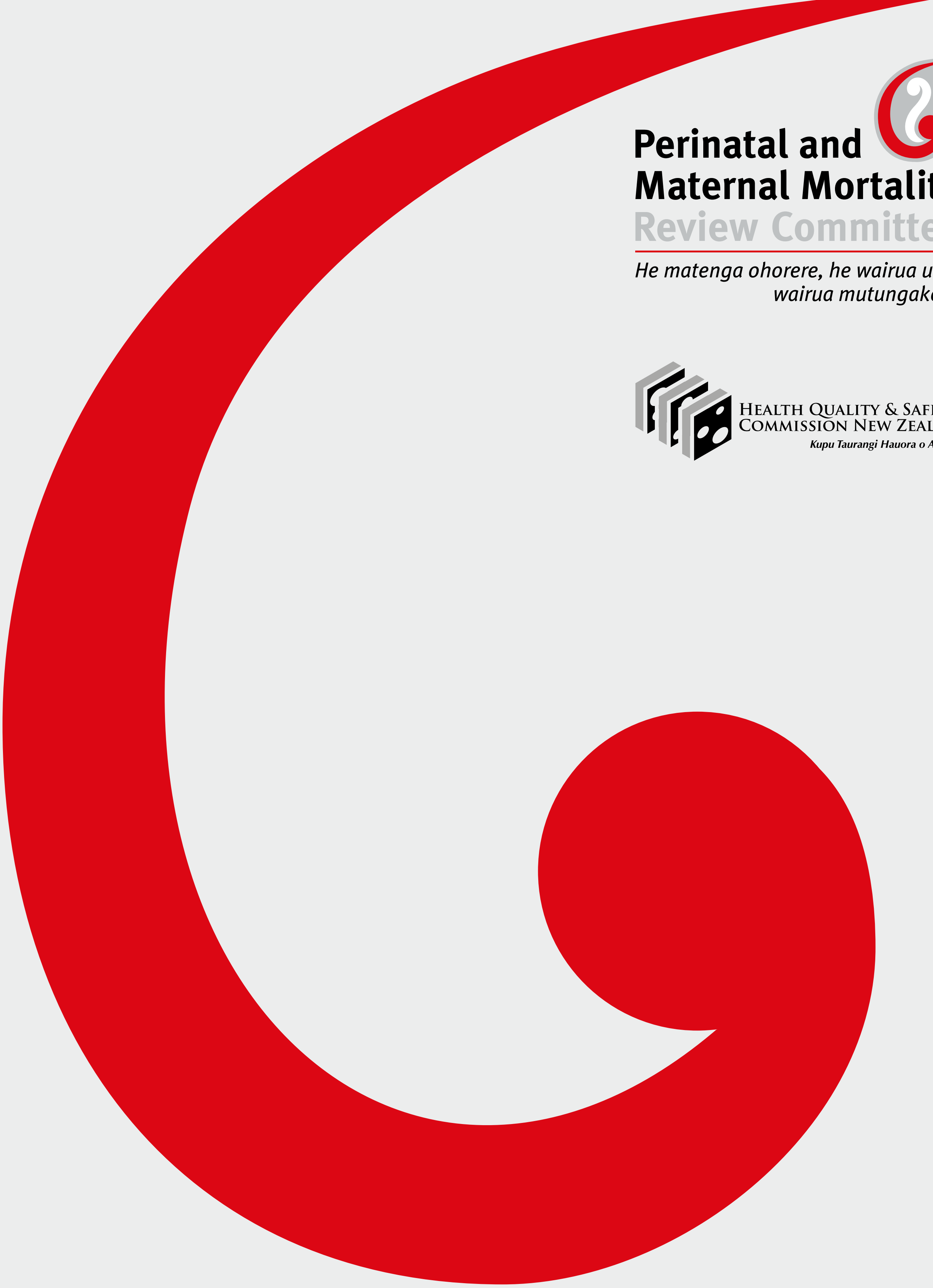
Perinatal and
Maternal Mortality
Review Committee

He matenga ohorere, he wairua uiui,
wairua mutungakore

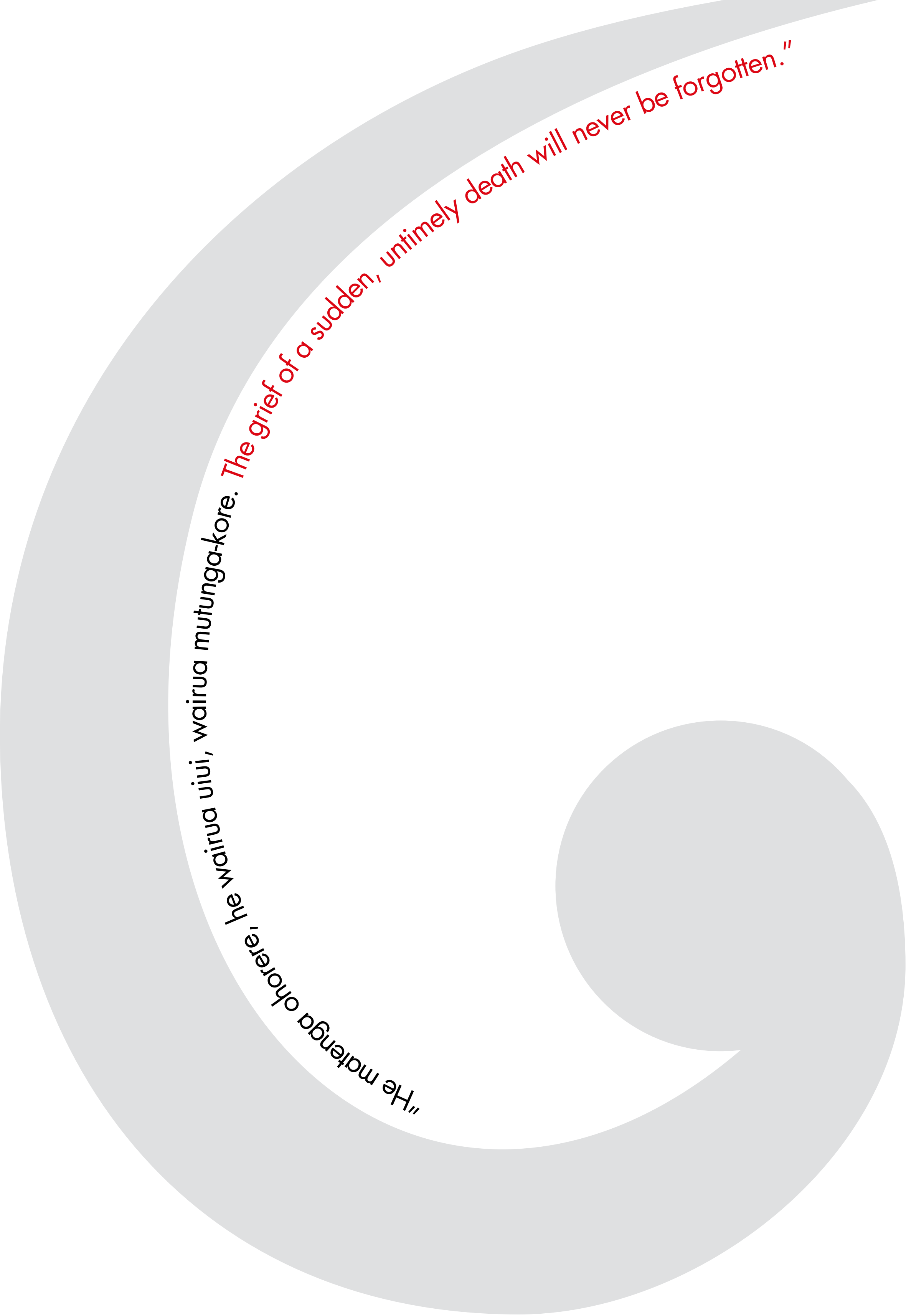
Health Quality & Safety
Commission New Zealand
Kupu Taurangi Hauora o Aotearoa



Executive Summary of the 12th Annual Report of the Perinatal and Maternal Mortality Review Committee

Reporting mortality and morbidity 2016

(Full report available online at www.hqsc.govt.nz/our-programmes/mrc/pmmrc/publications-and-resources/)



"He matenga ohorere, he wairua uiui, wairua mutunga-kore. The grief of a sudden, untimely death will never be forgotten."

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Foreword

The Health Quality & Safety Commission (the Commission) welcomes the 12th report of the Perinatal and Maternal Mortality Review Committee (the PMMRC). In this report, data on mortality of babies and infants from 2007 to 2016 is presented, on mothers from 2006 to 2016, and on morbidity relating to neonatal encephalopathy from 2010 to 2016.

Once again the PMMRC has produced a comprehensive overview of maternal and neonatal deaths in this country. The death of a mother or a baby is a devastating loss, and this work to inform efforts to minimise the number of these tragic events is very important.

It is reassuring to see that the rate of stillbirth continues its downward trend, and the rate for maternal deaths has dropped, with a significant reduction over the past 10 years; however, there is still inequity in mortality outcomes for Māori, Pacific and Indian mothers.

Sadly, there was no change in the overall neonatal death rate in New Zealand from 2007 to 2016, and, again, there is significant inequity in outcomes for Māori babies.

The report highlights several areas that need to be addressed relating to the persistent inequities in relation to deprivation, ethnicity, and age. The PMMRC will work on better understanding these inequitable outcomes, to inform efforts by the health sector to address them.

The PMMRC has highlighted areas where mortality or morbidity were considered to be potentially avoidable – it is in these areas that the PMMRC can and will influence change through robust, practical and evidence-based recommendations to the health sector.

This report would not be possible without the substantial contribution of a dedicated team of people: the local coordinators across the country who provide these data; Dr Sue Belgrave and the PMMRC members; the National Coordination Service, Auckland University; the New Zealand Mortality Review Data Group, Otago University; and the Mortality Review Committee staff at the Commission.

On behalf of the Commission, I sincerely thank the PMMRC Chair Dr Belgrave for leading this committee's important work.

Alan Merry

Professor Alan Merry ONZM FRSNZ
Chair, Health Quality & Safety Commission

Chair's Introduction

This is the 12th annual report of the Perinatal and Maternal Mortality Review Committee (the PMMRC) and my last as Chair. It has been a privilege to Chair the PMMRC over recent years. I strongly believe that it is only with complete accurate data of perinatal and maternal death with informed analysis that we can make recommendations for change and monitor outcomes for women and their babies over time.

We acknowledge the grief of families and whānau who have lost babies and mothers in 2016. Each of the deaths reported represents the tragic loss of a loved child or mother.

We report on perinatal deaths from 2007 to 2016, maternal deaths from 2006 to 2016, and babies with neonatal encephalopathy from 2010 to 2016. It is no longer possible to publish a comprehensive review of perinatal and maternal mortality on a yearly basis due to budget constraints. The PMMRC has decided to focus on a special topic each year with the publication of basic tables and figures with limited commentary on areas outside the special topic. Maternal mortality will be reviewed in depth every three years. We acknowledge the Accident Compensation Commission for their support of the Neonatal Encephalopathy data reporting to allow this to be presented as in previous years.

In 2016 there were two maternal deaths in New Zealand. For the first time since the PMMRC began reviewing maternal death in 2006 we report a statistically significant reduction in maternal mortality.

Suicide continues to be the leading single cause of maternal death. The PMMRC welcomes the Ministry of Health extended funding for the Suicide Mortality Review Committee; however further work with the Ministry of Health is required to establish a Maternal and Infant Mental Health Network. It is imperative that mothers are able to access maternal mental health services that they need and that the care and services are equitable across the country. The UK has increased its funding of maternal mental health after considering the emotional and financial implications of maternal mental health on the health and outcome for the child (Bauer et al 2014), and we in New Zealand require the same level of commitment to tackle the issue of maternal mental health.

The perinatal related mortality rate in 2016 was 10.1 per1000 births. The statistically significant reduction in stillbirths reported in previous years continues.

In the PMMRC 12th Report the focus has been on neonatal mortality and neonatal encephalopathy (NE).

We have further explored neonatal deaths as it was noted in the 11th report that there had been no change in the overall neonatal death rate in New Zealand from 2007, while other countries had reported reductions in their neonatal death rates.

This analysis of all neonatal deaths has highlighted inequity of outcome for babies born to women aged less than 20 years and to women of Māori, Pacific and Indian ethnicities especially for babies born at 20 to 24 weeks gestation. This significantly higher rate of neonatal deaths persists after accounting for the effects of age, body mass index (BMI), socioeconomic status, parity, smoking, multiple pregnancy, baby sex, and year of birth. Inequity of outcomes by ethnicity will be explored further in the 13th report.

Birth in a tertiary centre is known to be associated with improved outcomes for early preterm babies. The PMMRC has recommended that strategies be developed to address inequities in care, and in access to tertiary care, for all women in early preterm labour, or who require delivery prior to 25 weeks, to achieve equity in outcome.

This year the babies diagnosed with Neonatal Encephalopathy (NE) were matched to their National Maternity Collection (MAT) record, which allowed for further analysis of associations of NE with smoking, BMI, parity, and customised birthweight centile. This analysis showed a relationship between parity and NE rates, an increase in risk of NE with increasing BMI and an increase in risk of NE for babies born small for gestational age.

The findings of a review of NE associated with acute peripartum events, completed for 47 babies diagnosed with NE from 2013 to 2015, are presented. In two-thirds of the cases, the mortality or severity of the morbidity were considered potentially avoidable. This highlights the need for multidisciplinary education on the prevention and recognition of NE and regular neonatal resuscitation training for all health care professionals involved in providing peri-partum care. The PMMRC acknowledge the support of ACC which contributed funding for the case review of NE associated with acute peripartum events.

As well as acknowledging the grief of the families and whānau, we would also like to acknowledge how difficult it is for clinicians who are impacted by the deaths of the women and babies they have cared for.

S Belgrave

Dr Sue Belgrave

Chair, Perinatal and Maternal Mortality Review Committee

Parents, Families, Whānau

Tēnā koutou katoa,

It is my great honour to be asked to be the voice on behalf of bereaved parents, families and whānau as a member of the PMMRC. My name is Lisa Paraku. I hail from the beautiful Hauraki and I stand on behalf of my daughter Jasmine Lee, who was born perfect and still in 2006, her four siblings who died in early pregnancy, and my two sons who lived. I have been part of the Sands whānau since 2006, first as a consumer of Sands support services and later as a committee member and provider of the same services that my whānau remains grateful for.

To my fellow bereaved parents, families and whānau, can I offer the following mihi (greeting) to you:

Me mihi aroha nui ki a koe me tō whānau whānui – My love to you and to your entire family.
E ngā pēpē, moe mai rā – I acknowledge our precious babies, our grief and our journey.

I stand proud on behalf of your voice and I thank you for having me. I trust I represent you when I say that our hope following the loss of our precious pēpē or māmā is **'to be seen'** – to be listened to, understood and cared for in the way that we need, so that our grief journey can be a little more gentle.

To you, the good people of our New Zealand health system, I salute you and thank you for serving us. We are grateful and we would like to continue connecting with you so that our mutual experience is positive.

It is my greatest hope that the incredible work delivered by the collective expertise of the PMMRC and our wider support network is acknowledged and that **their recommendations are actioned with priority** by the government agencies that exist to serve the health and wellbeing of our New Zealand people. I ask this so that we, the parents, families and whānau, can experience a grief journey that is more gentle or so the resulting changes may save the lives of some of our pēpē and māmā.

The PMMRC report and its recommendations have been available since 2009 and we have seen some really positive change; however, an area that is particularly close to my heart is being highlighted again and again by our data. Along with the very valuable health practice point recommendations that this report delivers, there remains an alarming pattern of inequities in health care outcomes for our Māori, Pacific and Indian māmā and those who are under 20 years of age.

In my humble opinion, these priority populations need 'to be seen'. Can I be so bold as to ask on behalf of parents, whānau and families, that all of us who serve within our health system ask a simple question: Does this practice, policy, process serve this person(s)? Do I understand this person's world view and circumstance? If the answer is no, then let's reach out, start a conversation and continue to learn. Let's ask that **cultural competency training in all priority populations is made a priority,** that training and guidance is provided to all of us to identify implicit and explicit bias that shapes how we serve within our own systems, and when we are clear, then we, within our own sphere of influence, effect change, and together we shape our health system so that the ultimate goal can be achieved: equitable health outcomes for all.

I continue to tautoko (support) my predecessors' tono (requests):

I tautoko the voice of Linda Penlington (PMMRC 2016) regarding the value of post-mortem information, which has helped us at the PMMRC make recommendations that have seen positive change. We continue to see our Māori and Pacific people being less likely to agree to post-mortem for a variety of reasons. I wonder what we could do to make this process agreeable to our Māori and Pacific peoples and I remain hopeful that their voices, some of which are documented within the body of this report, are listened to and change is made so that post-mortem information in these priority populations can be gathered and shared to assist our grief journey and also to help others in similar situations.

I reiterate the voice of Vicki Culling (PMMRC 2012) that support service availability and access for our bereaved parents, families and whānau is so incredibly important during our grief journey. The deep grieving that is inevitable when we lose our most precious taonga, our pēpē and sometimes our māmā, can be made more gentle with support service guidance. Part of Vicki's request remains relevant today:

a. A more active connecting of bereaved mothers and families to support agencies (such as Sands) by health and caring professionals would be beneficial, rather than leaving families to do this on their own.
b. A maternity service that is reliant on the unpaid voluntary services in the community to provide the majority of quality support to bereaved parents, families and whānau is a sad indictment on our attitudes towards perinatal loss. Perhaps this first step towards understanding the impact of such a loss, in the form of the Bereaved Mothers Survey, will lead to better support and information for this vulnerable part of our population.

I close with a simple ask, that we all consider the guidance of my elders and achieve **'kanohi kitea'**, for our people to be seen, connected and empowered. To my bereaved parents, families and whānau, I trust the voice in these words in some way connects with you, and to my health professional whānau, we are grateful for you and we thank you. Together we can be better.

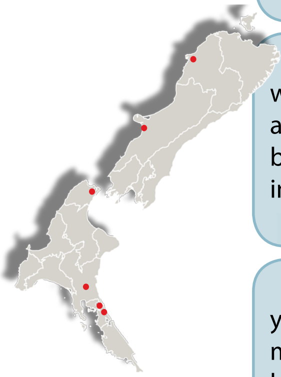
Nāu te rourou, nāku te rourou, ka ora ai te iwi.
With your knowledge and my knowledge, together we will all be well.

Nō reira, tēnā rā koutou katoa,
Lisa Paraku

Information for women, families and whānau about deaths of newborn babies in New Zealand 2007–2016

Babies born too early who have died

Findings from the Committee	What women, families and whānau need to know
Approximately 70 babies die each year in New Zealand from being born prematurely from 20 to 24 weeks. Being born early is the most common cause of death of babies.	New Zealand needs a premature birth prevention initiative to help women avoid a premature birth.
Of the 729 babies who died from 2007 to 2016 due to being born too early (from 20 to 24 weeks), 119 babies were born to mothers who had already had a baby born early. Mothers who have already had a baby born early are more likely to have another early baby in future pregnancies.	There is treatment that can start early in your pregnancy to help stop your baby being born early. Please ask your midwife what you can do to stop your baby being born early.
3 out of 10 babies born alive without a birth defect at 23 weeks were alive at 4 weeks of age. 7 out of 10 babies born alive without a birth defect at 24 weeks were alive at 4 weeks. Some babies born at 23 and 24 weeks may have disabilities.	Parents, families and whānau need enough information about their baby's chance of survival or disability to help them make decisions about their baby's care.
Babies born from 23 to 26 weeks were more likely to be resuscitated and to survive if the babies were born in hospitals with a neonatal intensive care unit.	Babies born at 23 to 26 weeks have the best chance of survival if born in a hospital with a neonatal intensive care unit eg Auckland, Middlemore, Waikato, Wellington, Christchurch and Dunedin.
Mothers who are younger than 20 years old and Māori mothers were more likely to have their babies in hospitals or birthing units without a neonatal intensive care unit.	Please call your midwife, doctor or local hospital if you have signs and symptoms of early labour so you can receive care and transfer to a hospital with a neonatal intensive care unit if required.



Sudden unexpected death in infancy (SUDI)

Findings from the Committee	What women, families and whānau need to know
68 babies of all babies born from 2007 to 2016 died from sudden unexpected death in infancy (SUDI) before they were 4 weeks old. Babies should sleep in their own bassinet, wahakura or Pēpi Pod, on their back, with no pillow.	Please ask your midwife, doctor or nurse for a bassinet, wahakura or Pēpi Pod if you do not have one for your newborn baby.

Executive Summary

Significant changes to the 12th report

The 12th report has a new format from previous reports. It addresses neonatal mortality and neonatal encephalopathy in depth. The perinatal mortality section includes a slightly reduced selection of tables and figures compared to previous years. Maternal mortality includes a core selection of tables and figures only. Both of these sections include limited commentary that aims to address any new data or issues of particular importance in the current year. The PMMRC plans to analyse and report maternal mortality in detail every three years. Specific topics will be chosen each year for in-depth analysis and commentary. Maternal morbidity is reported in a separate document, which will be published on the Health Quality & Safety Commission website (www.hqsc.govt.nz/our-programmes/mrc/pmmrc/publications-and-resources/publication/3369/).

Limited methods and definitions have been included in this document in appropriate chapters. A key to the datasets and mortality rates can be found in Appendix D: Key datasets and definitions in the PMMRC 12th report. A comprehensive methodology and definitions document can be accessed at www.hqsc.govt.nz/our-programmes/mrc/pmmrc/publications-and-resources/publication/3367/.

Definitions used by the PMMRC

Fetal death is the death of a fetus at 20 weeks gestation or beyond (≥20 weeks) or weighing at least 400g if gestation is unknown. Fetal death includes stillbirth and termination of pregnancy.

Termination of pregnancy includes any interrupted ongoing pregnancy from 20 weeks (whether the baby was stillborn or live born).

Neonatal death is the death of any baby showing signs of life at 20 weeks gestation or beyond or weighing at least 400g if gestation is unknown that occurs up until midnight of the 27th day of life. **Early neonatal death** is a death that occurs up until midnight of the sixth day of life. **Late neonatal death** is a death that occurs between the seventh day and midnight of the 27th day of life.

Perinatal mortality is fetal and early neonatal death from 20 weeks gestation (or weighing at least 400g if gestation is unknown) until midnight of the sixth day of life.

Perinatal related mortality is fetal deaths (including terminations of pregnancy and stillbirths) and neonatal deaths (up to midnight of the 27th day of life) per 1000 total babies born at 20 weeks or beyond, or weighing at least 400g if gestation was unknown.

A **maternal death** is the death of a woman while pregnant or within 42 days of termination of pregnancy (miscarriage, termination or birth), irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management. It does not include accidental or incidental causes of death of a pregnant woman.

Maternities are all live births and all fetal deaths at 20 weeks or beyond or weighing at least 400g if gestation is unknown. The maternal mortality ratio is calculated per 100,000 maternities.

Neonatal Encephalopathy is a clinically defined syndrome of disturbed neurological function within the first week of life, manifested by difficulty in initiating and maintaining respiration, depression of tone and reflexes, subnormal level of consciousness and often seizures.

12th report highlighted findings

Special topic: Neonatal mortality

Neonatal mortality has not reduced in New Zealand in the last 10 years as it has in other countries we compare our outcomes to such as the UK and Australia. The neonatal death rate was 2.6/1000 live births in 2007 and 2.5/1000 live births in 2016.

The majority of the analyses in the neonatal mortality chapter excluded babies born with congenital anomalies.

At 23 weeks gestation, resuscitation was attempted for 59 percent of live born babies without congenital anomalies and of these, 50 percent survived to 28 days. At 24 weeks gestation, resuscitation was attempted for 96 percent of live born babies without congenital anomalies and of these, 73 percent survived to 28 days.

Survival to 28 days of live born babies without congenital anomalies was 30 percent at 23 weeks and 70 percent at 24 weeks gestation.

Antenatal corticosteroids were less often given to mothers of babies who died after birth at 23 weeks than at 24 weeks.

Survival of live born babies from 23 to 26 weeks gestation was statistically significantly higher for babies born at tertiary units than babies born at secondary units, and significant differences were found in survival between tertiary units in New Zealand.

There were significantly higher neonatal death rates for babies without congenital anomalies of Māori, Pacific and Indian mothers compared to mothers of Other Asian, Other European and New Zealand European ethnic groupings.

After accounting for the effects of maternal age, body mass index (BMI), socioeconomic status, parity, smoking, multiple pregnancy, baby sex, and year of birth, there remained a higher risk of death after birth at 20 to 24 weeks gestation among babies of Māori, Pacific and Indian mothers, which suggests that there were other factors increasing risk for these women. The most common cause of neonatal death at 20 to 24 weeks gestation, responsible for almost 600 deaths in the 10 years from 2007 to 2016, was extreme prematurity.

More babies of Māori, Pacific and Indian mothers are born extremely preterm and so these ethnic groups are disproportionately affected by suboptimal care for mothers and babies at these gestations. This is compounded if there are also inequities in provision of care by ethnicity.

The in-depth analysis identified inequities by ethnicity and by maternal age (<20 years) in a number of care areas affecting neonatal survival. These related to access to antenatal care, access to tertiary neonatal facilities, treatment with antenatal corticosteroids, and attempted resuscitation at extreme preterm gestations. An analysis of care pathways was not undertaken. However, inequities by ethnicity are increasingly found in health care both in New Zealand and overseas, and are associated with implicit bias and racism. Therefore, the PMMRC has tried to address this issue in its recommendations along with trying to promote improvement strategies that might engage with priority population service users and their needs.

Neonatal encephalopathy

The PMMRC has been reporting data related to babies with moderate and severe neonatal encephalopathy (NE) since 2010. Fewer term babies were diagnosed with NE in 2016 (1.0/1000 term births) than in 2010 (1.4/1000), however this was not a statistically significant difference.

The Neonatal Encephalopathy Working Group (NEWG) has been encouraging district health board (DHB) local review of babies diagnosed with NE, and a survey of 2016 cases found 75 percent of cases were reviewed, although only 64 percent were reviewed with a multidisciplinary methodology.

A multivariable analysis is planned for 2018-2019 to investigate the independent predictors of NE among babies born at term now that data on NE cases have been merged with data from the national maternity collection (MAT).

Acute peripartum events, such as placental abruption and shoulder dystocia, were reported in 22 percent of babies diagnosed with NE from 2012 to 2016. In 2016, the NEWG reviewed a series of 47 babies with NE from 2013 to 2015 following an acute peripartum event. In two-thirds of the cases reviewed, the mortality or severe morbidity were considered potentially avoidable. Further detail of the review findings is provided in the neonatal encephalopathy chapter.

In 2016, 79 percent of babies born at term with moderate or severe NE were treated with induced cooling, and of those cooled, 77 percent were cooled within six hours of birth as recommended for maximal benefit. Of the 12 babies not cooled in 2016, two may have benefitted from cooling. Neonatal observation of babies with risk factors for NE and increased assessment of babies identified with probable asphyxia at birth were highlighted to optimise care.

Perinatal mortality

The perinatal related mortality rate, which includes all deaths from 20 weeks gestation to 27 days of life, was 10.1/1000 total births in 2016. While there has been no statistically significant reduction in perinatal related mortality overall since 2007, there has been a significant reduction by 11 percent in stillbirth rate from 5.7/1000 births in 2007 to 5.1/1000 births in 2016.

The PMMRC were able to define denominator data for small for gestational age babies (using customised birthweight centiles) for the first time this year using the New Zealand Maternity Collection (MAT) dataset. There was a statistically significant reduction in small for gestational age babies born from 2008 to 2016 and a statistically significant reduction in perinatal related mortality among small for gestational age babies.

Of note, the number of mothers aged under 20 giving birth in New Zealand has reduced by 50 percent from 2007 to 2016. However, in this time, there has been a significant increase in perinatal related mortality among mothers aged under 20 giving birth. Mothers under 20 years of age are at higher risk of perinatal related death from spontaneous preterm birth, antepartum haemorrhage, and perinatal infection than any other age group.

Maternal mortality

There has been a statistically significant reduction in maternal mortality in New Zealand from 2006 to 2016.

The maternal mortality ratio for the three years from 2014 to 2016 was 9.4/100,000 births at 20 weeks or beyond. This is the lowest ratio for a three year period since the PMMRC began reviewing maternal deaths in 2006.

Maternal suicide is the leading cause of maternal mortality in New Zealand. The rate of maternal suicide in New Zealand is seven times the rate in the United Kingdom. Māori women are over-represented among maternal suicides. Between 2006 and 2016, 16 (57 percent) of 28 women who died by suicide in pregnancy or within six weeks of pregnancy were Māori.

Following review of maternal mortality, emerging themes and practice points are identified to support clinical improvement. In this report, an emerging theme is the need for a consistent approach to the diagnosis of ectopic pregnancy and a practice point addresses evidence-based care for women with mental health issues.

12th report recommendations

Neonatal mortality recommendations

1. **The PMMRC recommends the Ministry of Health establish a multidisciplinary working group to review current evidence for implementation of a preterm birth prevention program such as that implemented in Western Australia, taking care to:**

    a. **identify and adequately resource evidence-based solutions**
    b. **ensure equitable access to screening and/or treatment for priority populations**
    c. **ensure that priority populations have a voice in the development of health policy, process and practice in order to achieve equitable health outcomes**
    d. **ensure that the outcomes of any implemented program, including equity of access, are evaluated.**

2. **Women with a previous preterm birth at less than 34 weeks are at increased risk of neonatal death.**

    The PMMRC recommends that LMCs and DHBs employ strategies to reduce preterm birth by targeting this high-risk group, including:

    a. **counselling at the time of a preterm birth to outline the strategies likely to be recommended for their next pregnancy, and advice to present for antenatal care as soon as they know they are pregnant**
    b. **ensuring that antenatal care is available to allow women to register as early as possible, and ensuring that early antenatal care includes attention to modifiable risk factors such as smoking, sexually transmitted infections, and urinary tract infections**
    c. **ensuring referral for specialist consultation in the first trimester to facilitate discussion of treatment options, which might include cervical cerclage or vaginal progesterone treatment and monitoring of cervical length using transvaginal ultrasound**
    d. **counselling around signs and symptoms of preterm birth and how to respond to these to optimise outcome.**

3. **Birth in a tertiary centre is associated with improved outcomes for preterm babies at the lower limits of viability (prior to 25 weeks gestation).**

    The PMMRC recommends the Ministry of Health leads the development of a national consensus pathway for the care of women in preterm labour or requiring delivery prior to 25 weeks gestation. The PMMRC recommends this pathway includes:

    a. **ensuring that all groups of women (irrespective of ethnicity, age, socioeconomic status or place of residence) are offered and provided the same level of care**

   a. strategies for secondary units for management of women in threatened or early preterm labour, or who require delivery, prior to 25 weeks gestation. Including:
      i. administration of corticosteroids and magnesium sulphate
      ii. timely transfer from primary and secondary units to tertiary units
      iii. management of babies inadvertently born in their units at the lower limits of viability
   b. ensuring that priority populations have a voice in the development of health policy, process and practice in order to achieve equitable health outcomes
   c. guidance on monitoring that care provision is equitable by ethnicity, age, socioeconomic status and place of residence.

4. The PMMRC recommends DHBs make available appropriate information, including appropriate counselling, for parents, families and whānau about birth outcomes prior to 25 weeks gestation to enable shared decision making and planning of active care or palliative care options.

5. The PMMRC recommends that DHB maternity services audit the rates of antenatal corticosteroid administration, including repeat doses when indicated, to mothers of neonates live born at less than 34 weeks gestation, including auditing whether administration is equitable by ethnicity, DHB of residence, and maternal age.

6. The PMMRC recommends that tertiary obstetric and neonatal intensive care units investigate and address the difference between units in survival rates amongst infants born at 23 to 26 weeks gestation as part of their benchmarking and quality and safety initiatives.

7. The PMMRC recommends that regulatory bodies require cultural competency training of all individuals working across all areas of the maternity and neonatal workforce. Training should address awareness of, and strategies to reduce and minimise the impact of, implicit bias and racism.

8. The PMMRC recommends that the Ministry of Health and DHBs have a responsibility to ensure that midwifery staffing ratios and staffing acuity tools:
   a. enable active observation of mothers and babies who are undertaking skin-to-skin contact in the postnatal inpatient period
   b. allow for the identification of, and additional needs of, mothers who have increased risk factors for sudden unexpected death in infancy (SUDI).

9. The PMMRC recommends that lead maternity carers (LMCs) and DHBs ensure that every baby will have access to a safe sleep place on discharge from the hospital or birthing unit, or at home, that is their own place of sleep, on their back and with no pillow. If they do not have access to a safe sleep place, then a wahakura or Pēpi-Pod®[1] must be made available for the baby's use prior to discharge from hospital.

Neonatal encephalopathy recommendations

10. The PMMRC recommends that DHBs with rates of neonatal encephalopathy significantly higher than the national rate review, or continue to review, the higher rate of neonatal encephalopathy in their area and identify areas for improvement.

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[1] A Pēpi-Pod® is a plastic box with a well-fitting mattress in the bottom. As well as the sleep space, these devices are always provided with safe sleep messaging.

Perinatal mortality recommendations

11. **Maternity and primary care providers need to be aware of the increasing risk of perinatal mortality for mothers under 20 years of age in New Zealand. Inequity in perinatal mortality for babies born to mothers under 20 years of age needs to be actively addressed.**

    The PMMRC recommends the Ministry of Health and DHBs:

    a. **develop, in consultation with young mothers, acceptable and safe methods for mothers under 20 years of age to access and engage with care in order to achieve equitable health outcomes**
    b. **identify and adequately resource evidence-based solutions to address risks for mothers under 20 years of age, paying attention to smoking cessation, screening and treatment for infections, screening for fetal growth restriction, and providing adequate information about the causes and symptoms of preterm labour**
    c. **consider how they can support LMCs caring for mothers aged under 20 years.**

12. **The PMMRC recommends that DHBs with rates of perinatal related mortality significantly higher than the national rate review, or continue to review, the higher rate of mortality in their area and identify areas for improvement.**

Maternal mortality recommendations

Maternal and Infant Mental Health Network

The 10th PMMRC report recommended that a Maternal and Infant Mental Health Network be established to provide an interdisciplinary and national forum to discuss perinatal mental health issues (PMMRC 2016). This work has progressed to development of service specifications for the network. We strongly reiterate the previous recommendation:

13. **The PMMRC recommends that a Maternal and Infant Mental Health Network is funded by the Ministry of Health and that the network then determine an achievable work stream by the end of 2018 detailing work to be completed by the end of 2020, to include as potential areas of priority:**

    a. **a stocktake of current mental health services available across New Zealand for pregnant and recently pregnant women to identify both the strengths of services and gaps or inequity in current services and skills in the workforce**
    b. **a national pathway for accessing maternal mental health services, including:**
       i. **cultural appropriateness to ensure of service access and provision**
       ii. **appropriate screening**
       iii. **care for women with a history of mental illness**
       iv. **communication and coordination.**

Summary of Key PMMRC 11th Report Recommendations and Progress

Recommendation (PMMRC 11th report)	Progress to date (updated 2018)
Epidemiology	
The Mortality Review Committees' Māori Caucus reiterate, 'As a matter of urgency, the Ministry of Health update the National Maternity Collection (MAT), including the ethnicity data as identified by the parents in the birth registration process.' (PMMRC recommendation ninth report 2015)	The Ministry of Health has updated the MAT with ethnicity data as identified by parents during the birth registration process (sourced from Births, Deaths and Marriages (BDM)) for babies born in 2016 and 2017. The Ministry expects to complete the updating of live born baby records for babies born from 2012 to 2015 by June 2018. **Update 2018**
The PMMRC recommends the Ministry of Health: a. urgently require DHBs to provide complete and accurate registration data to the MAT dataset (as required of LMCs providing services to pregnant women in order to receive funding for those services). Specifically this should include women who present for birthing at DHB facilities without previous antenatal LMC registration and women who are provided primary maternity care by DHB maternity services b. require that the MAT dataset include complete registration and antenatal data on live and stillborn babies from 20 weeks gestation (including terminations of pregnancy).	**Ministry of Health** The Ministry of Health has advised it is looking to extend the National Maternity Record to feed all information into the MAT. The National Maternity Record includes antenatal, postnatal and neonatal care. To ensure maternity care records are consistent and completed across different care providers and regions, the Ministry is reviewing the Health Information Standards Organisation (HISO) standard set in relation to maternity care. This will be defined and agreed by the end of 2018. The Ministry is working with DHBs on the BadgerNet Maternity system to transfer data collected as part of the DHB primary maternity service to the MAT. This will improve the data completeness for women who receive primary maternity care from DHBs. **National Maternity Monitoring Group (NMMG)** The NMMG has asked the Ministry of Health to help prioritise and implement recommendations regarding the MAT dataset, and has written to DHBs asking that they take all steps possible to support the implementation of the recommendations. **Update 2018**
Perinatal mortality	
The PMMRC investigate why there has been no reduction in neonatal mortality in New Zealand.	Neonatal mortality is the focus of the special topic in this report.
The PMMRC supports the development of a national interdisciplinary clinical practice guideline on the indications and timing for induction of labour, to guide clinicians to offer induction when appropriate (that is, where evidence shows that benefit to mother and/or baby outweighs risk) and to avoid induction when not appropriate.	An interdisciplinary guideline for the indications and timing of induction of labour is currently in development. The group is using the Appraisal of Guidelines for Research and Evaluation (AGREE) tool to guide the guideline development and will ask the NMMG to ratify the guideline as a national one upon completion. The Ministry of Health will consider their decision and, if accepted, publish the guideline on the Ministry website as national guidance. **Update 2018**
That district health boards with rates of perinatal related mortality and neonatal encephalopathy significantly higher than the national rate review, or continue to review, the higher rate of mortality or morbidity in their area and identify areas for improvement. Counties Manukau DHB – significantly higher rate of perinatal related mortality, significantly higher rate of stillbirth and neonatal death than the national rate. Waikato DHB – significantly higher rate of neonatal death and neonatal encephalopathy than the national rate.	**Perinatal related mortality rates** **Counties Manukau** Counties Manukau Health is committed to ensuring women get early access to quality maternity care. The Maternity Quality Workplan describes the work underway to improve maternity. See http://www.countiesmanukau.health.nz/assets/About-CMH/Reports-and-planning/Womens-health/2015-2016-CM-Health-MQSP-Annual-Report.pdf Counties Manukau DHB continues to highlight the impact the upstream determinants (such as income, education and housing) have on a range of health outcomes and continue to work with the Ministry of Health to explore these relationships more fully.

Recommendation (PMMRC 11th report)	Progress to date (updated 2018)
	Neonatal mortality rates **Waikato** A multi-disciplinary team reviews each neonatal death. The team note learning points from the death and make individual recommendations for the women. This case review session forms the basis of information for: • the follow-up appointment with the family/whānau • presentation to the monthly mortality meeting of health care professionals • reporting to the DHB mortality meeting. As appropriate, any teaching topics or contributing factors to the case are added to the 'Sharing the Learning' electronic newsletter. Each case is added to a database so the team can identify themes and link to a programme of work or identify a new programme of work in the DHB Maternity Quality and Safety Programme. The multi-disciplinary team continues to review all cases of NE cared for in the Neonatal Intensive Care Unit. **Update 2018**
Maternal mortality	
The PMMRC recommends the Health Quality & Safety Commission establish a permanent Suicide Mortality Review Committee.	The Ministry of Health has agreed to extend its funding for the Suicide Mortality Review Committee.
Neonatal encephalopathy	
That district health boards with rates of neonatal encephalopathy significantly higher than the national rate review, or continue to review, the higher rate of morbidity in their area and identify areas for improvement.	**Taranaki** Taranaki DHB reviews all unexpected admissions to the neonatal unit; this includes cases of NE. Current quality improvement initiatives include: • improvements to the obstetric emergency call system • multidisciplinary training in obstetric emergencies for all clinicians at both Taranaki Base and Hawera hospitals • Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) fetal surveillance training • newborn life support training (New Zealand Resuscitation Council) • local NE workshop on 27 April 2017 • education on recognition of NE and cooling management • Growth Assessment Protocol (GAP) on recognition and management of small for gestational age babies. Taranaki DHB will continue to monitor and review all NE cases and implement quality improvements where indicated. **Capital & Coast** Capital & Coast DHB continues to review all term infants diagnosed with NE in 2016. **Update 2018**

Recommendation (PMMRC 11th report)	Progress to date (updated 2018)
Recommendations from the Mortality Review Committees' Māori Caucus	
Māori Maternal Death by Suicide **Improved awareness and responsiveness to the increased risk for Māori women** Primary care (general practitioners (GPs), Family Planning Association (FPA)), LMCs, termination of pregnancy (TOP) services, alcohol and drug services, and secondary and tertiary providers of maternity, obstetric, mental health, and maternal mental health services should improve their systems, guidelines and professional development to ensure that they are responsive to the identified increased risk for Māori women. **Risk assessment** Comprehensive assessment of risk factors for Māori women should be undertaken at diagnosis of pregnancy and/or on first presentation for antenatal care. This should be undertaken for all Māori women, regardless of age, including those who are seeking termination of pregnancy. **Management** Where Māori women exhibit symptoms suggesting serious mental illness or distress, an urgent mental health assessment, including consultant psychiatrist review and consultation with perinatal mental health services, on the same day these symptoms are first noted should be undertaken. Māori women who have a history of serious mental illness and are currently well should be referred to specialist mental health services for a mental health birth plan, and monitored closely by their maternity care provider +/- mental health services. Where such a woman has a miscarriage, the GP should be notified immediately and an explicit process for early follow up that includes a review of mental health status agreed with the GP. The referring doctor of women who undergo a TOP is expected to provide a free post-TOP follow-up consultation 10–14 days after the procedure (Abortion Supervisory Committee 2009, Standard 79). The referring doctor should actively follow up Māori women referred for TOP to ensure this consultation is completed and review mental health status during this consultation. **Communication and coordination** Communication and coordination between primary care (GPs, FPA), LMCs, TOP services, alcohol and drug services, and secondary providers of maternity, obstetric, mental health, and maternal mental health services should be improved and enhanced using a variety of means including but not limited to case management, integrated notes systems, and electronic transfer of information.	**New Zealand Nurses Organisation, Te Rūnanga o Aotearoa** further supports the 11th report recommendations, and believes these issues still remain relevant: 1. An explicit recommendation is required to ensure health professionals have a higher level of cultural awareness and competence. 2. Risk assessment is imperative. Professionals doing this must have an understanding of Māori models of wellbeing, including social context. 3. Management is a complex situation. It should not be the sole responsibility, or expected of, professionals who may have limited time and may not be the most culturally appropriate. 4. Communication is an imperative area for ongoing development. **The College of Nurses Aotearoa (NZ)** further endorses the 11th report recommendations and supports the development of much needed guidelines based on current evidence to reduce these worrying statistics. The College will disseminate the PMMRC findings further throughout the nursing workforce, and promote them with college members and on their website, to inform members of the importance of the PMMRC recommendations in supporting nursing care and support for Māori women. **The Royal New Zealand College of General Practitioners** The College team responsible for updating the General Practice Education Programme curriculum development has been alerted about the increased risk of maternal suicide for Māori women, and are considering adding the Eleventh report to the online learning platform for GP registrars. The College acknowledges the need to raise awareness among GPs about the increased mental health risk for Māori women. However, their standard 15-minute consultation, does not allow sufficient time to discuss pregnancy-related medical issues and mental health; some DHBs and PHOs do have funded extended GP appointments for patients identified as experiencing serious mental illness or addiction. It may be useful to explore whether fully funded extended appointments should be introduced to support routine mental health screening for all pregnant Māori women. There is a variability in the experience of GPs when referring women to an appropriate health provider; some of our members generally have good access to maternal mental health team and other secondary care services, others highlight poor access and delay in accessing the secondary care. Women in all areas should have access to necessary care and would support any initiative to improve the access to secondary care. Free post-TOP consultation - there is a variability in women returning to the referring doctor for a free post-termination of pregnancy (TOP) consultation; not many women return for a post termination check-up which indicates the need to actively follow up with women who undergo a TOP; also, the timeframe to provide the post TOP consultation is narrow, which limits the opportunity to review mental health status of Māori women. Monitoring Māori women with a history of serious mental illness - GPs can be unaware that a patient is pregnant if she seeks care directly from an LMC midwife. The College agrees that GPs should be notified when a woman has a miscarriage, however the process of notification is not very consistent at present and a lack of communication with midwives has been noted by some College members. The College supports the recommendation that the communication and coordination between service providers should be improved and enhanced. Options for information sharing include LMCs requesting access to shared electronic records from general practices and LMCs using electronic systems that GPs can interact with (eg hMAELTM, which is a secure communication channel for the health sector that uses a closed messaging system).

Recommendation (PMMRC 11th report)	Progress to date (updated 2018)
Recommendations from the Mortality Review Committees' Māori Caucus continued...	
	Royal Australian New Zealand College of Psychiatrists strongly support the principles outlined in the 'Practice Points on Māori Maternal Suicide' which covers the salient facts regarding screening and managing pregnant women with potential mental illness and other co-morbidities; referral to secondary mental health services is required for those pregnant women who may have a history of mental illness and if a woman presents with a range of symptoms indicating serious mental illness. In our view, a comprehensive mental health assessment is critical to ensure early intervention occurs and appropriate treatment and care plans are in place for all at risk pregnant women. We support all clinicians sharing relevant information to provide the pregnant women with the best care possible. An integrated model of care, across maternity and mental health services, is at the core of best practice service delivery ensuring the woman's mental and physical wellbeing are addressed concurrently. Increasing awareness of risk through education and developing greater communication and integration across the key health sector services are critical. Research from Australia indicates that increasing awareness of maternal mental illness in the community and amongst the non-mental health workforce can enhance the understanding of the mental health issues experienced during the perinatal period and improve the referral pathways for at risk women. The appropriate management of Māori women with potential mental health problems requires specialised skills and expertise that are dependent upon a well-resourced workforce. Developing a culturally responsive workforce must be a priority to ensure Māori maternal health is effectively managed within a kaupapa Māori context. The RANZCP strongly support the development of targeted strategies to improve the awareness and responsiveness to the increased risks experienced by Māori women. We strongly recommend that the key strategic aspects of this work are led by Māori to ensure a Te Ao Māori perspective is woven into any proposed approaches. There should be a greater collective focus on how the whānau are highly likely to be part of the solution in working to improve a woman's wellbeing. The RANZCP supports a comprehensive assessment of risk factors for Māori women being undertaken at the time the pregnancy is diagnosed and/or on first presentation for antenatal care. As long-term use of alcohol can exacerbate mental disorders, pregnant women with substance abuse disorders must have timely and appropriate access to treatment in order to reduce the negative impact on their wellbeing. The RANZCP strongly suggests that maternal mental health is discussed more often than every three years, as it is demonstrated in both this Report and literature that mental illness during the perinatal period is a complex issue and it is unlikely to decrease significantly in the short term. Specific applied cultural competency related to Māori concepts in pregnancy must form a fundamental part of any Midwifery certification. **Update 2018**
Child and Youth Mortality Review Child and Youth Mortality Review Committee (CYMRC) consider including information about whether female suicide cases were pregnant in the 12 months prior to their deaths in addition to the pregnancy status information currently collected.	The Otago Database Group have included this question on their form: 1.20 Was the deceased pregnant in the 12 months prior to their death? 1.20.1 Pregnant in prior 12 months – options: yes, no, unknown, not applicable **Update 2018**

References and Bibliography

Abortion Supervisory Committee. 2009. *Standards of care for women requesting induced abortion in New Zealand: Report of a Standards Committee to the Abortion Supervisory Committee.* URL: https://www.parliament.nz/resource/mi-nz/51SCJE_EVI_51DBHOH_PET63021_1_A442134/583f36ba6da6dfd77204dbf8d5f82ca6adb089bd (accessed April 2018).

Bauer A, Parsonage M, Knapp M, et al. 2014. *Costs of perinatal mental health problems.* London: London School of Economics and Political Science. URL: http://eprints.lse.ac.uk/59885/ (accessed April 2018).

PMMRC. 2012. *Sixth Annual Report of the Perinatal and Maternal Mortality Review Committee: Reporting mortality 2010.* Wellington: Health Quality & Safety Commission, Perinatal and Maternal Mortality Review Committee. URL: https://www.hqsc.govt.nz/assets/PMMRC/Publications/PMMRC-6th-Report-2010-Lkd.pdf (accessed April 2018).

PMMRC. 2016. T*enth Annual Report of the Perinatal and Maternal Mortality Review Committee: Reporting mortality 2014.* Wellington: Health Quality & Safety Commission, Perinatal and Maternal Mortality Review Committee. URL: http://www.hqsc.govt.nz/assets/PMMRC/Publications/tenth-annual-report-FINAL-NS-Jun-2016.pdf (accessed April 2016).