



Overview of the 2015 Report of the PMMRC

Perinatal mortality

Perinatal related mortality rate

In 2013, the perinatal related mortality rate in New Zealand was 10/1000 births or one baby death for every 100 babies born. This was the lowest rate since the PMMRC started collecting data on baby deaths, but not yet low enough to be sure that the apparent reduction is not due to chance.

The perinatal related mortality rate in New Zealand is similar to the rate reported by England and Wales for 2013 and by Australia for 2012.

Stillbirth rate

The rate of stillbirth in New Zealand has dropped significantly since 2007. In 2007, there was one stillbirth for every 180 births but in 2013 there was one stillbirth for every 200 births, which is a small but significant improvement. The reduction in stillbirths is a reduction in babies dying at term (from 37 weeks onwards).

The reduction has occurred among babies dying before birth without a known cause (unexplained antepartum death), babies dying from lack of oxygen around the time of birth (hypoxic peripartum death), babies dying following bleeding in pregnancy and babies dying of infections prior to birth. There has been an 80 percent reduction in babies dying of lack of oxygen in labour and a 30 percent reduction in babies dying without an identified cause.

Neonatal death rate

The rate of neonatal death has not changed in New Zealand since 2007.

Late termination of pregnancy rate

There has been a significant increase in the rate of terminations of pregnancy from 20 weeks since 2007. This is because of an increase in late terminations in mothers with very early ruptured membranes, perinatal infections, high blood pressure and serious bleeding in pregnancy.

Teen mothers

There has been an increase in the rate of perinatal death among teen mothers (mothers under 20 years old).

In 2013, 3436 teen mothers gave birth, one-third fewer than the 5091 in 2007.

A higher proportion of teen mothers in 2013 were Pacific than in 2007, and more were living with socio-economic deprivation. Both of these factors are associated with increased risk of perinatal death and so may explain some of the increase in the perinatal death rate among young mothers.

Analyses reported in the PMMRC report last year showed that young age is not directly associated with perinatal related death. Young age is associated with higher risk of perinatal death because teen mothers are more likely to be having their first baby, to smoke, to be overweight and to live with socioeconomic deprivation.

Māori, Pacific and Indian mothers

Māori, Pacific and Indian mothers have higher risks of perinatal deaths than mothers of Other Asian and New Zealand European ethnicity for reasons other than having their first baby, smoking, obesity and socioeconomic deprivation, but it is not known why.

DHB perinatal mortality differences

There are differences in perinatal related mortality rates according to the DHB area where mothers live. These rates are calculated from the number of deaths among mothers who live in the DHB area and are not adjusted for differences in age, ethnicity, smoking, obesity and deprivation, which vary by DHB, even though it is known that these factors affect mortality. The PMMRC does not adjust for these factors because they are highlighting areas in the country where health care services need to respond to address these higher rates.

It is not assumed that there are any differences in the quality of care provided by LMCs or hospitals that provide care in these DHB areas, but that there are differences in the needs of families who live in these regions. This year the report highlights the higher perinatal death rate in the Counties Manukau DHB area, the higher stillbirth and neonatal death rates in the Northland DHB area, and the higher neonatal death rate in the Bay of Plenty DHB area. The PMMRC recommends that these DHBs examine why their rates are significantly higher than national rates.

Screening in pregnancy

There was an increase in the proportion of mothers who were screened for diabetes in pregnancy prior to their baby dying, although it is not certain that this is due to an increase in screening. It may be due to an improvement in the completeness of data provided by LMCs to the PMMRC.

There are still many mothers who do not seem to be asked about family violence during their pregnancy, even though family violence is a health issue and known to lead to poor perinatal outcomes.

Every time we screen for family violence we are giving an educational message that family violence is common, it affects people's health, it is okay to talk about it and help is available now or in the future. It doesn't matter if we get a 'yes' or 'no' answer; asking is the intervention.

Where intimate partner violence occurs, there is a 30 to 60 percent chance that child abuse is also occurring (Edleson 1999).

This PMMRC report includes a practice point highlighting education for health providers on screening for family violence (page 82).

Investigation of perinatal death

In 2013, the rate of optimal investigation of perinatal deaths was 53 percent. While this is still low, it is higher than in previous years. The PMMRC has highlighted the importance of post-mortem investigation of perinatal deaths to clinicians and LMCs so families are fully informed and supported in making this decision. The PMMRC has also advocated for an increase in perinatal pathologists to provide post-mortem services.

In 2013, a post-mortem changed the clinical diagnosis of cause of a baby's death for 19 percent of families who agreed to post-mortem.

Spontaneous preterm birth

Spontaneous preterm birth was a cause of perinatal death for almost 1000 babies from 2007 to 2013. It is the cause of death for 21 percent of perinatal deaths.

We know that death from spontaneous preterm birth is more common in multiple pregnancies, among smokers, among users of marijuana and alcohol, among mothers living with socioeconomic deprivation, among young mothers and among Māori and Pacific mothers. Some of these risk factors are independent of the others so that the co-occurrence of more than one factor further increases the risk for that woman.

Bleeding occurred at some time during pregnancy in 60 percent of women whose babies died from spontaneous preterm birth. Bleeding is an important indicator of increased risk and women need to be advised of this and counselled to report any indication that labour might be starting early. Bleeding is also associated with fetal growth restriction and so, for both of these reasons, is an important indicator of a pregnancy at risk. This is true even when there are small amounts of bleeding and when the reason for the bleeding is not clear.



It may be possible to reduce the risk of preterm birth for some women, and treatments are available to reduce the morbidity and mortality of babies who are born early.

Modifiable risk factors and labour

While most babies are fit to withstand the stress of labour, some are not. Some of these babies will die in labour or suffer from hypoxic damage (due to lack of oxygen around the time of birth) which may lead to neonatal death or to neonatal encephalopathy. In this report and previous reports of the PMMRC, local review of hypoxic peripartum deaths and national review of babies with neonatal encephalopathy has identified a high rate of potentially avoidable morbidity and mortality. It is reassuring that there has been a significant reduction in perinatal mortality in this group between 2007 and 2013.

The key issues identified are risk assessment and management, adequate fetal surveillance in labour and early recognition of brain injury in the newborn to facilitate early treatment with induced cooling. Risk assessment is dynamic and occurs in pregnancy, at the start of labour, and throughout labour. A combination of risks is likely to increase the danger to the mother and the baby more than any one factor alone. Risk assessment may indicate the need for a change in location of birth to a place where more rigorous surveillance and operative facilities to expedite birth are available.

A clinical practice point on page 147 provides information on recognising the baby at risk of neonatal encephalopathy.

Potentially avoidable deaths

Approximately 16 percent of perinatal deaths were assessed at review to be potentially avoidable in 2013. This means that if at least one of the factors identified as contributing to the death had been absent then the death may not have occurred. The largest absolute number of potentially avoidable perinatal deaths was among deaths due to maternal conditions (18 deaths), most of which are diabetes.

Barriers to access and/or engagement with antenatal care are more common for women living with socioeconomic deprivation. One in six perinatal related deaths among women residing in the most socioeconomically deprived households might potentially have been avoided by improved access to antenatal care.

Maternal mortality

In 2013, there were 12 maternal deaths. The maternal mortality ratio in New Zealand for 2011–2013 was 16.8/100,000 maternities, which is one maternal death for every 6000 babies born at 20 weeks or more. New Zealand has a comprehensive system for the reporting of maternal deaths and this probably explains the higher rate of mortality seen in New Zealand compared to Australia, which does not have a comprehensive national surveillance system.

Maternal deaths are more common among Māori and Pacific mothers, and mothers aged 40 years and older, and increase with increasing socioeconomic deprivation.

Causes of maternal death

Maternal deaths are reported as direct or indirect. Direct deaths are due to diseases or complications of pregnancy such as bleeding and sepsis. There has been a trend in developed countries, including New Zealand, towards a reduction in direct deaths.

However, there is a six times higher rate of direct deaths due to amniotic fluid embolism in New Zealand compared to the UK. It is not known why and the PMMRC is planning further work to investigate this during 2015–2016.

Indirect deaths result from pre-existing conditions or non-pregnancy related conditions which are worsened by pregnancy. Indirect deaths have been seen to increase in the UK and in the USA. There has been a trend towards an increase in these deaths in New Zealand as well. This may be associated with mothers having babies at an older average age and with increasing obesity in the population.

The most common indirect cause of death in New Zealand is maternal suicide, and maternal suicide is seven times more common in New Zealand than in the UK. This comparative analysis has also led to the PMMRC planning to do further analysis of death from suicide in 2015–2016.

Practice points for improved maternal health

In this report, the Maternal Mortality Working Group of the PMMRC has written practice points for clinicians on epilepsy, influenza in pregnancy, sepsis in and after pregnancy, and perimortem Caesarean section.

It is recommended that women with epilepsy who are on medication should be reviewed by a physician in pregnancy because some epileptic medications need to be increased during pregnancy.

The PMMRC recommends that pregnant women are vaccinated against influenza and whooping cough (pertussis) to protect both mother and baby.

Neonatal encephalopathy

There is a higher rate of neonatal encephalopathy among Pacific mothers than New Zealand European mothers, among babies born at 37 weeks, and among mothers living with socioeconomic deprivation.

The majority of babies diagnosed with neonatal encephalopathy have evidence of asphyxia (lack of oxygen) present at the time of birth. Therefore education in fetal surveillance during labour to detect this is important for all clinicians involved in intrapartum care.

The rate of induced cooling of babies with moderate and severe neonatal encephalopathy has increased significantly from 68 percent in 2010 to 83 percent in 2013. Receiving induced cooling means that babies diagnosed with neonatal encephalopathy have a lower risk of subsequent disability.

The unadjusted rate of neonatal encephalopathy among women resident in the Capital & Coast DHB area was significantly higher for 2010–2013 than the national rate. The PMMRC has recommended that Capital & Coast DHB review all of their cases from 2010 to 2013.

Maternal morbidity

Twelve women who had an amniotic fluid embolism were reported in New Zealand between 2010 and 2013.

There were 69 women who had placenta accreta (excessively adherent or embedded into the uterine wall) reported in New Zealand from 2010 to 2012. Forty-five of these women had previously had a Caesarean section. More than half of the 69 women required a hysterectomy because of this placental disorder.