



Maternal Deaths in Australia 2016

(PDF version of html report)
(Released 17 December 2018)

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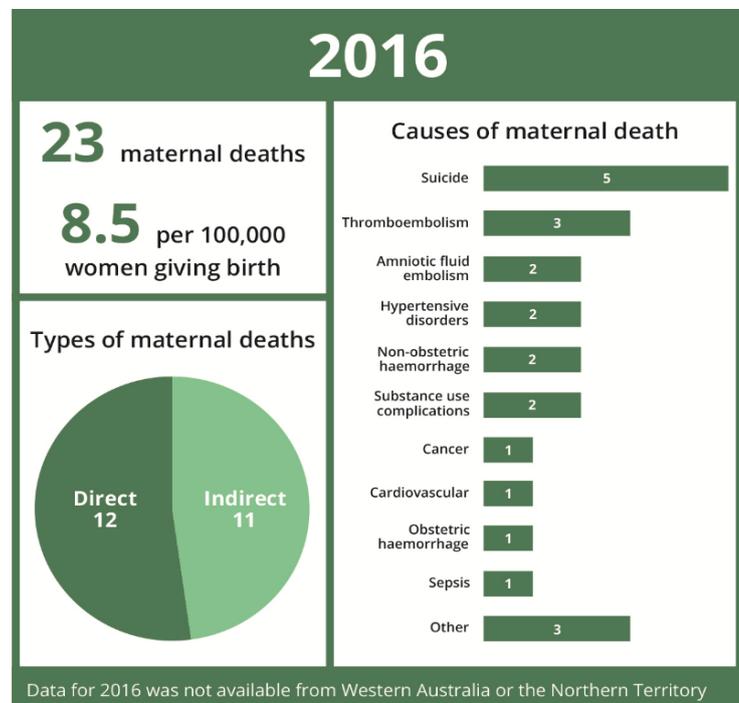
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Definition of maternal death

In Australia, where childbirth is safe for most women, maternal death is rare. All maternal deaths are reviewed by health professionals to determine the likely cause and whether the pregnancy contributed to the death.

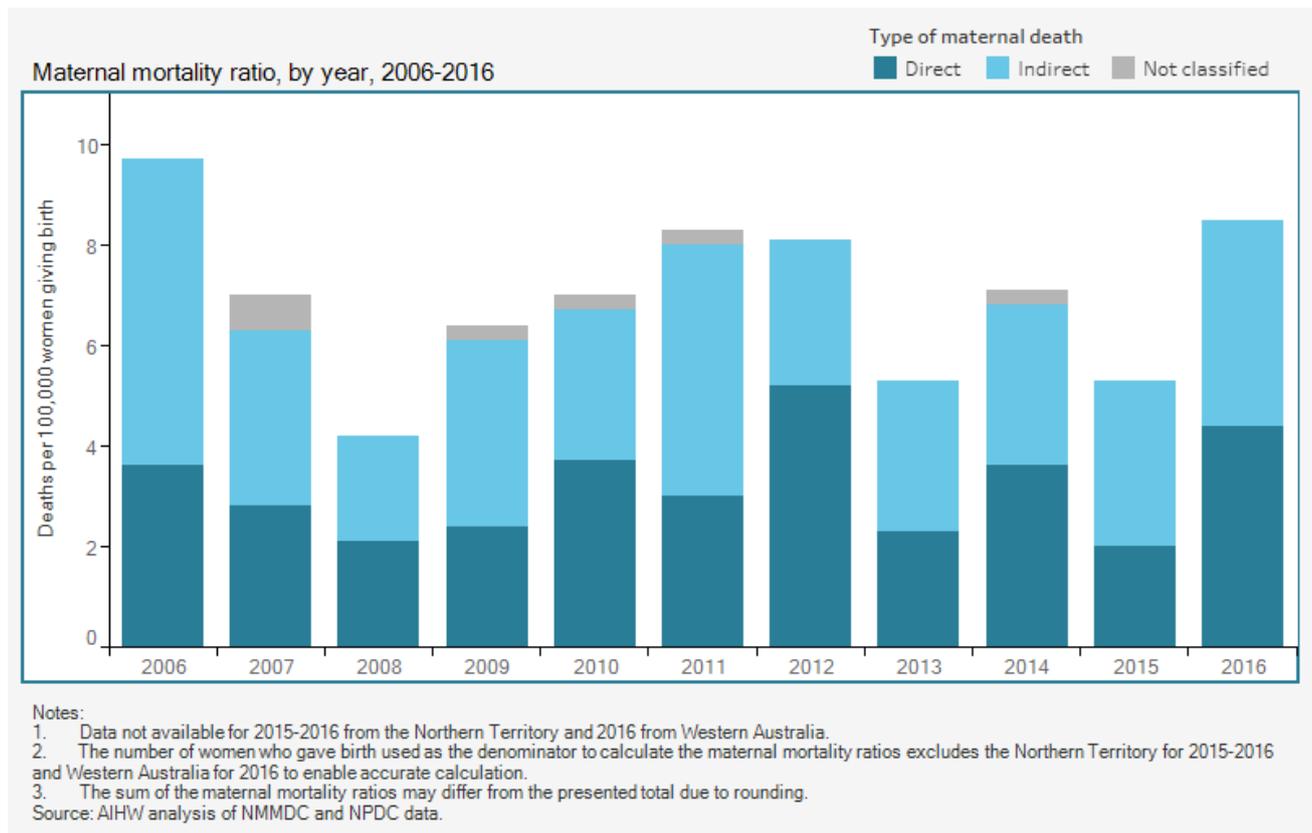
Maternal death is the death of a woman while pregnant or within 42 days of the end of pregnancy, regardless of the duration or outcome of the pregnancy. Maternal deaths are divided into two categories, **direct** and **indirect**. Direct deaths are those resulting from obstetric complications of pregnancy or its management.

Indirect maternal deaths are those resulting from diseases or conditions that were not due to a direct obstetric cause, but were aggravated by the physiologic effects of pregnancy. Deaths considered to be causally unrelated to pregnancy are classified as **coincidental** (see below for more information on these deaths).



Maternal mortality over time

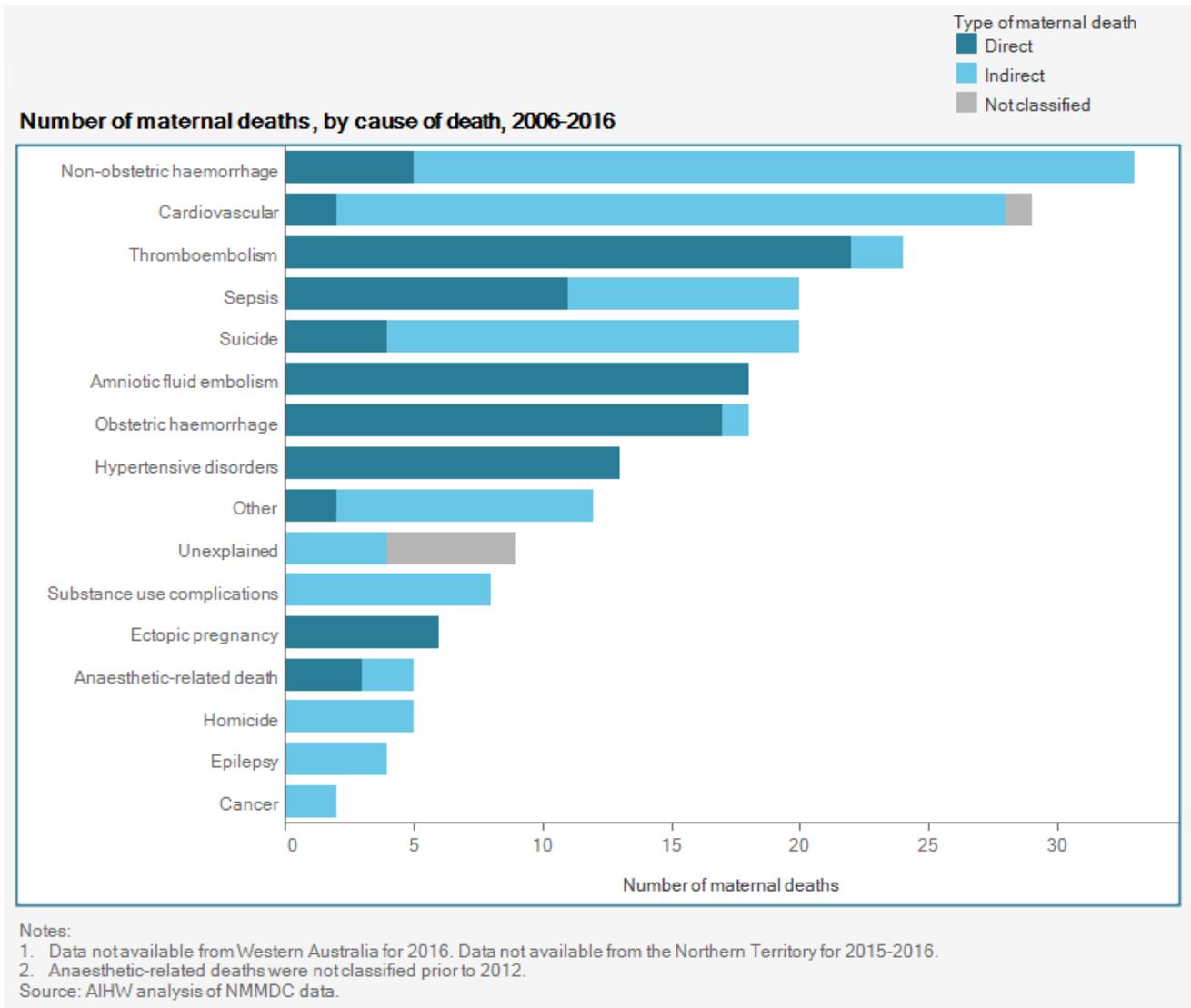
The incidence of maternal death is expressed as the maternal mortality ratio (MMR). The MMR is calculated using direct and indirect deaths (excluding coincidental deaths) and expressed as per 100,000 women giving birth. The MMR in Australia was relatively stable between 2006 and 2016. Fluctuations appear to reflect the normal variability that might be expected with rare events such as maternal deaths.



Causes of maternal deaths

The most frequent causes of maternal death reported in Australia between 2006 and 2016 were non-obstetric haemorrhage (mostly haemorrhage within the brain and haemorrhage from a ruptured aneurysm of the splenic artery) and complications of pre-existing cardiovascular disease.

The most frequent causes of direct maternal death between 2006 and 2016 were thromboembolism, amniotic fluid embolism and obstetric haemorrhage.

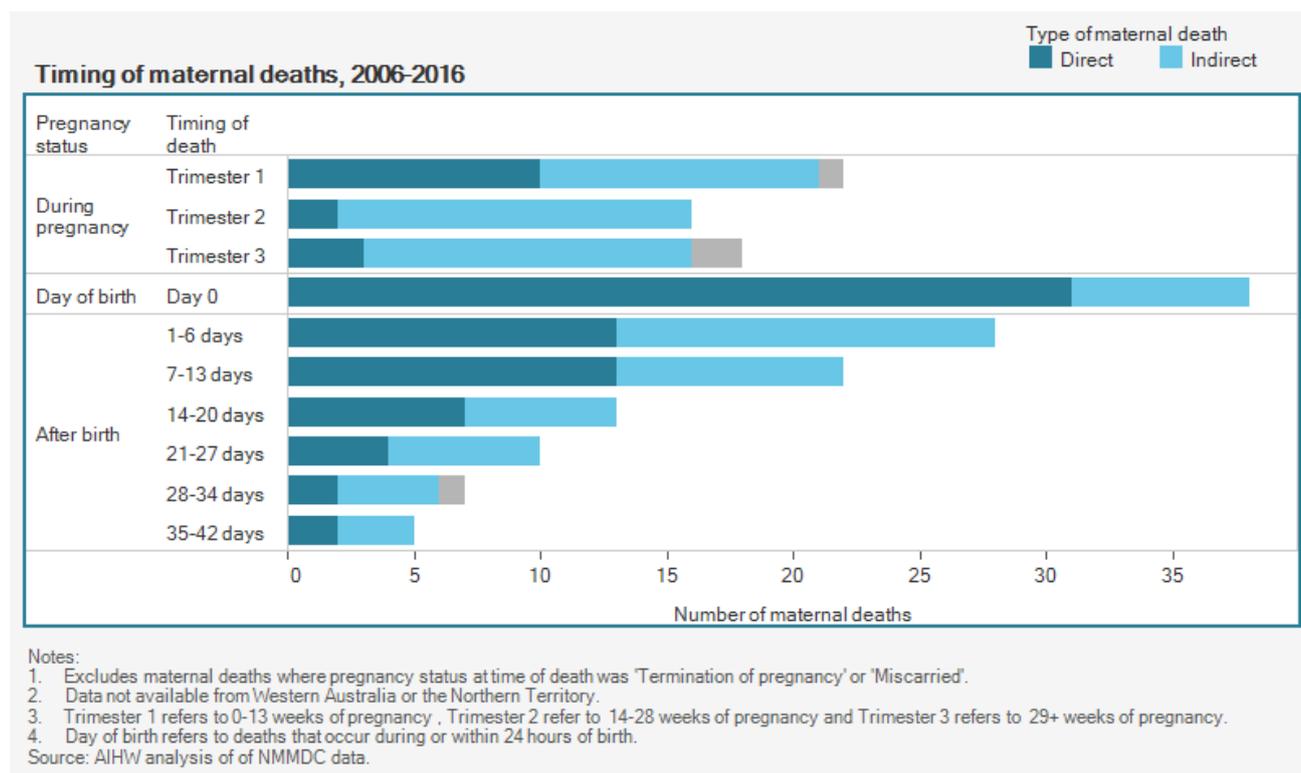


Coincidental deaths are defined as those that are reported to have occurred during pregnancy or within 42 days of the end of pregnancy, but are considered to be causally unrelated to pregnancy. Unlike direct and indirect maternal deaths, coincidental deaths are excluded from analysis and MMR calculations.

There were 55 coincidental deaths in Australia from 2006–2016. The most common causes of these deaths were motor vehicle trauma and cancer. For more information visit data tables 1 and 2.

Timing of maternal deaths

Understanding the timing of maternal deaths is important for identifying periods of critical risk. Between 2006 and 2016, of the women who were reported to be pregnant at the time of their death, two in five (22, 38.6%) died during the first trimester (less than 14 weeks of pregnancy). One in five (38, 21.1%) maternal deaths were reported to have occurred during the birth process or within 24 hours of giving birth. These proportions do not include maternal deaths following or due to miscarriage or termination of pregnancy as the timing of death was not adequately reported for these cases.

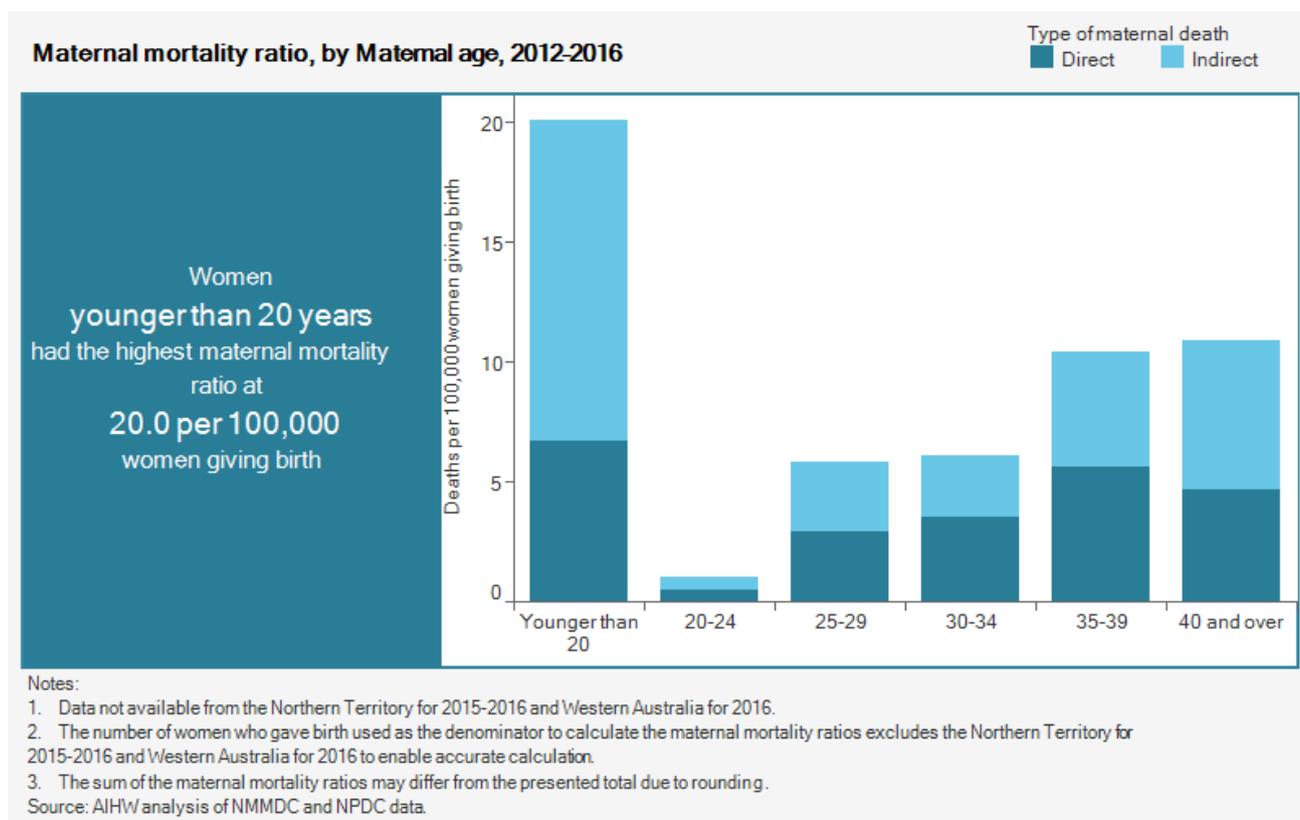


Characteristics of women who died

This section presents some demographic characteristics of the women who died from 2012–2016. It should be noted that not all demographic information was available for all women who died.

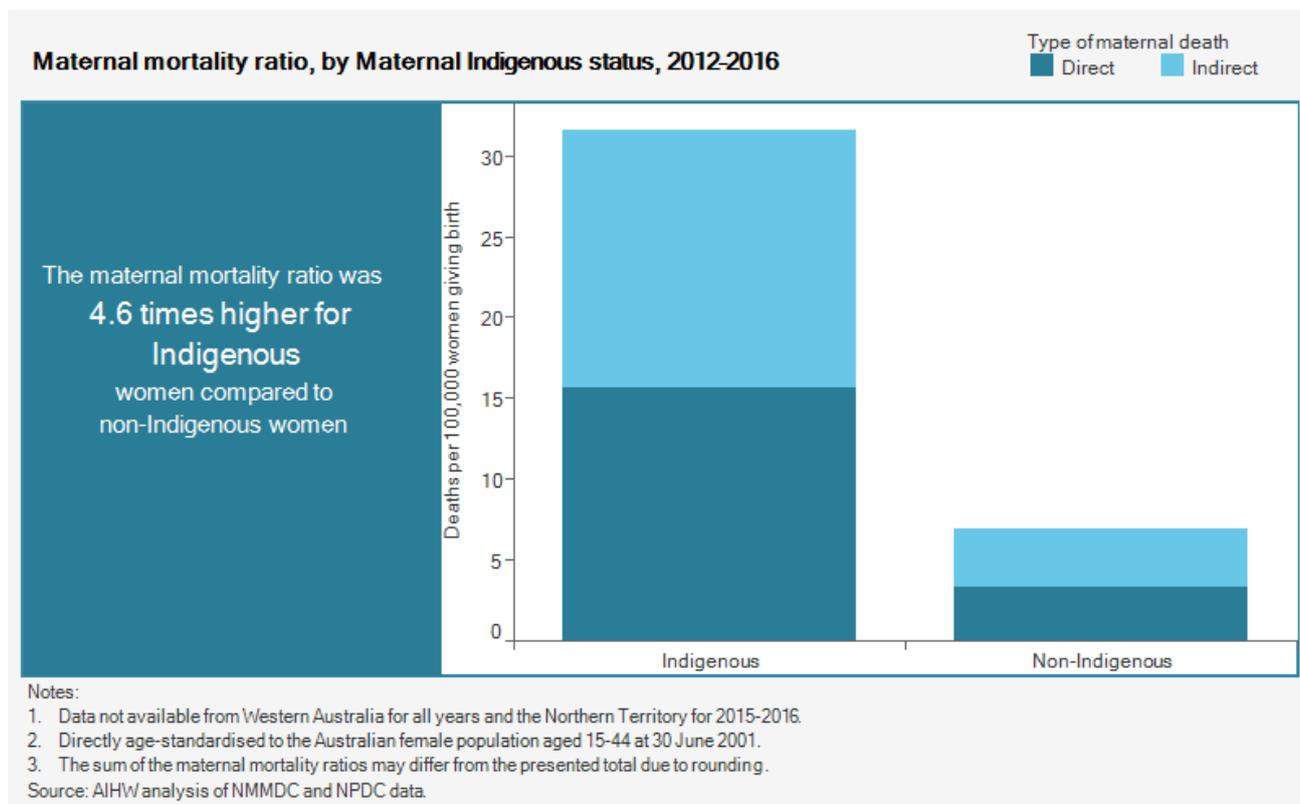
Maternal age

Between 2012 and 2016, the incidence of maternal death was higher for younger and older women, with the lowest incidence of maternal death occurring between the ages of 20 and 34 (MMR 5.1 per 100,000 women who gave birth). This pattern was consistent for both indirect and direct maternal deaths.



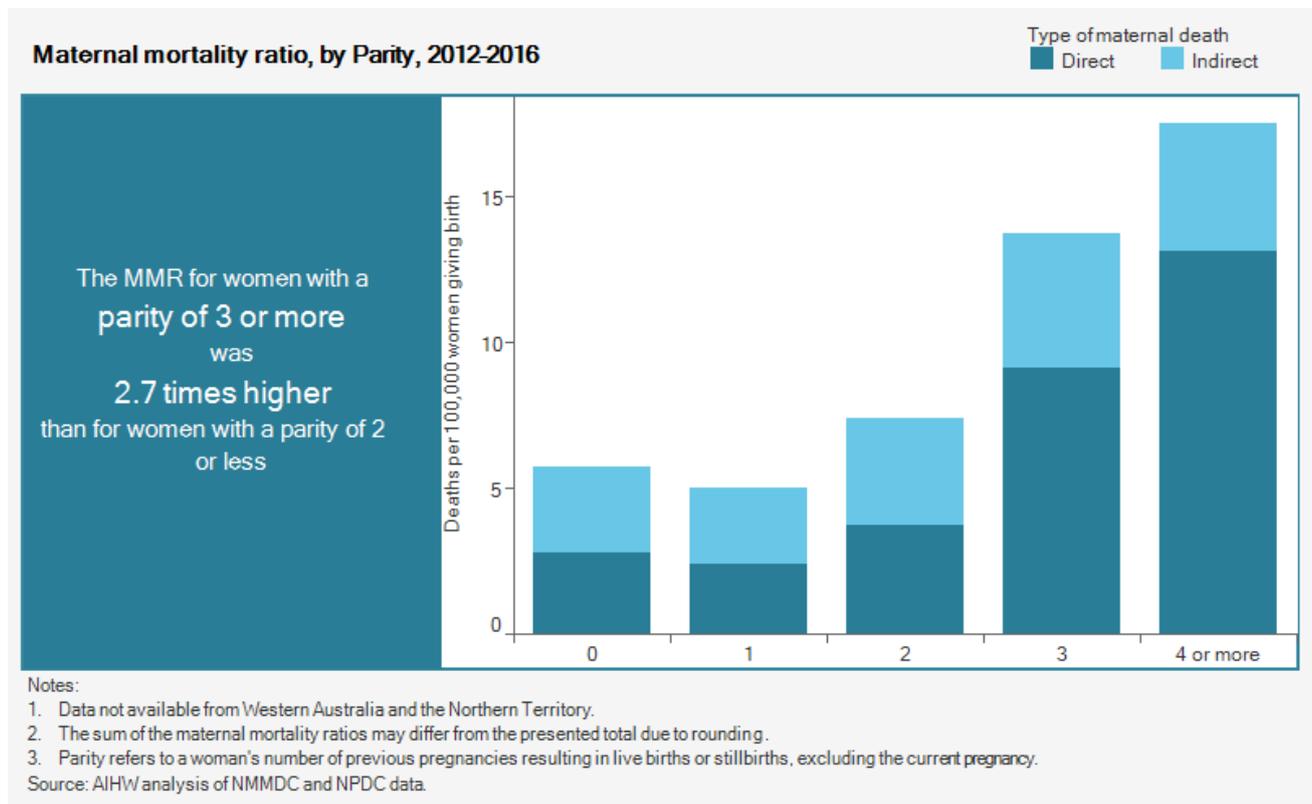
Maternal Indigenous status

Between 2012 and 2016, the age-standardised MMR for Aboriginal and Torres Strait Islander women was 31.6 per 100,000 women who gave birth. Due to differences in the age structure between the Australian Indigenous population and the non-Indigenous population, the MMR has been directly age-standardised to the Australian female population aged 15–44 at 30 June 2001.



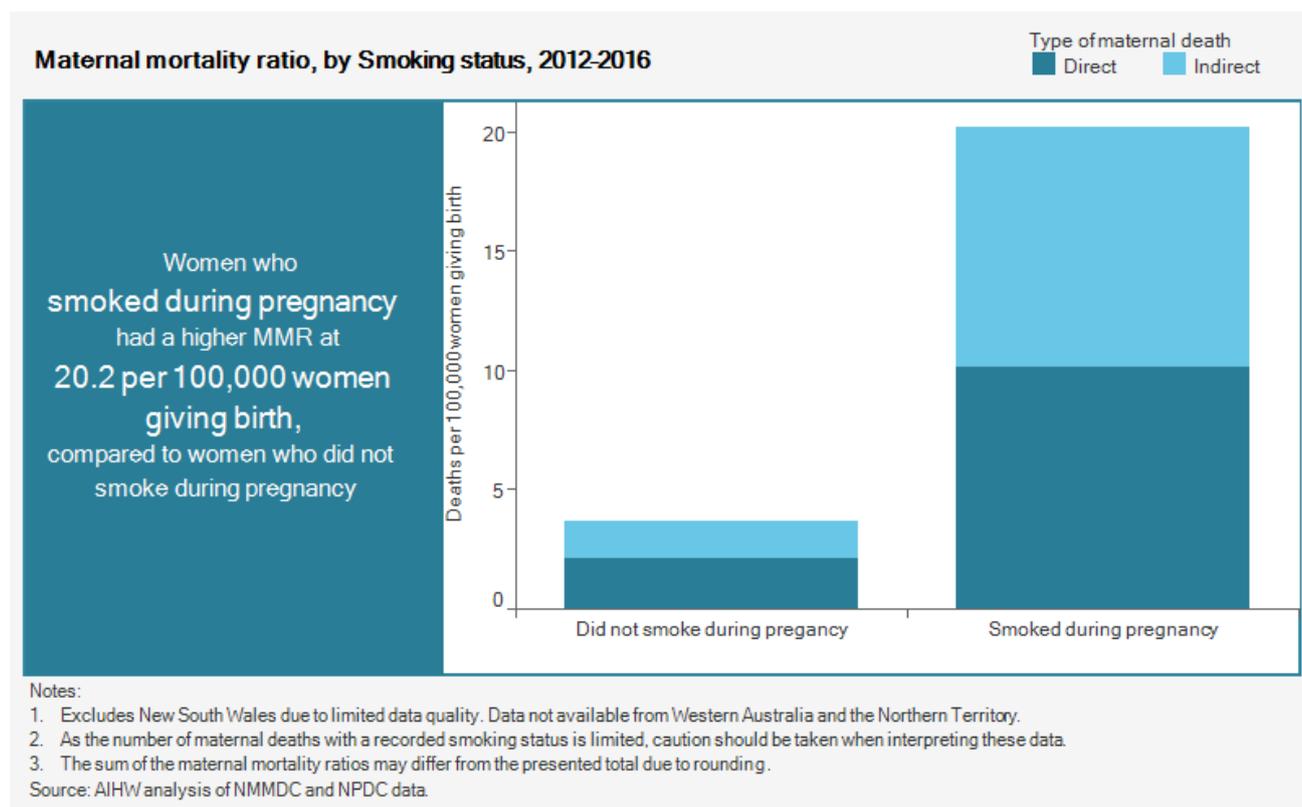
Parity

Parity refers to a woman's number of previous pregnancies, excluding the current pregnancy, carried to a viable gestational age (usually 20 weeks). Women with a parity of 3 or higher were 2.6 times more likely to die as women with a parity 0 to 2 (MMR 15.2 per 100,000 women who gave birth and 5.7 per 100,000 women who gave birth, respectively).



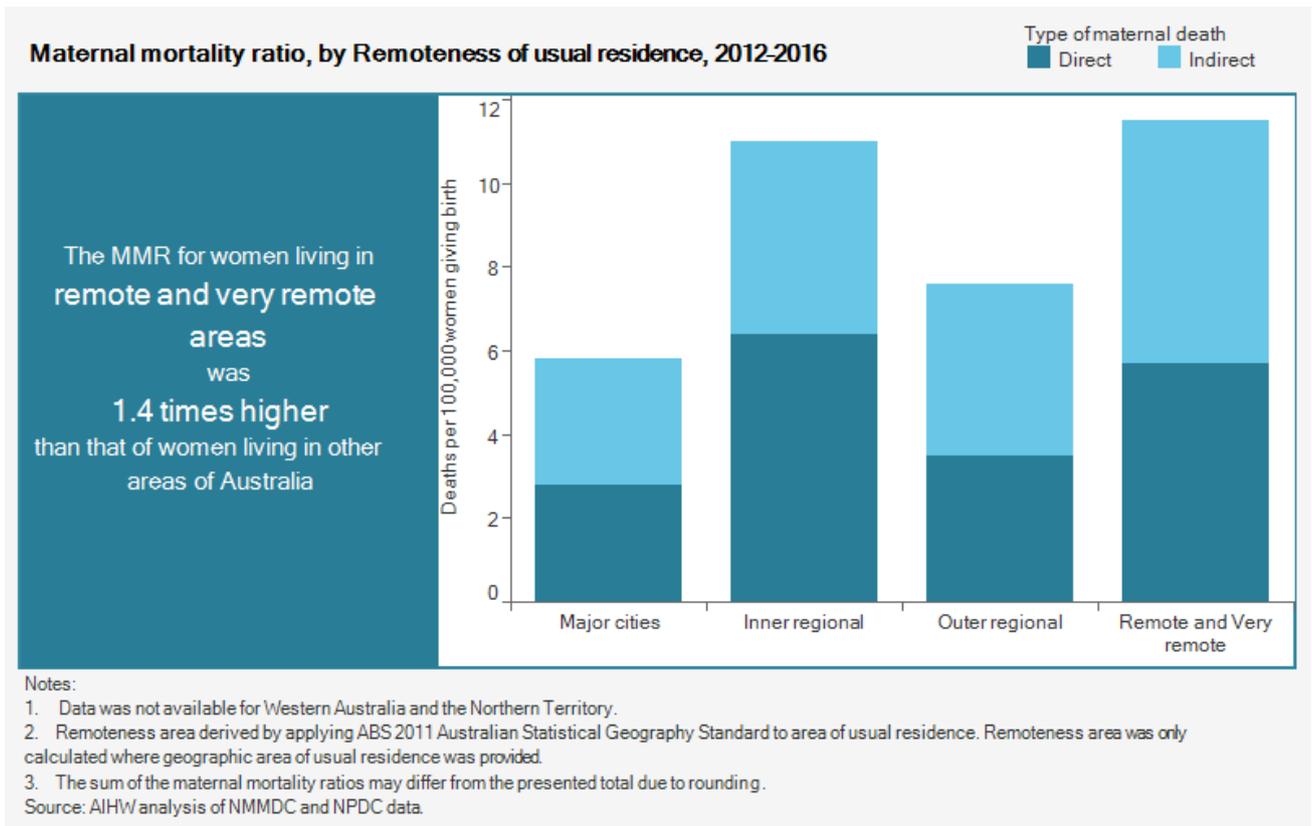
Smoking status

Maternal death was more common in those who reported smoking during the first 20 weeks of pregnancy than in those who reported that they did not smoke during the first 20 weeks of pregnancy (20.2 per 100,000 women who gave birth and 3.7 per 100,000 women who gave birth, respectively). As the number of maternal deaths with an unknown smoking status is relatively high (34.2% of data from included jurisdictions), caution should be taken when interpreting these data.



Remoteness

The Australian Standard Geographical Classification (ASGC) for Remoteness areas¹ defines each category based on the physical distance of a location from the nearest urban centre and population size. Women who lived in Major cities and Inner regional Australia had an MMR of 6.8 and those who lived in Outer regional, Remote or Very remote locations had an MMR of 9.6 per 100,000 women giving birth. The incidence of maternal death in areas other than major cities of Australia should be treated with caution due to the small numbers.



¹ The Australian Statistical Geography Standard (ASGS) Remoteness Structure:
<http://www.abs.gov.au/websitedbs/D3310114.nsf/home/remoteness+structure>

Notes

Please note that numbers are correct at time of publication and are subject to change. Numbers may differ from previous reports due to revisions to the data.

Data sources

This report is compiled from data held by the AIHW in the National Maternal Mortality Data Collection (NMMDC). Data are provided by states and territories and contain information on the deaths of women reported to have died while pregnant or within 42 days of the end of pregnancy between 2006 and 2016.

Due to their health and privacy legislation, only limited summary data on maternal deaths from 2006–2015 were supplied by Western Australia. As these data provided are already aggregated, rather than provided by case, they cannot be included in the NMMDC but are included in analysis where possible.

Data on maternal deaths were not provided for inclusion in this report for 2015–2016 from the Northern Territory or for 2016 from Western Australia.

For more information on this collection, see the [NMMDC Data Quality Statement](#).

Data was also sourced from the AIHW's National Perinatal Data Collection (NPDC) which includes accurate general population data for the number of women in Australia who gave birth to at least 1 baby (either a live birth or a stillbirth) of 20 weeks' completed gestation or more or birthweight of 400 grams or more. For more information on this collection see the [NPDC Data Quality Statement](#).

State and territory health departments are acknowledged for their contribution to both the NMMDC and NPDC.

Definitions of maternal deaths

Type of death	Definition
Direct maternal deaths ^(a)	Those resulting from obstetric complications of the pregnant state (pregnancy, labour and puerperium) from interventions, omissions, incorrect treatment or from a chain of events resulting from any of the above
Indirect maternal deaths ^(a)	Those resulting from previous existing diseases or diseases that developed during pregnancy, and which were not due to a direct obstetric cause, but were aggravated by the physiologic effects of pregnancy
Maternal death, not further classified	Deaths considered to be related to the pregnancy or its management, but could not be further classified as either 'direct' or 'indirect'. These deaths are included in the maternal deaths total
Coincidental maternal deaths	Deaths from unrelated causes that happen to occur in pregnancy or the puerperium
Unclassified death	Maternal death from unspecified or undetermined cause occurring during pregnancy, labour and delivery, or the puerperium

(a) Definitions are from the International statistical classification of diseases and related health problems, 10th revision, volume 2, section 5.8.1.

For more definitions of terms used in this report, see the [Mothers and Babies glossary](#).

Calculation of the maternal mortality ratio

The incidence of maternal death is expressed as the maternal mortality ratio (MMR), which is calculated using direct and indirect deaths combined, and excludes coincidental deaths.

Although the most appropriate denominator for estimating maternal mortality would be the number of women at risk (the number of pregnant or recently pregnant women), this number is not available in Australia because the number of pregnancies ending before 20 weeks' gestation is unknown. In Australia, accurate population data are available for the number of women who gave birth to at least 1 baby (either a live birth or a stillbirth) of 20 weeks' completed gestation or more or birthweight of 400 grams or more and are held in the AIHW's National Perinatal Data Collection; this is the denominator number used when calculating the MMR in this report.

Calculation of maternal mortality ratio (MMR)

$$\text{MMR} = \frac{\text{Number of direct and indirect maternal deaths}^{(a)}}{\text{Number of women who gave birth}^{(a)}} \times 100,000$$

(a) For a defined place and time.

Data tables

Data tables for this report are available at

<https://www.aihw.gov.au/reports/mothers-babies/maternal-deaths-in-australia-2016/data>

Related reports

[Australia's mothers and babies 2016](#)