

Maternal deaths in Australia

Web report | Last updated: 14 Dec 2020 | Topic: [Mothers & babies](#)

About

The maternal mortality rate in Australia in 2018 was 5 deaths per 100,000 women giving birth.

In the decade from 2009 to 2018, there were 251 women reported to have died during pregnancy or within 42 days of the end of pregnancy and a maternal mortality rate of 6.7 deaths per 100,000 women giving birth. These deaths are reviewed in this report along with contextual information for maternal deaths in Australia since 2009.

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Findings from this report:

- The most common cause of maternal death for 2018 was cardiovascular disease
- Aboriginal and Torres Strait Islander women have a higher incidence of maternal death than non-Indigenous women
- Maternal death was more common in the highest and lowest maternal age groups
- Maternal death was more common in women of higher parity

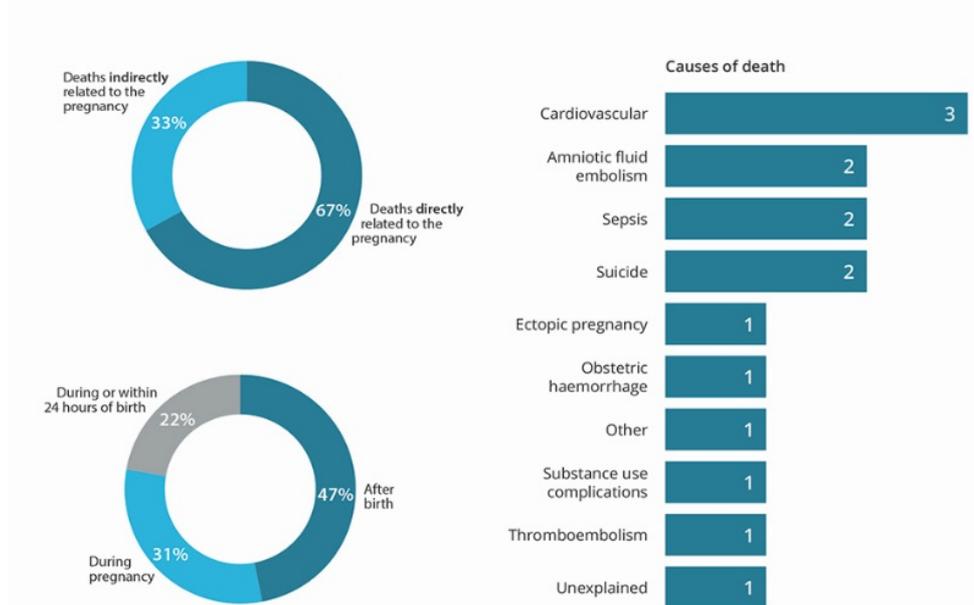
Maternal deaths in Australia

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 maternal 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).

Figure 1: Maternal deaths in Australia, 2018

In 2018, there were 15 maternal deaths, or 5 deaths per 100,000 women giving birth



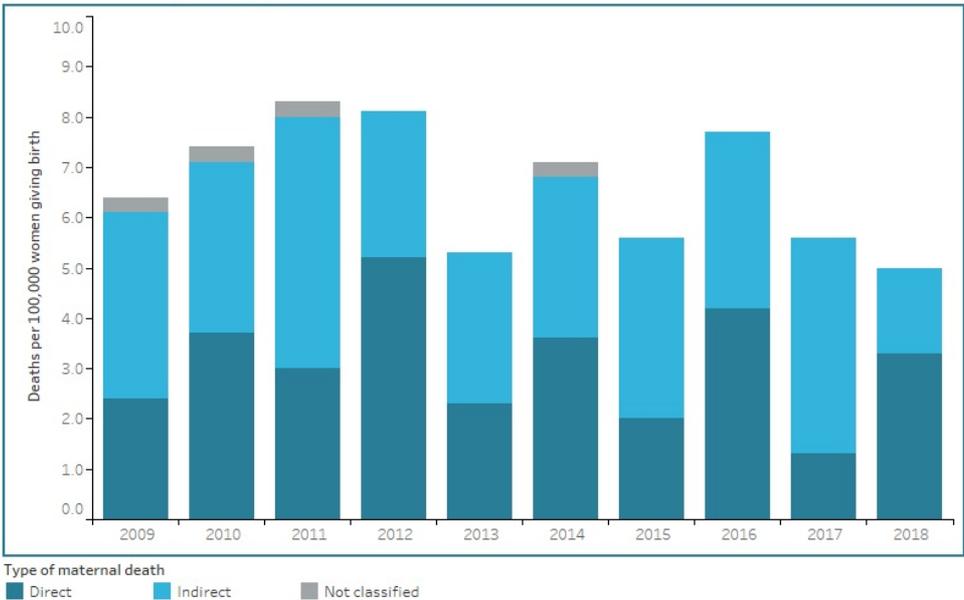
Maternal mortality over time

The incidence of maternal death is expressed as the maternal mortality ratio (MMR). The MMR is calculated using direct, indirect and not classified maternal deaths (excluding coincidental deaths and deaths awaiting classification) and expressed as per 100,000 women giving birth. Between 2009 and 2018, the MMR in Australia was relatively stable, ranging from between 5.0 to 8.4 per 100,000 women giving birth. Fluctuations appear to reflect the normal variability that might be expected with rare events such as maternal deaths.

Chart title: Maternal mortality ratio, by year, 2009-2018

The horizontal bar chart shows that the maternal mortality ratio ranged between 5.0 deaths per 100,000 women giving birth and 8.4 deaths per 100,000 women giving birth.

Maternal mortality ratio, by year, 2009-2018



Notes:
 1. For 2016-2018 there are 3 deaths awaiting classification. Deaths awaiting classification may be classified in the future as a direct or indirect maternal death, so are excluded from MMR calculations until they are classified.
 2. The sum of the maternal mortality ratios may differ from the presented total due to rounding.
 3. Deaths 'not classified' are those 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.

Source: AIHW analysis of National Maternal Mortality Data Collection and National Perinatal Data Collection data.

Causes of maternal deaths

The most frequent causes of maternal death reported in Australia between 2009 and 2018 were complications of pre-existing cardiovascular disease and non-obstetric haemorrhage (mostly haemorrhage within the brain and haemorrhage from a ruptured aneurysm of the splenic artery).

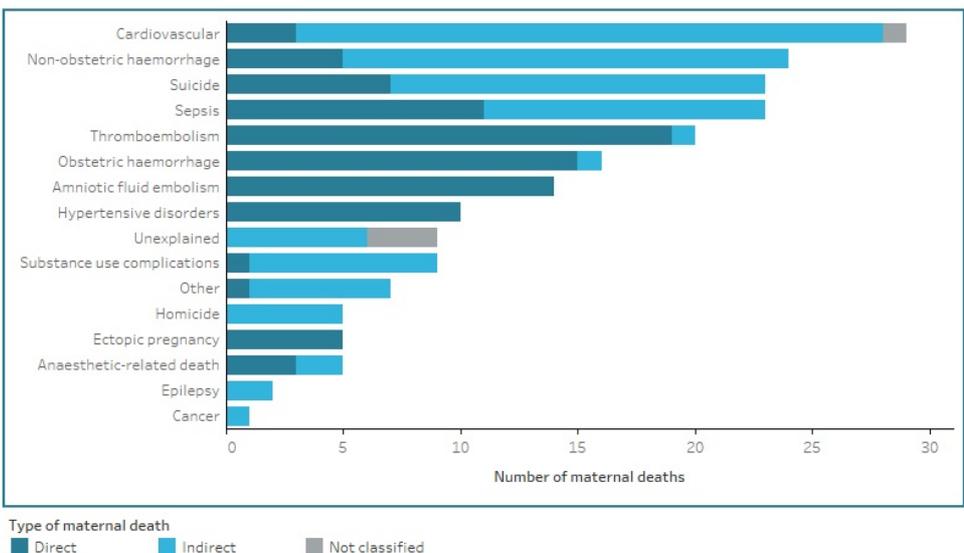
The most frequent causes of direct maternal death between 2009 and 2018 were thromboembolism and obstetric haemorrhage.

Chart title: Number of maternal deaths, by cause of death, 2009-2018

The horizontal bar chart shows that the most common cause of maternal death was cardiovascular disease (29 maternal deaths) and the least common cause of maternal death was cancer (1 maternal death).

Number of maternal deaths, by cause of death, 2009-2018

Select type of maternal death
 All



Notes:
 1. Anaesthetic-related deaths were not classified prior to 2012.
 2. Deaths 'not classified' are those 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.

Source: AIHW analysis of National Maternal Mortality Data Collection and National Perinatal Data Collection data.

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 46 coincidental deaths in Australia from 2009-2018. The most common causes of these deaths were motor vehicle trauma and cancer. For more information visit [data tables 1 & 2](#).

Timing of maternal deaths

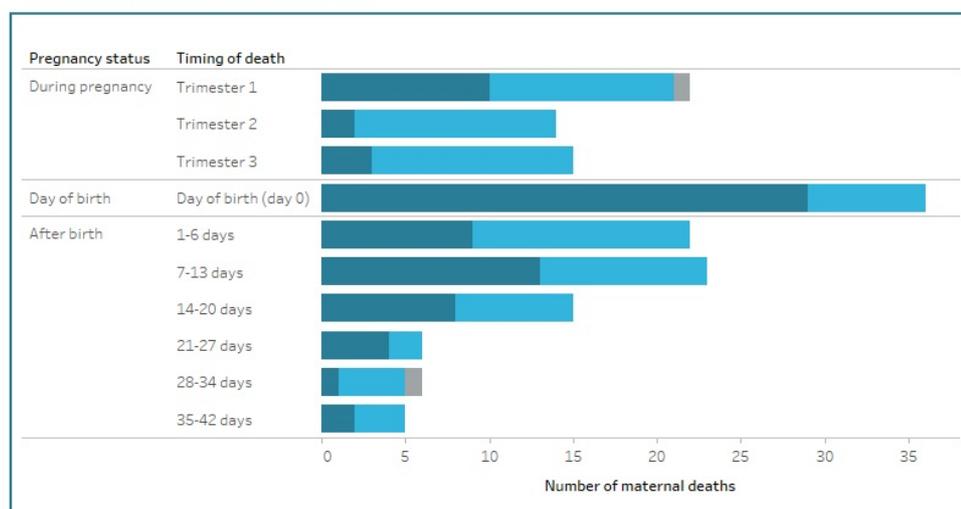
Understanding the timing of maternal deaths is important for identifying periods of critical risk. Between 2009 and 2018 nearly one third (31%) of maternal deaths occurred in women who were reported to be pregnant at the time of their death, and of these women more 2 in 5 (43%) died during the first trimester of pregnancy (less than 14 weeks of pregnancy).

In the same period, one in five (22%) maternal deaths were reported to have occurred during the birth process or within 24 hours of giving birth, and nearly half (47%) of all maternal deaths occurred after birth, with 3 in 5 (58%) deaths occurring within 1 to 13 days 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.

Chart title: Timing of maternal deaths, 2009-2018

The horizontal bar chart shows that 51 maternal deaths occurred during pregnancy, 36 maternal deaths occurred during or within 24 hours of birth and 77 maternal deaths occurred after birth.

Timing of maternal deaths, 2009-2018



Type of maternal death
 ■ Direct ■ Indirect ■ Not classified

Notes:

1. Data are not available from the Northern Territory for 2009-2014 and from Western Australia for all years.
2. Data excludes maternal deaths where pregnancy status at time of death was 'termination of pregnancy' or 'miscarried'.
3. Trimester 1 refers to 0-13 weeks of pregnancy, Trimester 2 refers to 14-28 weeks of pregnancy and Trimester 3 refers to 29 weeks or more of pregnancy.
4. Day of birth refers to deaths that occur during or within 24 hours of birth.
5. Deaths 'not classified' are those 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.

Source: AIHW analysis of National Maternal Mortality Data Collection and National Perinatal Data Collection data.

Characteristics of women who died

This section presents some demographic characteristics of the women who died from 2012-2018. It should be noted that not all demographic information was available for all women who died.

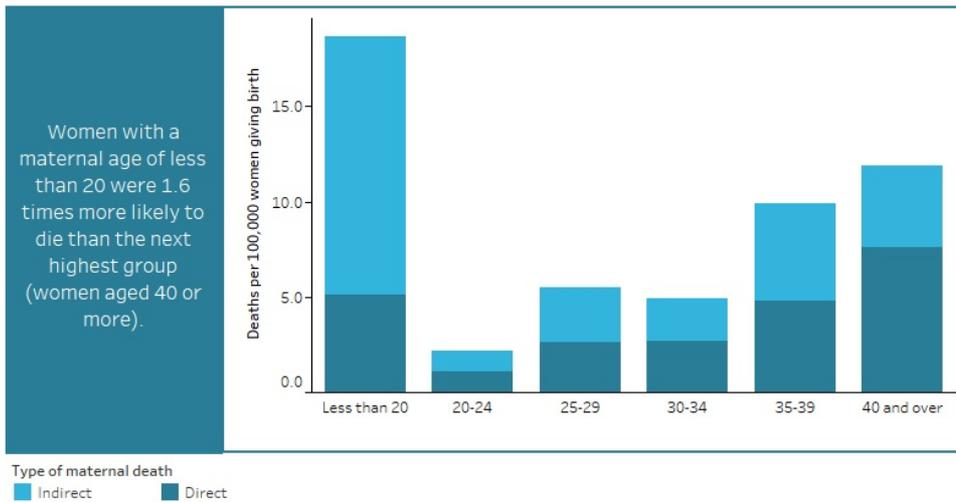
Chart title: Maternal mortality ratio, by maternal age, 2012-2018

The horizontal bar chart shows that the maternal mortality ratio ranged between 18.7 deaths per 100,000 women giving birth for women aged less than 20 to 2.2 deaths per 100,000 women giving birth for women aged 20-24

Maternal mortality ratio, by maternal age, 2012-2018

Select maternal characteristic:

Maternal age



Notes:

1. The sum of the maternal mortality ratios may differ from the presented total due to rounding.

Source: AIHW analysis of National Maternal Mortality Data Collection and National Perinatal Data Collection data.

Maternal age

Women aged less than 20 had the highest MMR, followed by those aged 40 or more (18.7 and 11.9 per 100,000 women giving birth). The lowest MMR was for women in the 20 to 24 age group, followed by women in the 30 to 34 age group (2.2 and 4.9 per 100,000 women giving birth).

Maternal Indigenous status

Between 2012 and 2018, the MMR for Aboriginal and Torres Strait Islander women was 20.2 per 100,000 women giving birth. In the same period, the MMR for non-Indigenous women was 5.5 per 100,000 women giving birth.

Parity

Parity refers to a woman's number of previous pregnancies, excluding the current pregnancy, carried to a viable gestational age (usually 20 weeks). The rate of maternal death increased with parity, from an MMR of 4.7 per 100,000 women giving birth for women with a parity of none, to an MMR of 4.6 per 100,000 women giving birth for women with a parity of 1, and increasing up to 14.6 per 100,000 women giving birth for women with a parity of 4 or more.

Smoking status

The rate of maternal deaths was higher in women who reported smoking during the first 20 weeks of pregnancy than in women who reported that they did not smoke during the first 20 weeks of pregnancy (16.7 compared to 3.4 per 100,000 women giving birth). As the number of maternal deaths with an unknown smoking status is relatively high (37% of data from included jurisdictions), caution should be used when interpreting these data.

Remoteness

Women who lived in *Remote* and *Very Remote* areas had the highest MMR, followed by women who lived in *Inner Regional* areas (12.3 and 8.9 per 100,000 women giving birth). The lowest MMR was for women who lived in *Major Cities* (5.7 per 100,000 women giving birth). The rate of maternal death in areas other than *Major Cities* should be treated with caution due to the small numbers.

Quality and availability of National Maternal Mortality 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 2018.

Due to its health and privacy legislation, only limited summary data on maternal deaths from 2006-2018 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.

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

Data were 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 visit the [NPDC Data Quality Statement](#).

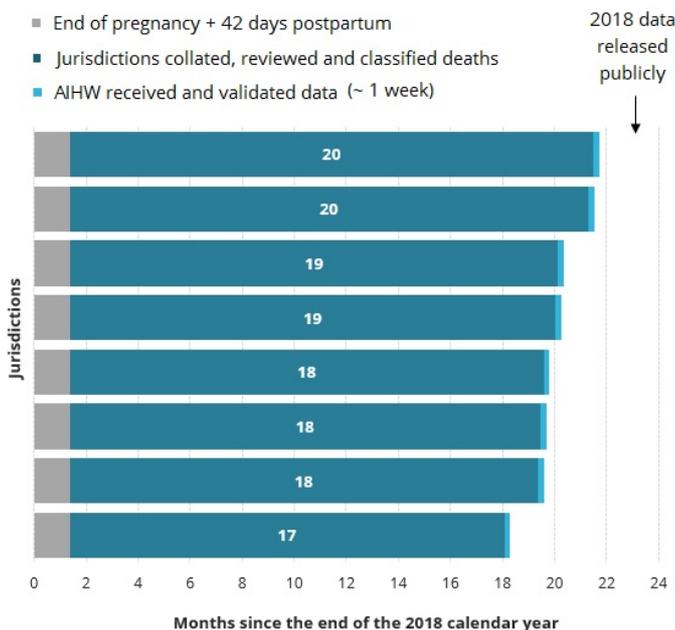
State and territory health departments are acknowledged for their contribution to both the NMMDC and NPDC.

Data timeliness

NMMDC data are collected annually. Most jurisdictions need at least 12-18 months lead time to undertake post-mortem investigations, classification, data entry and validation as required after the end of a data collection period. Deaths subject to coronial inquiry may take longer to finalise.

Timelines for the reporting of 2018 maternal deaths data are outlined in Figure 1. These data were finalised and reported 23 months after the end of the collection period.

Figure 1: Months since the end of the 2018 calendar period and public reporting of National Maternal Mortality Data Collection, by jurisdiction



Source: National Maternal Mortality Data Collection

Data availability

Detailed information on completeness for all data items in the NMMDC at the national level, for 2012 to 2018, is available in the interactive data visualisation below.

Definitions for the terms used to quantify completeness:

- **Supplied:** supplied an appropriate value for a proportion of records for the data item during specified collection year/s
- **Not supplied or stated:** proportion of values supplied as not stated or missing, where a jurisdiction has either supplied appropriate values for a portion of records or did not supply any value for all records for the data item during the specified collection year/s.

Due to its health and privacy legislation, only limited summary data on maternal deaths from 2006-2018 were supplied by Western Australia. As these data provided are already aggregated, rather than provided by case, they cannot be included in the NMMDC so have not been included in the data visualisation below, but are included in analysis where possible.

Chart title: Quality and availability of the National Maternal Mortality Data Collection, by data item, 2012-2018

The pie charts and tables show that for the data item 'alcohol use at any time during pregnancy or up to and including 42 days postpartum' the highest proportion of supplied data is 31.8% in 2016 and the lowest proportion of supplied data is 16.7% in 2014

Visualisation not available for printing

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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 [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 the MMR

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

(a) For a defined place and time.

Data tables

[Data tables for this report.](#)

Data quality statement

[National Maternal Mortality Data Collection, 2018; Quality Statement](#)



Notes

Amendments

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 quality statement

[National Maternal Mortality Data Collection, 2018; Quality Statement](#)





Data





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Publication | 10 Jun 2015
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Publication | 19 Aug 2014
- Maternal deaths in Australia 2003-2005 |
Publication | 02 May 2008
- Maternal deaths in Australia 2000-2002 |
Publication | 18 Oct 2006
- Maternal deaths in Australia 1997-1999 |
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