

Australia's mothers and babies:

Stillbirths and neonatal deaths

Web article | Last updated: 18 Nov 2021 | Topic: [Mothers & babies](#) | Part of [Australia's mothers and babies](#) |

Citation

AIHW

Australian Institute of Health and Welfare (2021) [Stillbirths and neonatal deaths](#), AIHW, Australian Government, accessed 22 April 2022.

In 2019, in Australia, 2,897 babies died in the perinatal period. Three-quarters (2,183) were stillbirths and the remaining 714 were neonatal deaths. This web report provides information related to these deaths, including causes, maternal characteristics, timing and investigations.

Click through the headings below for more information:

Overview of perinatal deaths

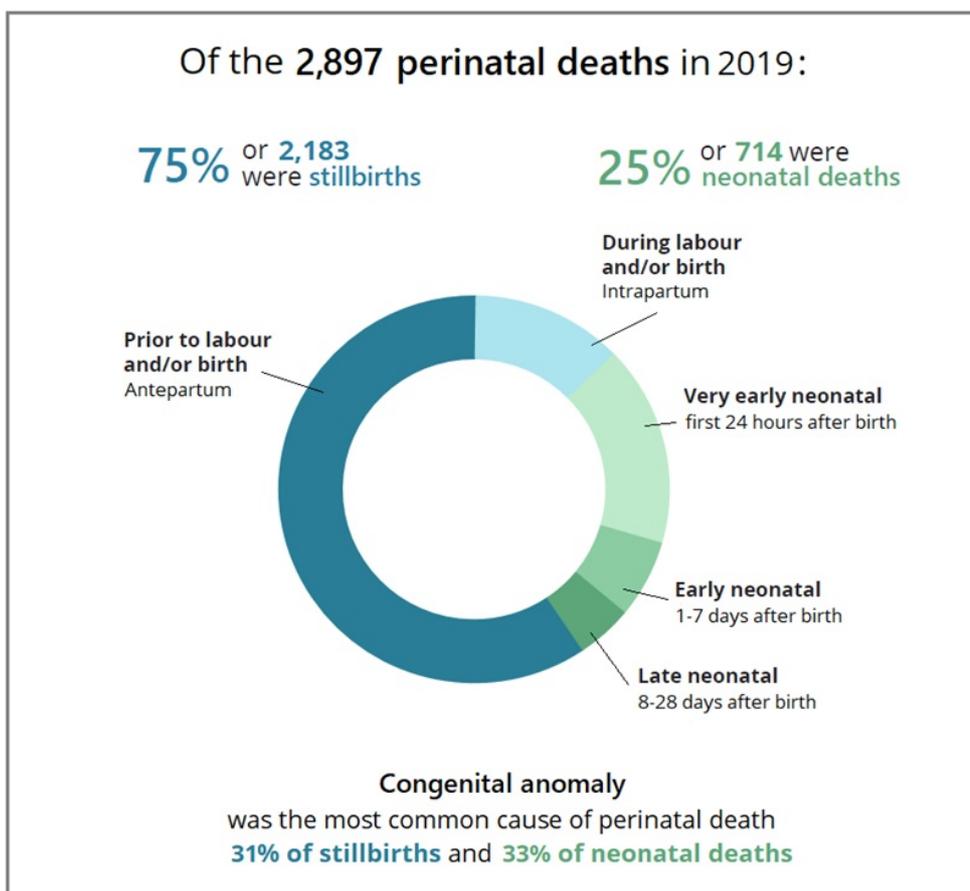
Australia is one of the safest places in the world for a baby to be born, yet death occurring within the perinatal period (from 20 weeks of gestation to 28 days after birth) is not uncommon. Every day in Australia, 6 babies are stillborn and 2 die within 28 days of birth (neonatal death).

In 2019, there were:

- 303,054 babies born to 298,567 women
- 2,897 perinatal deaths (less than 1% of babies born). Of these deaths, just over 75% were stillbirths (2,183) and 25% (714) were neonatal deaths
- 9.6 perinatal deaths per 1,000 births (7.2 stillbirths per 1,000 births and 2.4 neonatal deaths per 1,000 live births).

Although perinatal mortality rates have remained relatively unchanged since 2000, two categories have decreased over the period:

- neonatal deaths of babies born at 23 weeks' gestation or more
- stillbirths occurring at 28 weeks' gestation or more.



International comparison using the WHO definition

The data visualisation below displays perinatal mortality rates in Australia using two different definitions - the Australian and the World Health Organization (WHO) definitions.

The standard definition used for stillbirths in Australia is a fetal death prior to birth of a baby born at 20 weeks gestation or more, and/or weighing 400 grams or more.

This differs from the international definition, where stillbirths are defined as those occurring in the third trimester—born at 28 weeks' gestation or more, and/or weighing 1,000 grams or more (WHO 2018).

Neonatal deaths are all registered deaths occurring within 28 days of birth. In Australia, registered deaths are those born at 20 weeks' gestation or more, and/or weighing 400 grams or more. As a result, the reporting of neonatal deaths is the same for both the Australian and WHO definitions.

The WHO definition of stillbirth results in reporting of babies who are larger and more mature than the definition applied in Australia. This means Australian perinatal mortality rates reported using the WHO definitions are lower than those reported using Australian definitions.

Using the WHO definitions (stillbirths from the third trimester and all neonatal deaths):

- The rate of stillbirths in Australia has decreased from 3.8 per 1,000 births in 2000 to 2.6 per 1,000 births in 2019.
- The rate of neonatal deaths in Australia is the same using both Australian and WHO definitions, and has decreased from 2.9 per 1,000 live births in 2000 to 2.4 per 1,000 live births in 2019.

The stacked continuous line graph shows that perinatal mortality rates in Australia, using the Australian definitions, have decreased from 10.1 perinatal deaths per 1,000 total births in 2000 to 9.6 perinatal deaths per 1,000 total births in 2019. The rate of stillbirths in Australia has held steady, with 7.2 per 1,000 births in both 2000 and 2019, while the rate of neonatal deaths in Australia has decreased from 2.9 per 1,000 live births in 2000 to 2.4 per 1,000 live births in 2019.

The graph also allows you to use the WHO definitions of perinatal death. When these definitions are used, the graph shows that perinatal mortality rates have decreased from 6.7 perinatal deaths per 1,000 total births in 2000 to 5.0 perinatal deaths per 1,000 total births in 2019. The rate of stillbirths has decreased from 3.8 to 2.6 per 1,000 births over the same period, while the rate of neonatal deaths has decreased from 2.9 to 2.4 per 1,000 live births in 2019.

The underlying data for this data visualization are also available in the Excel spreadsheet located on the Data page.

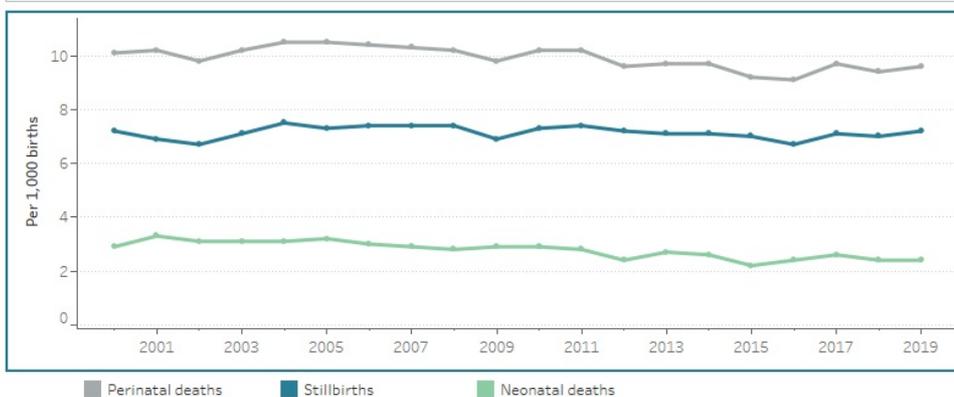
Perinatal mortality rates

Australian definitions, 2000–2019

Select definitions:

Australian definitions

Data tables



Notes:

1. Total births comprise live births and stillbirths collected by the National Perinatal Data Collection. The sum of stillbirths and live births may not add up to total births.
2. The rate is the number of deaths per 1,000 births. Stillbirth and perinatal mortality rates were calculated using total births (live births and stillbirths). Neonatal mortality rates were calculated using live births.
3. Data from the Northern Territory for 2000 to 2002 and from Victoria in 2009 are not available so have been excluded from both the numerator (number) and denominator.

Source: AIHW analysis of the NPMDC and NPDC.

<http://www.aihw.gov.au>

Perinatal death data reported by the Australian Bureau of Statistics (ABS) are not directly comparable with the National Perinatal Mortality Data Collection (NPMDC) and National Perinatal Data Collection (NPDC) data.

ABS data are sourced from state and territory registrars of Births, Deaths and Marriages. NPMDC and NPDC data are sourced from midwives and other staff, who collect information from mothers and perinatal administrative and clinical record systems. For more information on the NPMDC and NPDC and definitions used for reporting perinatal deaths please refer to the [Technical Notes—Definitions used in reporting](#).

References

- WHO 2018.  [Global reference list of 100 core health indicators, 2018.](#)

Maternal characteristics

Key demographics

This section presents data on maternal and medical characteristics, as supplied to the National Perinatal Data Collection (NPDC), which have been commonly associated with stillbirth or neonatal death.

While these characteristics are more commonly found in women with pregnancies resulting in stillbirth and neonatal death, they are characteristics that are numerically associated with perinatal death and it is not implied that they are the cause of perinatal deaths.

In 2019, there were:

- 9.6 perinatal deaths per 1,000 births (2,897 deaths)
- 7.2 stillbirths per 1,000 births (2,183 deaths)
- 2.4 neonatal deaths per 1,000 live births (714 deaths).

Perinatal mortality rates were higher among babies born to:

- women who were aged under 20, 20-24 and 40 and over (18.4, 11.1, and 15.1 deaths per 1,000 births, respectively)
- Aboriginal and Torres Strait Islander women (14.8 deaths per 1,000 births)
- women who lived in *Very remote* areas (19.6 deaths per 1,000 births)
- women living in the most disadvantaged areas of Australia (quintiles 1 and 2; 11.1, and 9.8 deaths per 1,000 births, respectively).

Detailed data can be found in TAB3 of the [supplementary data tables](#)

The horizontal bar charts in this data visualisation display the rate of stillbirths and neonatal deaths by different maternal demographic characteristics. The first view shows the difference in rates by state or territory of birth. The rate of stillbirths ranged between 5.6 deaths per 1,000 births in Tasmania to 11.1 deaths per 1,000 births in the Northern Territory. The neonatal death rates ranged from 1.4 per 1,000 live births in Western Australian to 3.9 per 1,000 live births in the Northern Territory.

The difference in rates by remoteness shows that rates neonatal death increase with increasing remoteness. The rate of neonatal death increased from 2.2 per 1,000 live births in Major cities to 5.1 per 1,000 live births in Very remote areas. The rate of stillbirths ranged from 6.3 deaths per 1,000 births in Remote areas to 14.6 deaths per 1,000 births in Very remote areas.

The difference in rates by mother's country of birth shows that rates of stillbirth and neonatal death are similar for mothers born in Australia or born overseas. The rate of stillbirths was 7.0 deaths per 1,000 births for mothers born in Australia and 7.5 deaths per 1,000 births for mothers born overseas. The rate of neonatal death was 2.2 deaths per 1,000 live births for mothers born in Australia and 2.7 deaths per 1,000 live births for mothers born overseas

The difference in rates by mother's Indigenous shows that rates of stillbirth and neonatal death are higher for Aboriginal and Torres Strait Islander mothers. The rate of stillbirths was 10.4 deaths per 1,000 births for Indigenous mothers and 7.1 deaths per 1,000 births for non-Indigenous mothers. The rate of neonatal death was 4.4 deaths per 1,000 live births for Indigenous mothers and 2.3 deaths per 1,000 live births for non-Indigenous mothers.

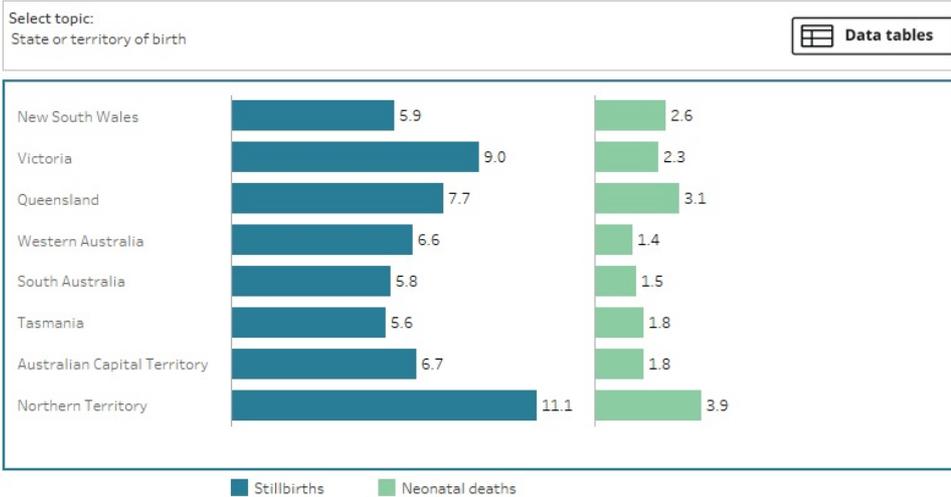
The difference in rates by socioeconomic status shows that rates of stillbirth and neonatal death increase with increasing disadvantage. The rate of stillbirths increased from 6.5 deaths per 1,000 births in the least disadvantaged areas of Australia to 8.3 deaths per 1,000 births in the most disadvantaged areas. The rate of neonatal death increased from 1.8 per 1,000 live births in the least disadvantaged areas of Australia to 2.9 per 1,000 live births in the most disadvantaged areas.

The difference in rates by maternal age group shows that rates of stillbirth and neonatal death are highest for the youngest and oldest mothers. The rate of stillbirths was highest for mothers under 20, 13.5 per 1,000 births, followed by mothers aged 40 or over, 11.4 stillbirths per 1,000 births. The rate of neonatal death was highest for mothers under 20, 5.0 per 1,000 live births, followed by mothers aged 20-24 and mothers aged 40 or over, 3.7 per 1,000 live births.

The difference in rates by state or territory of mother's usual residence show that the range of stillbirths ranged between 5.8 deaths per 1,000 births for mothers from South Australia to 11.7 deaths per 1,000 births for mothers from the Northern Territory. Neonatal death rates ranged from 1.3 per 1,000 livebirths for mothers from Western and South Australia to 4.2 per 1,000 live births for mothers from the Northern Territory.

The underlying data for this data visualization are also available in the Excel spreadsheet located on the Data page.

Perinatal mortality rates by state or territory of birth, 2019



Notes:

1. The rate is the number of deaths per 1,000 births. Stillbirth and perinatal mortality rates were calculated using total births (live births and stillbirths). Neonatal mortality rates were calculated using live births.
2. The perinatal mortality rate for Victoria includes terminations due to maternal psychosocial indications. The stillbirth rate for Victoria differs from that reported in the Victorian Consultative Council on Obstetric and Paediatric Mortality and Morbidity (CCOPMM) annual report due to differences in scope for inclusion. See the notes section for more information.
3. In 2019, 14% of women who gave birth in the ACT were non-ACT residents (proportion calculated after excluding records where state/territory of usual residence was 'Not stated'). These women are often transferred to the ACT requiring access to maternity services for high-risk pregnancies.

Source: AIHW analysis of the NPMDC and NPDC.

<http://www.aihw.gov.au>

Country of birth

There was little overall difference in perinatal mortality rates for babies of women born in Australia compared to babies of women born overseas. The highest rates of perinatal death were among babies of women whose country of birth was in:

- North Africa
- Polynesia (excludes Hawaii)
- Melanesia.

Detailed country of birth data can be found in TAB3 of the [supplementary data tables](#).

Baby characteristics

Birthweight and gestational age are interrelated and birthweight is generally expressed in relation to gestational age using population percentiles (refer to the [Technical notes—Methods](#) for more information on percentiles).

Gestational age and birthweight

A baby may be small due to being pre-term (born early), or due to being small for gestational age (either because it is small due to genetic factors, or because it is the subject of a growth restriction within the uterus). Poor fetal growth is associated with increased risk of perinatal death and with fetal distress during labour, and these babies are more likely to develop long-term health conditions later in life.

Adjusting birthweight for gestational age allows for differences in a baby's growth status and maturity to be taken into account when examining their health outcomes at birth.

Babies are defined as being small for gestational age if their birthweight is below the 10th percentile for their gestational age and sex, as determined by national percentiles. Babies are defined as large for gestational age if their birthweight is above the 90th percentile for their gestational age and sex.

In 2019:

- Nearly 2 in 5 perinatal deaths (38.9%) occurred before 22 completed weeks' gestation
- Rates of perinatal death decreased rapidly from 28 weeks' gestation and were lowest among babies born at term (37-41 weeks).

The highest rates of perinatal death were among:

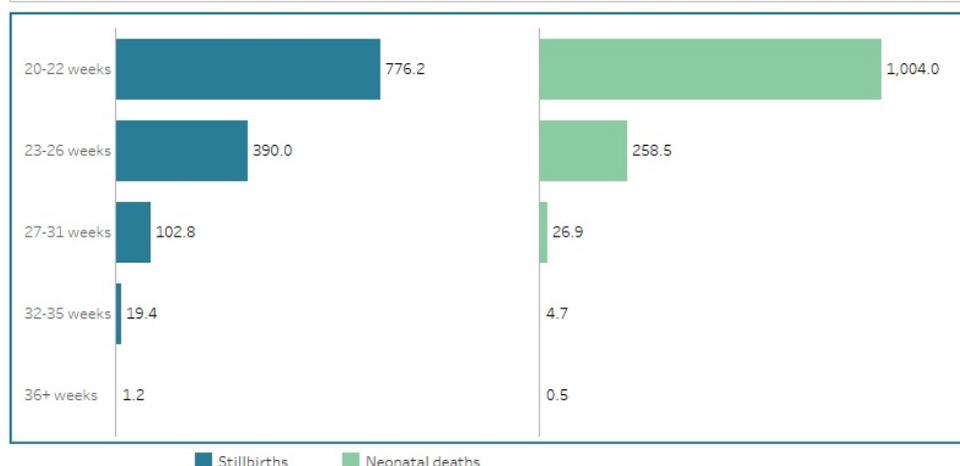
- Babies born at less than 22 weeks' gestation (998.2 deaths per 1,000 births)
- Babies born in the second trimester (less than 28 weeks' gestation; 691.8 deaths per 1,000 births)
- Babies born with a birthweight less than 2,500 grams (108.8 deaths per 1,000 births)
- Babies who were small for gestational age (birthweight below the 10th percentile for their age and sex; 23.4 deaths per 1,000 births)
- Multiple births (32.0 deaths per 1,000 births).

Detailed data can be found in TAB4 of the [supplementary data tables](#)

Perinatal mortality rates by gestational age group (weeks), 2019

Select topic:
Gestational age group (weeks)

 Data tables



Notes:

1. Total births comprise live births and stillbirths collected by the National Perinatal Data Collection (NPDC). The sum of stillbirths and live births may not add up to total births and the number of neonatal deaths may be slightly higher than the number of live births. These are due to occasional discrepancies between the NPDC and the National Perinatal Mortality Data Collection (NPMDC).
2. Clinical groups refers to intervals of gestational ages identified as being of clinical significance by members of the National Maternal and Perinatal Mortality Advisory Group (NMPMAG).
3. 20-22 weeks may include a small number of births of less than 20 weeks' gestation where birthweight was 400 grams or more.

Source: AIHW analysis of the NPMDC and NPDC.

<http://www.aihw.gov.au>

Gestational age trend

While perinatal mortality rates have been holding relatively steady for babies born before 28 weeks' gestation, they have been gradually decreasing among babies born after 28 weeks' gestation.

Stillbirths occurring after 28 weeks of gestation, or in the third trimester of pregnancy, are known as late gestation stillbirths. Evidence indicates that these stillbirths are the most likely to be preventable (Flenady et al. 2016). The rate of late gestation stillbirths in Australia has decreased from 3.7 per 1,000 births in 2000 to 2.5 per 1,000 births in 2019.

Neonatal deaths in both the second and third trimesters of pregnancy have decreased over this period, with deaths in the third trimester decreasing from 1.2 per 1,000 births to 0.8 per 1,000 births in 2019.

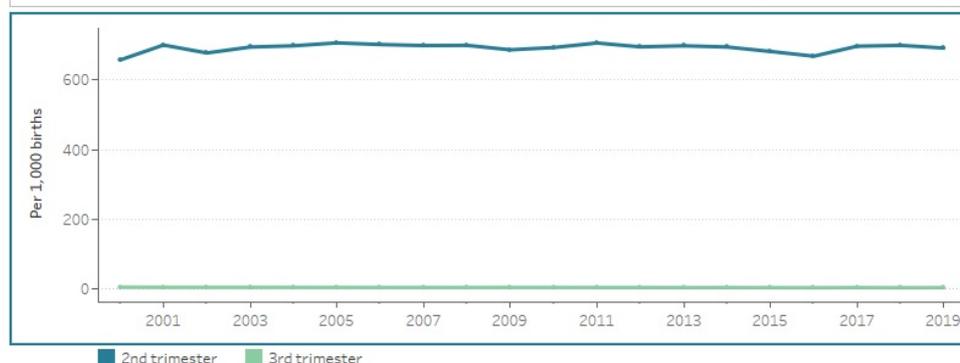
Perinatal mortality rates by trimester of pregnancy, 2000–2019

Select death status:
Perinatal deaths

Select topic:
Trimester of pregnancy

Select topic categories:
All

 Data tables



Notes:

1. The rate is the number of deaths per 1,000 births. Stillbirth and perinatal mortality rates were calculated using total births (live births and stillbirths). Neonatal mortality rates were calculated using live births.
2. Total births comprise live births and stillbirths collected by the National Perinatal Data Collection. The sum of stillbirths and live births may not add up to total births.
3. Data from the Northern Territory for 2000 to 2002 and from Victoria in 2009 are not available so have been excluded from both the numerator (number) and denominator.
4. While the 2nd trimester is defined clinically as 14-27 weeks of gestation, the scope of the National Perinatal Mortality Data Collection is limited to perinatal deaths occurring from 20 weeks of gestation. 2nd trimester also includes births prior to 20 weeks that are 400 grams or more birthweight.

Source: AIHW analysis of the NPMDC and NPDC.

<http://www.aihw.gov.au>

References

Flenady, V., Wojcieszek, A.M., Middleton, P., Ellwood, D., Erwich, J.J., Coory, M., Khong, T.Y., Silver, R.M., Smith, G.C., Boyle, F.M. and Lawn, J.E (2016) 'Stillbirths: recall to action in high-income countries'. *The Lancet*, 387:691-702, doi:[10.1016/S0140-6736\(15\)01020-X](https://doi.org/10.1016/S0140-6736(15)01020-X)

Timing, causes and investigation of perinatal deaths

Timing of perinatal deaths

In 2019, where the timing of perinatal deaths was stated:

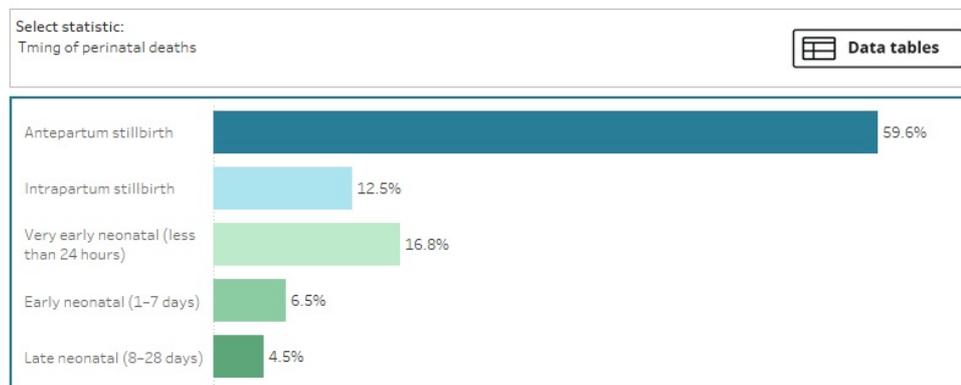
- Nearly three in five (59.6%) perinatal deaths and the majority (82.7%) of stillbirths occurred before the onset of labour (antepartum death)
- Three in five (60.4%) neonatal deaths occurred within the first 24 hours following birth (very early neonatal death) and were more common with decreasing gestational age
- Early neonatal deaths (1-7 days) (38.9%) and late neonatal deaths (8-28 days) (42.1%) were more common among babies born from 36 weeks' gestation.

Detailed data can be found in TAB6 of the [supplementary data tables](#).

Intrapartum stillbirths (those occurring during labour and birth) and neonatal deaths within the first 24 hours after birth are often considered together as, in many cases, the process leading to the death is a continuum that may lead to death before or after the birth occurs.

Timing of perinatal deaths

2019



Notes:

1. Excludes records where timing of stillbirth or neonatal death is not stated.
2. 20-22 weeks includes births prior to 20 weeks that are 400 grams or more birthweight.

Source: AIHW analysis of the NPMDC and NPDC.
<http://www.aihw.gov.au>

Causes of perinatal death

Causes of perinatal deaths are classified according to the Perinatal Society of Australia and New Zealand (PSANZ) Perinatal Mortality Classification System, version 3.2, as part of each state or territory's perinatal mortality review process.

The PSANZ Perinatal Mortality Classification System incorporates a Perinatal Death Classification (PSANZ-PDC) and an additional Neonatal Death Classification (PSANZ-NDC).

The PSANZ-PDC system classifies all perinatal deaths (stillbirths and neonatal deaths) by the single most important factor which led to the chain of events that resulted in the death (refer to [Technical notes—Definitions used in reporting](#) for cause of death classifications).

In 2019:

The most commonly classified causes for all **perinatal deaths** were:

- Congenital anomaly (31.7%)
- Spontaneous preterm birth (13.6%)
- Unexplained antepartum death (11.5%).

The most commonly classified causes of **stillbirths** were:

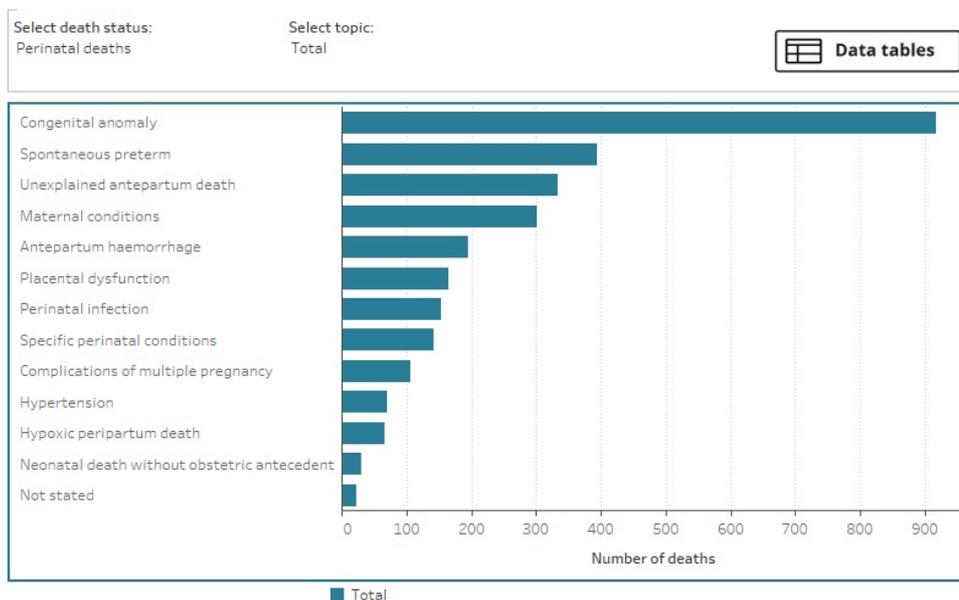
- Congenital anomaly (31.3%)
- Unexplained antepartum death (15.3%)

- Maternal conditions (13.0%).

The most commonly classified causes of **neonatal deaths** were:

- Congenital anomaly (32.8%)
- Spontaneous preterm birth (29.0%)
- Antepartum haemorrhage (10.4%).

PSANZ-PDC cause of perinatal deaths
by total for death status, 2019



Notes:

The category of unexplained antepartum death includes deaths of normally-formed fetuses prior to the onset of labour where no identified predisposing factors are considered likely to have caused the death and deaths where insufficient information was available to allow more specific classification of the cause of death.

Source: AIHW analysis of the NPMDC and NPDC.
<http://www.aihw.gov.au>

In 2019, **congenital anomaly** was the most commonly classified cause of perinatal death. This remained true across almost all deaths, regardless of maternal or gestational age, plurality, baby’s birthweight percentile or the timing of death. The only exceptions to this were for:

- **Late gestation stillbirths.** Unexplained antepartum death was the most commonly classified cause of death for stillbirths occurring at 32-35 and 36+ weeks’ gestation (25.0% and 26.8%, respectively).
- **Early gestation neonatal deaths.** Spontaneous preterm birth was the most commonly classified cause for neonatal deaths occurring at 20-22 and 23-26 weeks’ gestation (both 42.9%).
- **Babies born to mothers aged under 20.** Maternal conditions were the most commonly classified cause of perinatal death for babies born to mothers aged under 20 (30.4%). Maternal conditions refers to deaths where a medical condition (e.g. diabetes) or a surgical condition (e.g. appendicitis) or an injury in the mother (including complications or treatment of that condition) is the cause.
- **Multiple births.** Complications of multiple pregnancy was the most commonly classified cause for multiples (37.3%), followed by spontaneous preterm birth (21.1%).
- **Neonatal deaths in babies considered appropriate for gestational age (AGA).** Spontaneous preterm birth was the main classified cause of neonatal deaths for babies considered appropriate birthweight for their gestational age (34.4%).

Causes of neonatal deaths

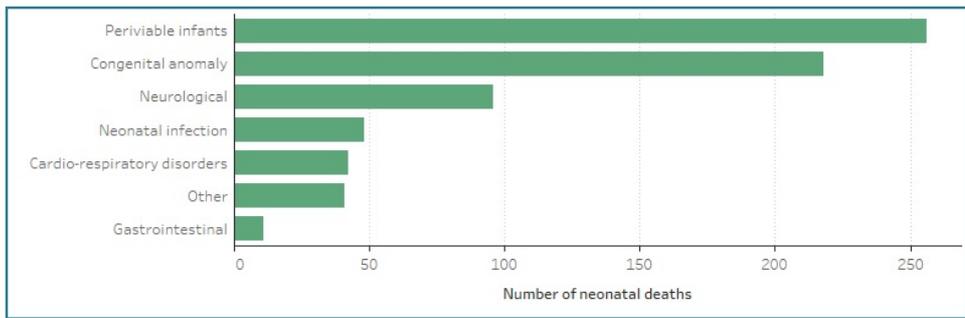
The PSANZ-NDC is an additional classification system applied only to neonatal deaths to identify the single most significant condition present in the neonatal period that caused the baby’s death.

In 2019, the most commonly classified conditions causing neonatal deaths were:

- Periviable infants (infants deemed too immature for resuscitation or continued life support; 35.9%)
- Congenital anomaly (30.5%)
- Neurological conditions (13.4%).

PSANZ-NDC cause of neonatal deaths
2019

 Data tables



Notes:
1. Excludes 2 neonatal deaths where PSANZ-NDC cause was 'not stated'.

Source: AIHW analysis of the NPMDC and NPDC.
<http://www.aihw.gov.au>

Investigation following perinatal death

Autopsy

The National Perinatal Mortality Data Collection collects data on whether or not an autopsy was performed and, where applicable, the type of autopsy performed (a full autopsy, limited autopsy or external examination). For the purposes of this report, deaths where any of these autopsy types have been performed will be collectively treated as deaths where an 'autopsy' has been performed.

The purpose of an autopsy is to accurately identify the cause(s) of death. Autopsy results contribute to clinical audit and assist with identification of factors contributing to the death, and may be critical when clinicians consider providing parents with advice regarding the risk of a future perinatal death (RCOG 2010). Perinatal autopsy examinations require written consent from the parent(s) following informed discussion.

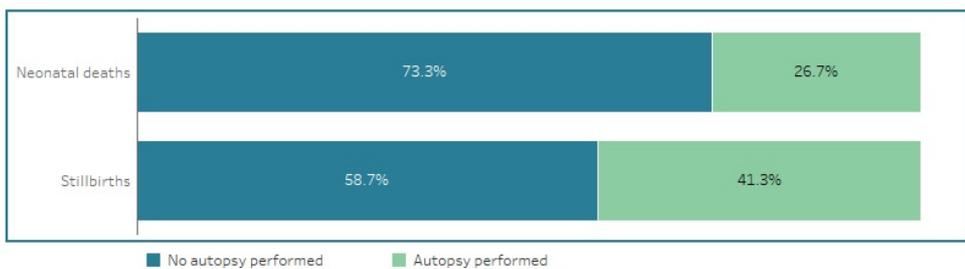
In 2019, there were 2,897 perinatal deaths, 2,661 of which (2,029 stillbirths and 632 neonatal deaths) had a stated autopsy status.

Of deaths where autopsy status was stated, there were:

- 1,006 (37.8%) perinatal deaths that had an autopsy performed
- 837 (41.3%) stillbirths and 169 (26.7%) neonatal deaths that had an autopsy performed.

Autopsy of perinatal deaths
2019

 Data tables



Notes:
1. Autopsy performed includes full and limited autopsies, external examinations and records where an autopsy was performed but type is unknown.
2. Proportions exclude 'Not stated' values from the denominator.

Source: AIHW analysis of the NPMDC and NPDC.
<http://www.aihw.gov.au>

References

RCOG (Royal College of Obstetricians and Gynaecologists) (2010) *Late Intrauterine Fetal Death and Stillbirth: Green top guideline No.55*, RCOG, accessed 7 October 2021.

Due to differences in reporting cycles, preliminary data on perinatal deaths are available from the National Perinatal Data Collection for a portion of the calendar year and are available in the [Preliminary perinatal deaths](#) section of this web report.

Explore articles

- [Maternal deaths](#)
- [Stillbirths and neonatal deaths](#)

Last updated 11/04/2022 v143.0

© Australian Institute of Health and Welfare 2022 