



Australian Government
Australian Institute of
Health and Welfare



Australia's mothers and babies

2016

in brief



Australia's mothers and babies

2016

in brief



The Australian Institute of Health and Welfare is a major national agency whose purpose is to create authoritative and accessible information and statistics that inform decisions and improve the health and welfare of all Australians.

© Australian Institute of Health and Welfare 2018



This product, excluding the AIHW logo, Commonwealth Coat of Arms and any material owned by a third party or protected by a trademark, has been released under a Creative Commons BY 3.0 (CC-BY 3.0) licence. Excluded material owned by third parties may include, for example, design and layout, images obtained under licence from third parties and signatures. We have made all reasonable efforts to identify and label material owned by third parties.

You may distribute, remix and build upon this work. However, you must attribute the AIHW as the copyright holder of the work in compliance with our attribution policy available at <www.aihw.gov.au/copyright/>. The full terms and conditions of this licence are available at <creativecommons.org/licenses/by/3.0/au/>.

ISBN 978-1-76054-404-1 (PDF)

ISBN 978-1-76054-405-8 (Print)

ISSN 1321-8336 (PDF)

ISSN 2205-5134 (Print)

Suggested citation

Australian Institute of Health and Welfare 2018. Australia's mothers and babies 2016—in brief. Perinatal statistics series no. 34. Cat. no. PER 97. Canberra: AIHW.

Australian Institute of Health and Welfare

Board Chair
Mrs Louise Markus

Director
Mr Barry Sandison

Any enquiries relating to copyright or comments on this publication should be directed to:
Australian Institute of Health and Welfare
GPO Box 570
Canberra ACT 2601
Tel: (02) 6244 1000
Email: info@aihw.gov.au

Published by the Australian Institute of Health and Welfare.

Please note that there is the potential for minor revisions of data in this report.
Please check the online version at <www.aihw.gov.au/> for any amendments.

Contents

- 1 **At a glance** 1
 - Mothers at a glance1
 - Babies at a glance.....4
- 2 **Mothers**..... 5
 - Antenatal care.....5
 - Smoking during pregnancy.....10
 - Maternal health.....12
 - Place of birth.....14
 - Onset of labour.....15
 - Method of birth.....17
- 3 **Babies** 22
 - Gestational age.....22
 - Birthweight.....24
 - Low birthweight25
 - Small for gestational age.....27
 - Baby presentation and method of birth.....31
 - Apgar scores33
 - Resuscitation.....34
 - Hospital births and length of stay35
 - Admission to special care nurseries and neonatal intensive care units ..36
 - Perinatal deaths37
- 4 **Aboriginal and Torres Strait Islander mothers and their babies** ... 41
 - Indigenous mothers.....42
 - Babies of Indigenous mothers.....47
- 5 **Key statistics and trends**.....51

Appendixes58

Glossary59

Abbreviations62

References.....63

Acknowledgments64

Related publications.....65

AIHW information on mothers and babies

Australia's mothers and babies 2016—in brief presents an overview of the key statistics from the Australian Institute of Health and Welfare (AIHW) National Perinatal Data Collection. The AIHW's online perinatal data visualisation complements this report and is available at <www.aihw.gov.au/reports/mothers-babies/perinatal-data-visualisations>.

Detailed data tables, including state and territory data, are also available online at <www.aihw.gov.au/reports/mothers-babies/australias-mothers-babies-2016-in-brief/>.

This report and the perinatal data visualisations are part of a comprehensive program of AIHW work in relation to maternal and perinatal care and outcomes. Other major projects include:

- National Core Maternity Indicators (NCMIs) data visualisations, available at <www.aihw.gov.au/reports/mothers-babies/ncmi-data-visualisations>. The NCMIs monitor the safety and quality of maternity care to ensure there is continual improvement following the introduction of the National Maternity Services Plan (AHMC 2011)
- National Maternity Data Development Project (NMDDP), latest report available at <www.aihw.gov.au/reports/mothers-babies/enhancing-maternity-data-collection-reporting-nmdd/>. The NMDDP aims to build a more comprehensive and consistent national data collection for maternal and perinatal health, including development of clinical data items and maternity models of care and the establishment of ongoing national maternal and perinatal mortality data collection and reporting
- geographic reporting of maternal and perinatal indicators from the Performance Accountability Framework, latest report available at <www.aihw.gov.au/reports/primary-health-care/child-maternal-health-2013-2015>. This publication presents detailed geographic data for indicators on antenatal care in the first trimester, smoking during pregnancy and low birthweight.

The National Perinatal Data Collection

The National Perinatal Data Collection (NPDC) began in 1991 and is a collaborative effort by the AIHW and state and territory health departments.

Perinatal data are collected for each birth in each state and territory, usually by midwives and other birth attendants. The data are collated by the relevant state or territory health department and a standard de-identified extract is provided to the AIHW on an annual basis to form the NPDC.

The NPDC covers both live births and stillbirths, where gestational age is at least 20 weeks or birthweight is at least 400 grams, except in Victoria and Western Australia, where births are included if gestational age is at least 20 weeks or, if gestation is unknown, birthweight is at least 400 grams.

See Appendix A for more information about the NPDC.



1 At a glance

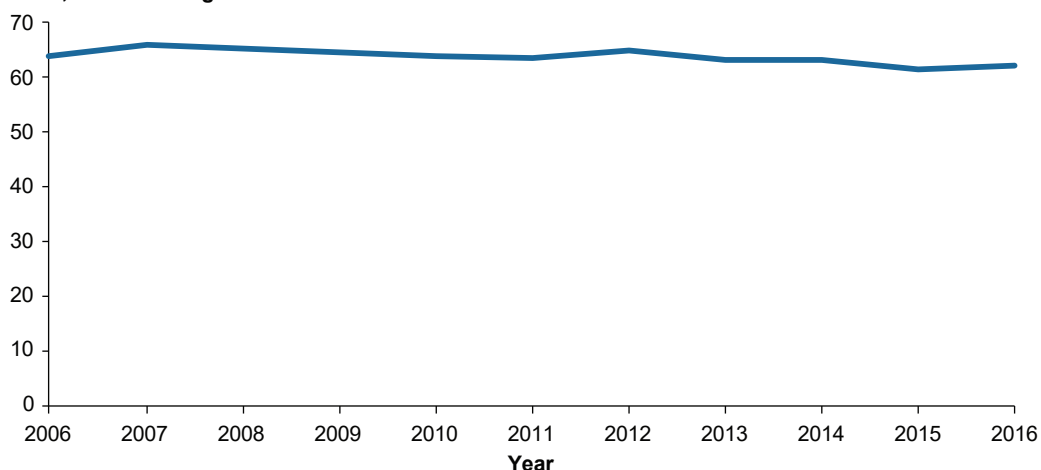
Mothers at a glance

More women are giving birth

- In 2016, 310,247 women gave birth in Australia—an increase of 12% since 2006 (277,440 women).
- The rate of women giving birth has fluctuated between 2006 and 2016, with a rate of 62 per 1,000 women of reproductive age (15–44 years) in 2016, down from a peak of 66 per 1,000 women in 2007.

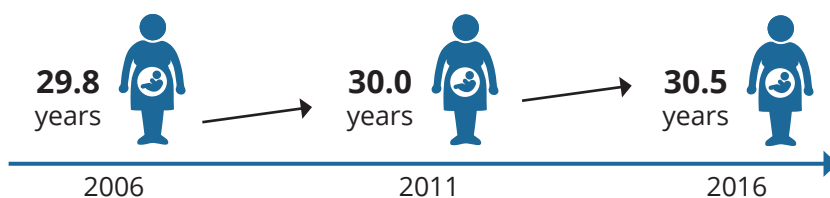
Rate of women of reproductive age giving birth, 2006 to 2016

Per 1,000 women aged 15–44



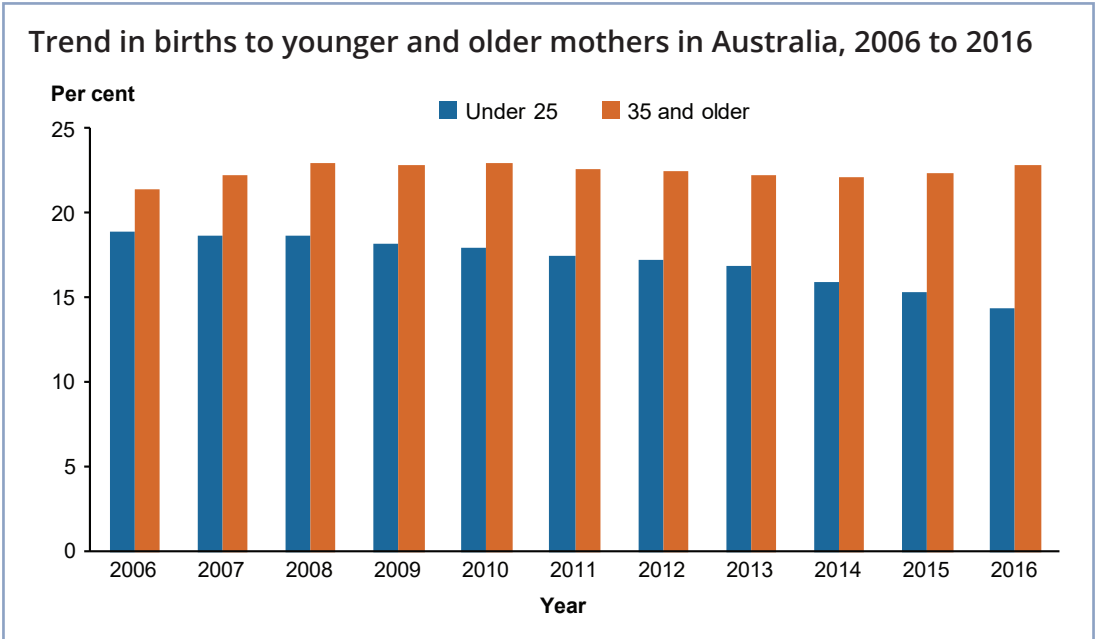
Women are giving birth later in life

- The average age of all women who gave birth continues to rise. It was 30.5 in 2016, compared with 29.8 in 2006. The median age was slightly higher, at 31 years in 2016.



Average age of all mothers, 2006 to 2016

- The average age also increased for Aboriginal and Torres Strait Islander mothers, from 25.0 in 2006 to 25.9 in 2016, with a median of 25 years.
- The proportion of mothers aged 35 and over increased from 21% in 2006 to 23% in 2016, while the proportion of mothers aged under 25 decreased from 19% to 14%.
- The average age of first-time mothers also increased, from 28.1 in 2006 to 29.0 in 2016.



The rate of multiple pregnancies has fallen

In 2016, multiple pregnancies represented 1.4% of all pregnancies. Almost all multiple pregnancies (98.3%) were twins, while a small proportion (1.7%) were other multiples (triplets, quadruplets or higher).

The proportion of multiple pregnancies was lowest among mothers aged less than 20 (0.7%) and highest among mothers aged 40 and over (2.9%).

Between 2006 and 2016, the number of multiple pregnancies increased slightly from 4,622 in 2006 to a peak of 4,703 in 2008 and then declined to 4,487 in 2016; however, the rate decreased over this time from 17 per 1,000 mothers to 14 per 1,000.

Most mothers live in *Major cities* and were born in Australia

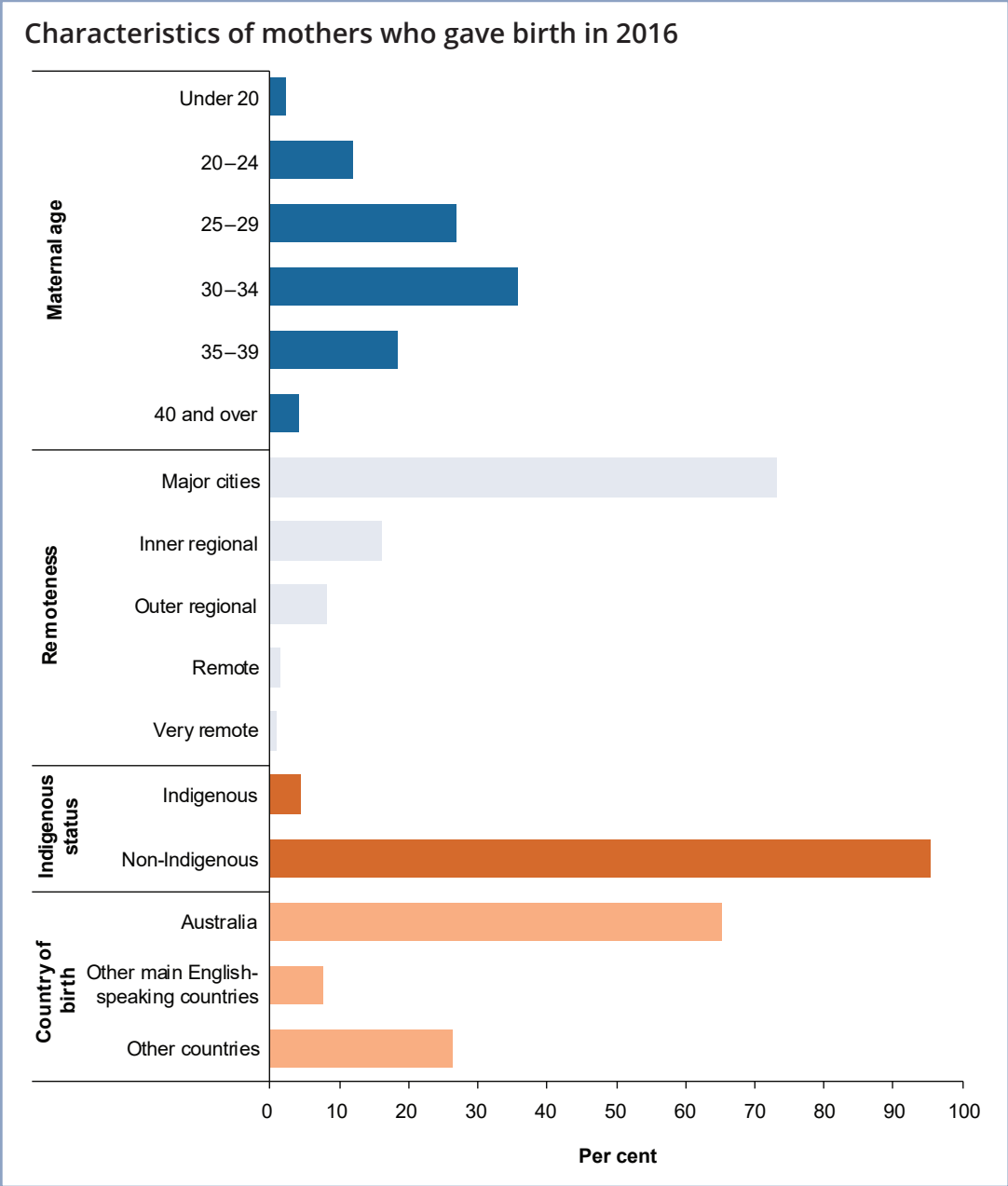
Most mothers lived in *Major cities* (73%) and most were themselves born in Australia (65%)—similar to the proportions of all women of reproductive age in the population.

One-quarter (26%) of mothers who gave birth in 2016 were born in a main non-English-speaking country (see Glossary), compared with 23% of women of reproductive age in the population. The proportion of mothers born in a main non-English-speaking country has increased from 17% in 2006.

1 in 23 mothers were Aboriginal and/or Torres Strait Islander

Around 4.4% of all mothers who gave birth in 2016 were Indigenous—slightly higher than the proportion of Indigenous women of reproductive age in the population (3.4%).

Indigenous mothers were on average younger than non-Indigenous mothers (25.9 years compared with 30.7).



Find out more in the *Perinatal data visualisations: Overview and demographics*

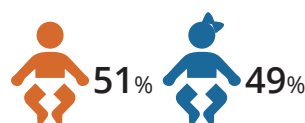
Babies at a glance

More babies are being born

- There were 314,814 babies born in 2016—an increase of 12% since 2006.
- In all, 312,683 were live births and 2,107 (less than 1%) were stillbirths (a baby born without signs of life, see Glossary). Birth status was not recorded for a small number of births.
- The stillbirth rate of 6.7 deaths per 1,000 births has decreased slightly but consistently following a recent peak of 7.8 per 1,000 births in 2009.

Baby boys slightly outnumber baby girls

Slightly more babies were male (51%) than female (49%). This pattern is consistent with previous years. The ratio was 105.8 male liveborn babies per 100 female liveborn babies.

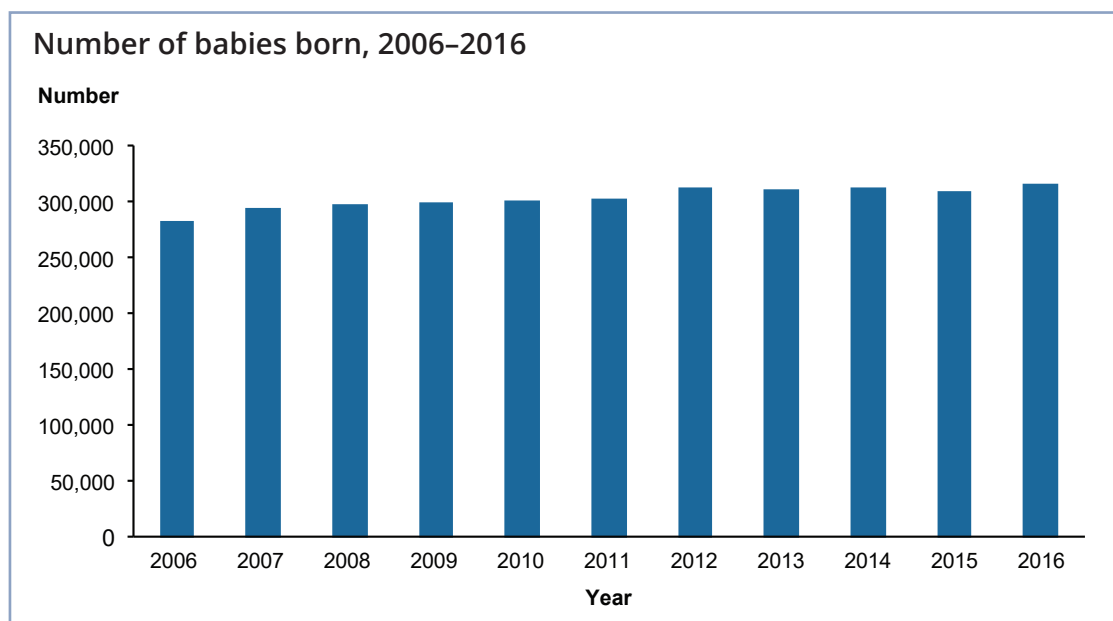


1 in 19 babies were Aboriginal and/or Torres Strait Islander

Around 1 in 19 babies (5.2% or 16,479) were Indigenous in 2016 (based on Indigenous status of the baby).

3 in 4 babies were born to mothers living in New South Wales, Victoria or Queensland

The proportion of babies born in each state and territory closely reflects the distribution of the total population in 2016.



Find out more in the *Perinatal data visualisations: Overview and demographics*

2 Mothers

Antenatal care

Almost all mothers attend antenatal care, but only two-thirds attend in the first trimester

Antenatal care is a planned visit between a pregnant woman and a midwife or doctor to assess and improve the wellbeing of the mother and baby throughout pregnancy. It does not include visits where the sole purpose is to confirm the pregnancy.

Antenatal care is associated with positive maternal and child health outcomes—the likelihood of receiving effective health interventions is increased through attending antenatal care. The Australian Pregnancy Care Guidelines (Department of Health 2018) recommend that the first antenatal visit occur within the first 10 weeks of pregnancy and that first-time mothers with an uncomplicated pregnancy attend 10 visits (7 visits for subsequent uncomplicated pregnancies).

Regular antenatal care in the first trimester (before 14 weeks' gestational age) is associated with better maternal health in pregnancy, fewer interventions in late pregnancy and positive child health outcomes.

Almost all mothers (99.9%) who gave birth in 2016 had at least 1 antenatal visit:

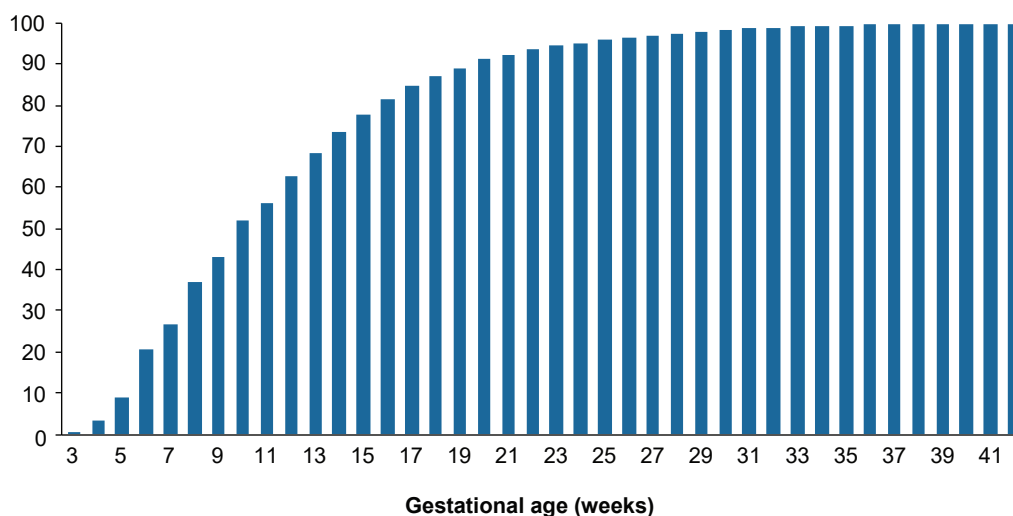
- 94% had 5 or more visits
- 85% had 7 or more visits
- 57% had 10 or more visits.

In 2016, in relation to the timing of the first antenatal visit:

- 52% of mothers had at least 1 antenatal visit in the first 10 weeks of pregnancy
- 31% of mothers did not have an antenatal visit in the first trimester (less than 14 weeks)
- 9% did not begin antenatal care until after 20 weeks' gestation.

Time to first antenatal visit, by gestational age, 2016

Cumulative percentage



Trend information on antenatal care is limited due to the relatively recent standardised collection of data. However, the available data show little change over time:

- The proportion of mothers who had 5 or more antenatal visits throughout their pregnancy was 95.0% in 2011 and 95.7% in 2016 (based on mothers who gave birth at 32 weeks' or more gestation from New South Wales, Queensland, South Australia, Tasmania, the Australian Capital Territory and the Northern Territory).
- The proportion of mothers who received antenatal care in the first trimester of pregnancy was 62.8% in 2010 and 68.6% in 2016 (excludes data from New South Wales due to a change in data collection practice in 2011).

See Chapter 5 for more data on trends.



Find out more in the *Perinatal data visualisations: Antenatal period*

Antenatal care visits vary by socioeconomic status and maternal characteristics

Mothers living in the lowest socioeconomic status (SES) areas began antenatal care later in pregnancy—64% of mothers living in the lowest SES areas attended antenatal care in the first trimester compared with 72% in the highest SES areas in 2016.

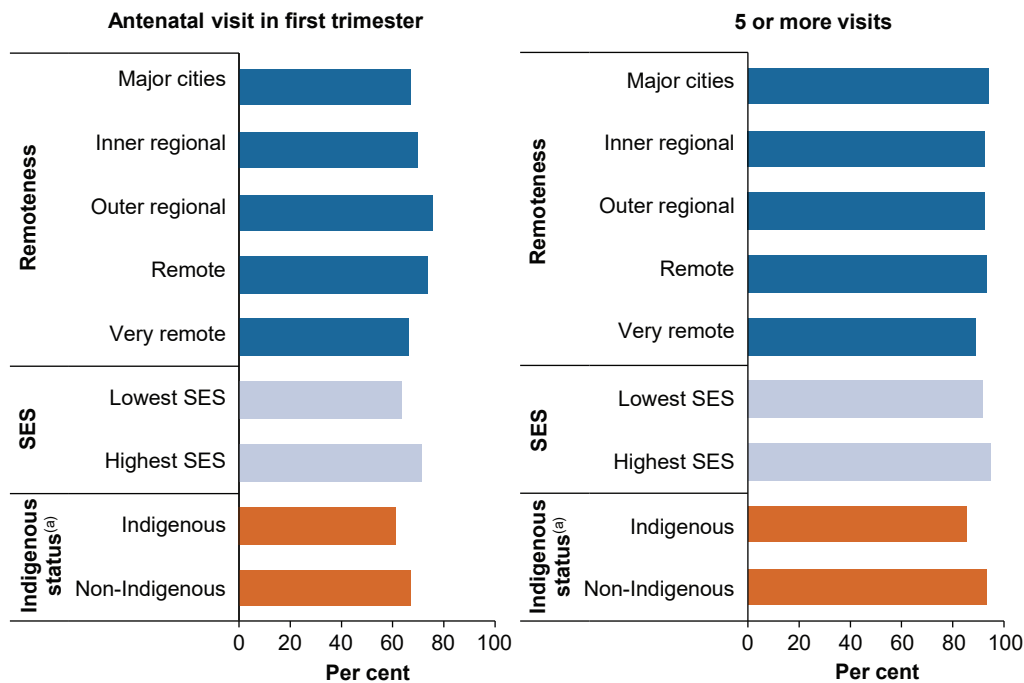
The proportion of mothers who had 5 or more antenatal visits varied slightly by remoteness and socioeconomic disadvantage (data exclude very pre-term births):

- 95% of mothers living in *Major cities* compared with 90% in *Very remote* areas
- 96% of mothers living in the highest SES areas compared with 93% in the lowest SES areas.

Mothers who were born in main non-English-speaking countries (see Glossary) were less likely to attend antenatal care in the first trimester (61% compared with 71% of those born in Australia and other main English-speaking countries). However, the proportion attending 5 or more antenatal visits was similar (94.5% compared with 94.2%).

Indigenous mothers were less likely to have either an antenatal visit in the first trimester (62% compared with 67% of non-Indigenous mothers) or to attend 5 or more visits throughout their pregnancy (86% compared with 94% of non-Indigenous mothers, age-standardised). See Chapter 4 for more information on Indigenous mothers.

Antenatal visits in the first trimester and 5 or more antenatal visits, by selected maternal characteristics, 2016

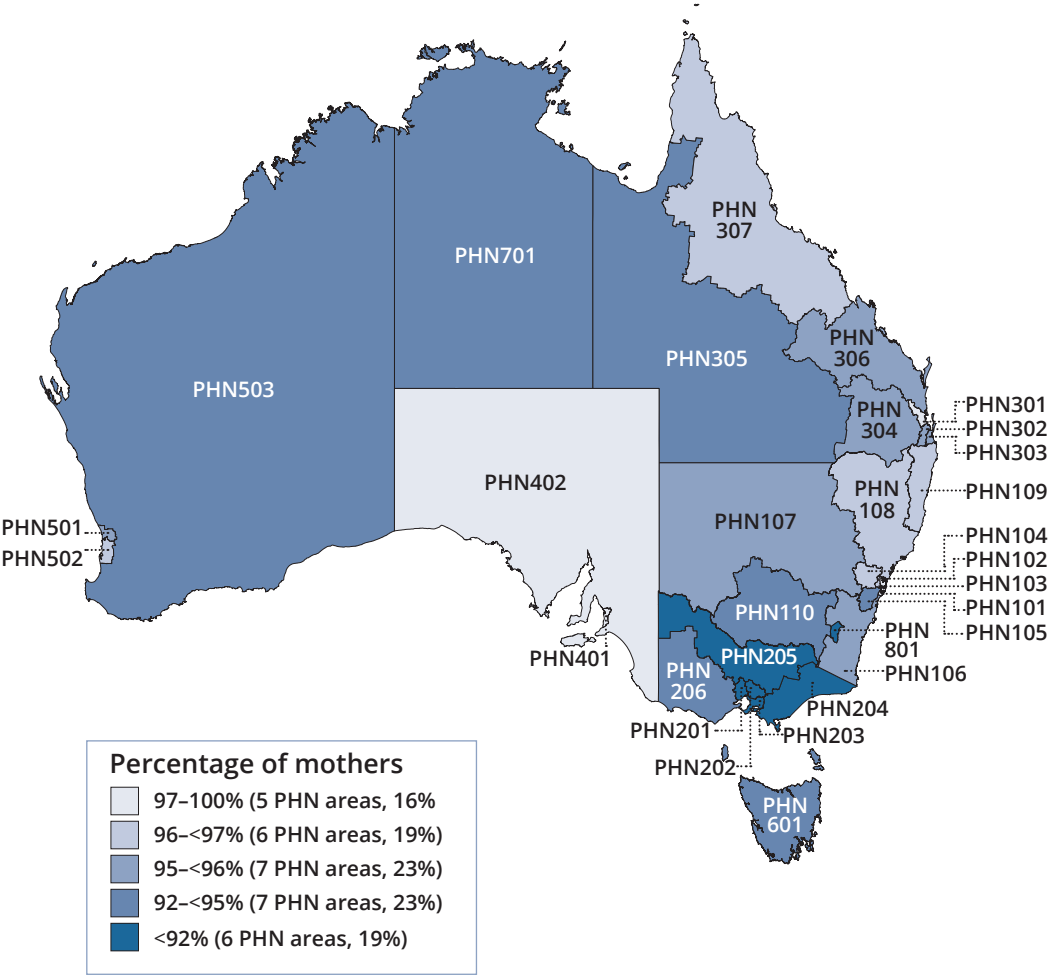


(a) Age-standardised percentages.
 Note: Data on 5 or more antenatal visits exclude very pre-term births (less than 32 weeks' gestation).

Number of antenatal visits varies depending on where mothers live

In 2016, the proportion of mothers attending 5 or more antenatal visits nationally was 94% (282,624) (data exclude very pre-term births). However, the proportion varied across Primary Health Network (PHN) areas, ranging from 81% in the Murray PHN area to 98% in the Northern Sydney PHN area.

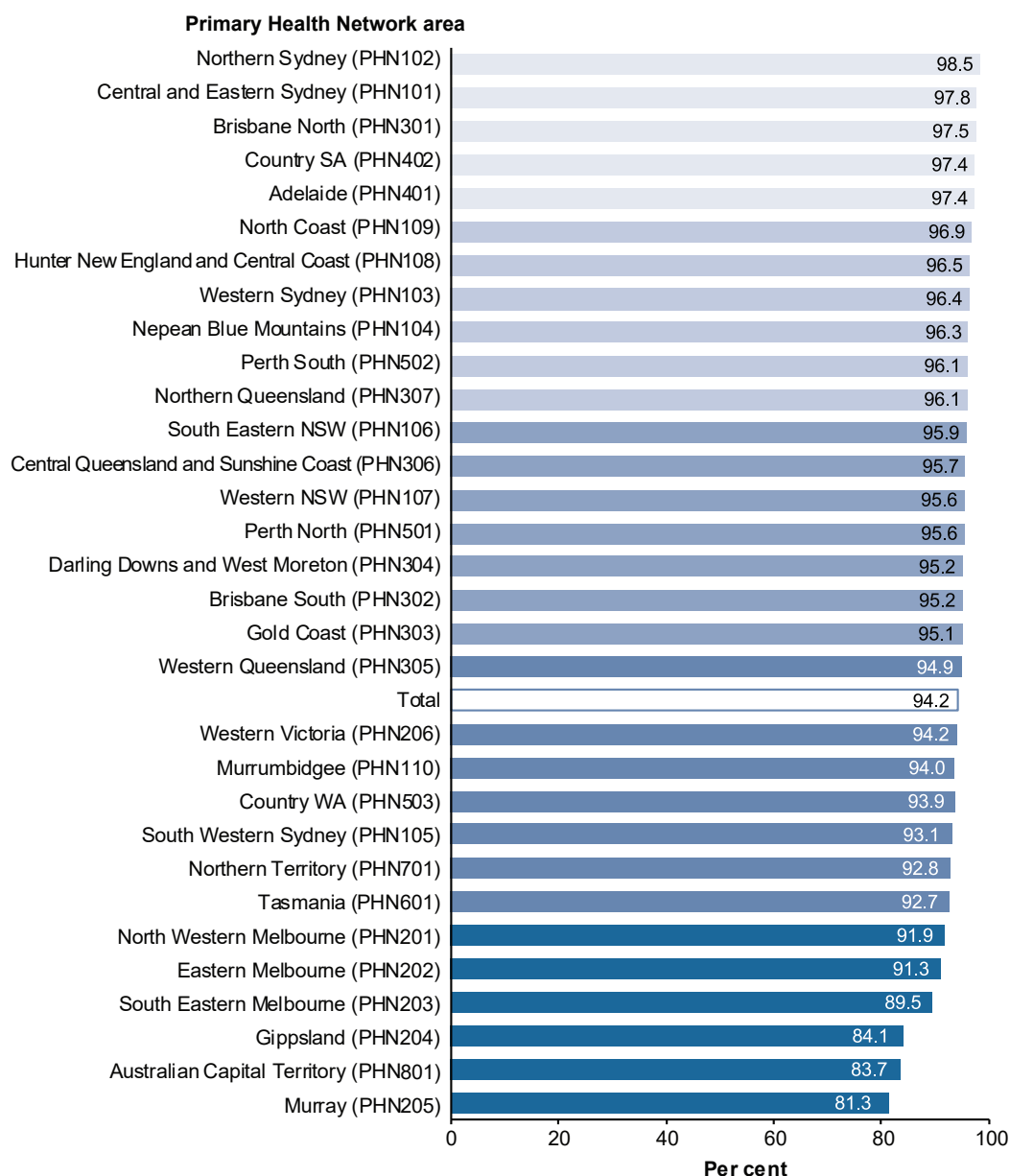
Map of percentage of mothers attending 5 or more antenatal visits, by Primary Health Network area of usual residence, 2016



Notes

1. Data exclude very pre-term births (less than 32 weeks' gestation).
2. For the Australian Capital Territory, in many cases, early antenatal care provided by the woman's general practitioner is not reported.
3. See Supplementary Table 5.1 for detailed data.

Percentage of mothers attending 5 or more antenatal visits, by Primary Health Network area of usual residence, 2016



Notes

1. Data exclude very pre-term births (less than 32 weeks' gestation).
2. For the Australian Capital Territory, in many cases, early antenatal care provided by the woman's general practitioner is not reported.
3. See Supplementary Table 5.1 for detailed data.

Smoking during pregnancy

Rates of smoking during pregnancy continue to fall

Tobacco smoking during pregnancy is the most common preventable risk factor for pregnancy complications, and is associated with poorer perinatal outcomes, including low birthweight, being small for gestational age, pre-term birth and perinatal death.

One in 10 mothers (30,104 or 9.9%) who gave birth in 2016 smoked at some time during their pregnancy, a decrease from 14.6% in 2009. More data on trends are available in Chapter 5.

Rates of smoking were higher in the first 20 weeks of pregnancy (29,304 or 9.5%) compared with after 20 weeks of pregnancy (22,015 or 7.3%).

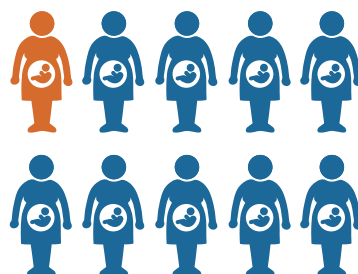
On average, mothers who smoked during pregnancy:

- had their first antenatal visit later in pregnancy (13 weeks) than those who did not smoke (12 weeks)
- had 1 fewer antenatal care visits (9 visits) than those who did not smoke (10 visits).

These patterns were present across all socioeconomic groups.

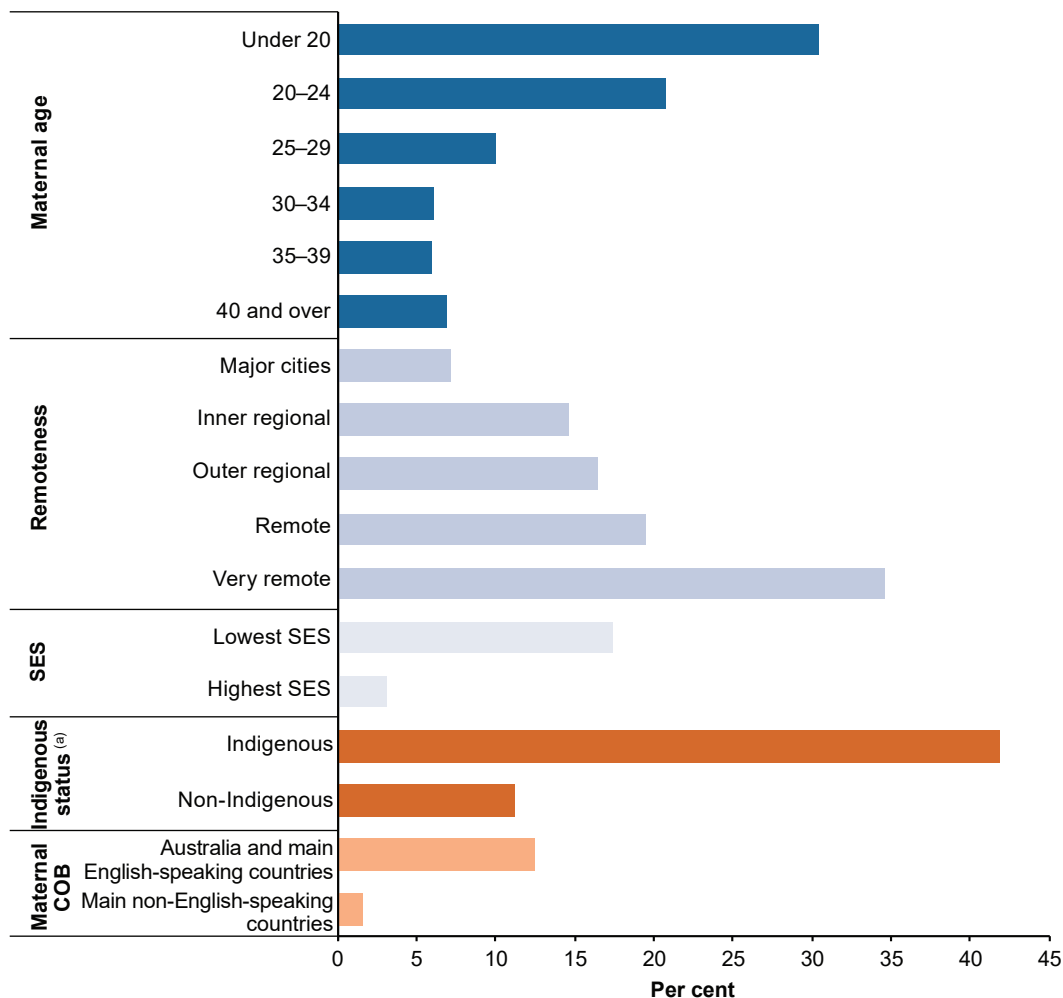
Some mothers were more likely than others to smoke in the first 20 weeks of pregnancy. In 2016, proportions were highest among the following mothers, noting that some may fall into more than 1 of these categories:

- younger mothers (aged under 20)—almost one-third (30.5%) smoked in the first 20 weeks of pregnancy compared with 6.0% of mothers aged 35–39 and 6.9% aged 40 and over
- mothers living in *Remote* and *Very remote* areas—more than one-third (34.6%) of mothers in *Very remote* and around one-fifth (19.5%) in *Remote* areas, compared with only 7.1% of those living in *Major cities*
- mothers living in the lowest SES areas—almost one-fifth (17.4%) smoked in the first 20 weeks of pregnancy, compared with 3.1% in the highest SES areas. The difference was still notable after adjusting for maternal age—18.7% compared with 6.7% (age-standardised percentages)
- mothers born in Australia or other main English-speaking countries—12.4% compared with 1.6% of mothers from main non-English-speaking countries (see Glossary)
- Indigenous mothers—42% smoked in the first 20 weeks of pregnancy, compared with 11% of non-Indigenous mothers (age-standardised percentages).



Find out more in the *Perinatal data visualisations: Antenatal period*

Mothers who smoked in the first 20 weeks of pregnancy, by selected maternal characteristics, 2016



(a) Age-standardised percentages.

Almost 1 in 4 smokers quit during pregnancy

Women who stop smoking during pregnancy can reduce the risk of adverse outcomes for themselves and their babies. Support to stop smoking is widely available through antenatal clinics.

Almost 1 in 4 (6,541 or 22%) of the 29,304 mothers who gave birth in 2016 and who reported smoking during the first 20 weeks of pregnancy did not continue to smoke after 20 weeks of pregnancy.

Some women may smoke before knowing they are pregnant, and stop once they find out they are pregnant. According to the 2016 National Drug Strategy Household Survey, around 1 in 6 (16%) women smoked before they knew they were pregnant, and 1 in 10 (11%) smoked after they found out they were pregnant (AIHW 2017).

Maternal health

Almost half of mothers are overweight or obese at their first antenatal visit

Obesity in pregnancy contributes to increased risks of illness and death for both mother and baby. Pregnant women who are obese have an increased risk of thromboembolism, gestational diabetes, pre-eclampsia, post-partum haemorrhage (bleeding) and wound infections. They are also more likely to deliver via caesarean section. Babies of mothers who are obese have higher rates of congenital anomaly, stillbirth and neonatal death, compared with babies of mothers who are not obese (CMACE & RCOG 2010).

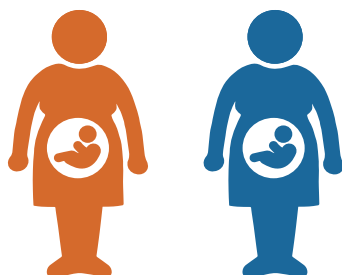
Body mass index (BMI) is a ratio of weight and height (kg/m^2). The normal range of BMI for non-pregnant women is 18.5 to 24.9. While increases in BMI are expected during pregnancy, a BMI of 30 or more at the first antenatal visit is defined as obesity in pregnancy.

Data on maternal BMI were available for mothers in all states and territories for the first time in 2016. However, data collection methods vary between jurisdictions.

Among mothers who gave birth in 2016:

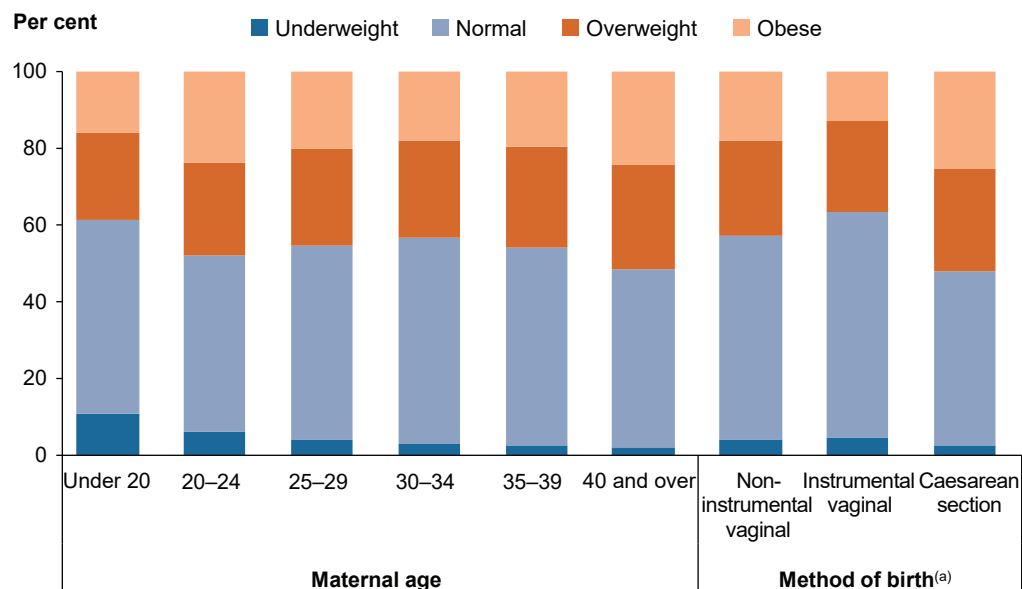
- one-fifth (19.5%) were classified as obese (with a BMI of 30.0 or more)
- one-quarter (25.5%) were overweight but not obese (BMI of 25.0–29.9)
- half (50.9%) were in the normal weight range (BMI of 18.5–24.9)
- one in 25 (4.1%) were underweight (BMI of less than 18.5).

The proportion of mothers who were overweight or obese increased with age, from 38% of mothers aged under 20 to 51% of those aged 40 and over. Mothers who had a caesarean section were more likely to be overweight or obese (52%) than mothers who had a non-instrumental (43%) or instrumental vaginal birth (36%) (age-standardised).



**Almost 1 in 2 mothers were overweight or obese
at their first antenatal visit**

Mothers, by body mass index group, maternal age and method of birth, 2016



(a) Age-standardised percentages.

Note: BMI source data and methods used for collection in states and territories are not uniform.

Diabetes and hypertension

Information is also available on other maternal health conditions, including pre-existing or gestational hypertension and diabetes. Gestational diabetes affected 120 per 1,000 mothers who gave birth in 2016, while a small proportion of mothers had other conditions:

- 8.2 per 1,000 mothers had pre-existing (chronic) hypertension
- 37.4 per 1,000 had gestational hypertension
- 7.3 per 1,000 had pre-existing diabetes.

Note that data collection methods for hypertension and diabetes vary across jurisdictions and data exclude Victoria (see Appendix Table D2).



Find out more in the *Perinatal data visualisations: Antenatal period*

Place of birth



Hospitals are the most common place to give birth

Almost all births in Australia occur in hospitals, in conventional labour wards. In 2016, 97% (302,463) of mothers gave birth in hospitals, while much smaller proportions gave birth in birth centres (1.8% or 5,640), at home (0.3% or 905) or in other settings including births occurring before arrival at hospital (0.4% or 1,237 mothers). Regardless of place of birth, almost all babies were liveborn (98% or more).

Three-quarters of hospital births are in public hospitals

The majority (74%) of mothers who gave birth in hospital gave birth did so in a public hospital, and the remaining 26% gave birth in a private hospital. Almost two-thirds (64%) of mothers gave birth within 1 day of admission, and a further 28% gave birth within 2 days of admission.

After birth, the median length of stay in hospital was 3 days. The median was higher for mothers who delivered by caesarean section (4 days), and lower for those who had a vaginal birth (2 days). There was a trend toward shorter postnatal stays between 2006 and 2016, with 21% of mothers discharged less than 2 days after giving birth in 2016 (13% in 2006), and 65% of mothers discharged between 2 and 4 days after giving birth (64% in 2006) (based on mothers who were discharged to home and excludes data from Western Australia, see Appendix Table D2).

The average age of mothers who gave birth in hospitals was 30.5 years, and 41% were under the age of 30. Mothers who gave birth in public hospitals were younger on average (29.7) than those who gave birth in private hospitals (32.6). Mothers who gave birth in hospitals were more likely to be first-time mothers (43%) than in other settings.

Babies born in hospitals had a lower average birthweight (3,348 grams) and lower average gestational age (38.7 weeks) than in other birth settings. This may be due to the fact that babies requiring a higher level of care, including those who are pre-term or low birthweight, are more likely to be delivered in a hospital setting.

Mothers who give birth in birth centres are slightly younger

The average age of mothers who gave birth in birth centres was 30.0 years, slightly younger than in other birth settings, and 43% were under the age of 30. Around one-third (36%) of those who delivered in birth centres were first-time mothers. The average birthweight of babies born in birth centres was 3,521 grams and the average gestational age was 39.5 weeks.

Mothers giving birth at home are older and less likely to be first-time mothers

The average age of the relatively small number of mothers who gave birth at home was higher than in other settings (31.9 years), and these mothers were less likely to be aged under 30 (32%) or first-time mothers (26%). Babies born at home had a higher average birthweight (3,650 grams) and higher average gestational age (39.8 weeks) than in other places of birth. These data should be interpreted with caution, due to the small numbers of mothers giving birth at home.



Find out more in the *Perinatal data visualisations: Labour and birth*

Onset of labour

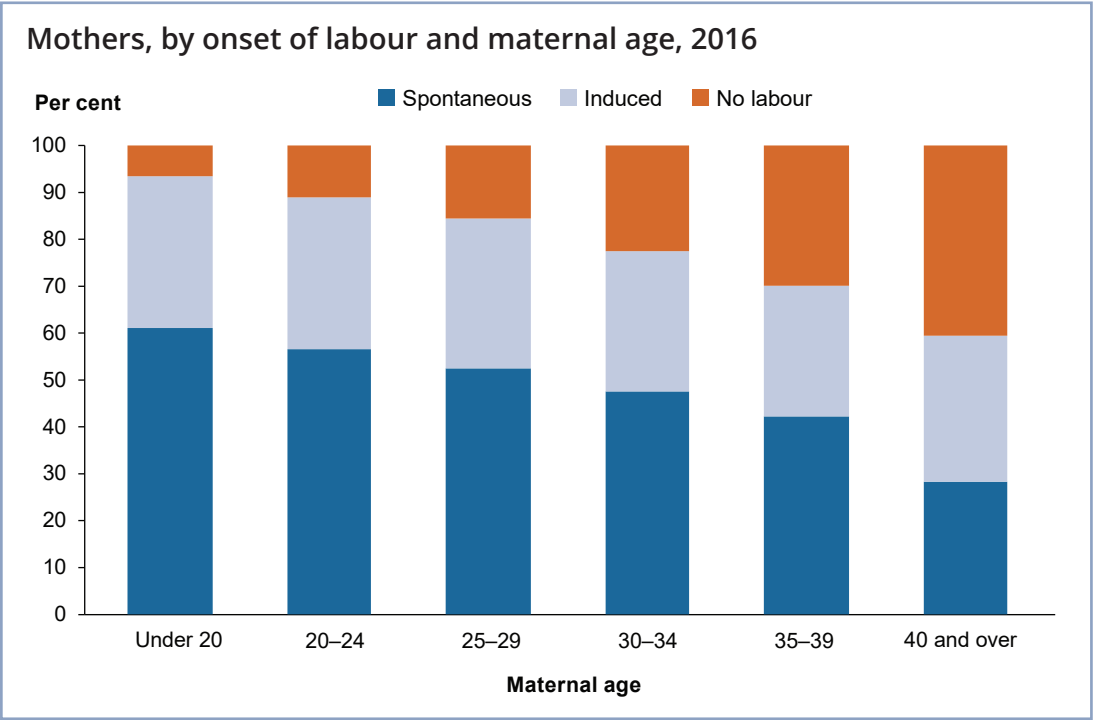
Younger mothers are more likely to have spontaneous labour

Labour can occur spontaneously or may be induced through medical or surgical intervention. If there is no labour, then a caesarean section is performed.

Overall, almost half of mothers who gave birth in 2016 (48% or 150,274) had a spontaneous labour, around 1 in 3 had an induced labour (31% or 94,651) and 1 in 5 had no labour onset (21% or 65,136).

Labour onset varied considerably by maternal age group. Younger mothers (under 20) were the most likely to have spontaneous labour onset (61.0%) and the least likely to have no labour onset (6.6%). Conversely, mothers aged 40 and over were least likely to have spontaneous labour onset (28.2%) and most likely to have no labour onset (40.6%). There was little difference in the proportion of mothers with induced labour between the age groups (28%–33%).

There were changes between 2006 and 2016 in the type of labour onset—a decrease in spontaneous labour (from 57% to 48%) and corresponding increases for the induction of labour (from 25% to 31%) and no labour onset (from 18% to 21%). See Chapter 5 for more data on trends.



Induction type and reason

For mothers who had their labour induced, a combination of medical and/or surgical types of induction were most commonly used (excludes data from Western Australia, see Appendix Table D2).

Queensland, Western Australia, Tasmania, the Australian Capital Territory and the Northern Territory provide further information on the reason for induction of labour (data for Western Australia is for 6 months only, see Appendix Table D2). Within these states and territories, prolonged pregnancy and diabetes were the main reasons for inducing labour (16% and 13%, respectively).

Augmentation of labour

Once labour starts, it may be necessary to intervene to speed up or augment the labour. Labour was augmented for 15% of mothers in 2016—equivalent to 31% of mothers with spontaneous onset of labour. The augmentation rate was higher among first-time mothers, at 43% of those with spontaneous labour onset (excludes data from Western Australia, see Appendix Table D2).



Find out more in the *Perinatal data visualisations: Labour and birth*

Method of birth

Two-thirds of mothers have vaginal births, one-third have caesareans

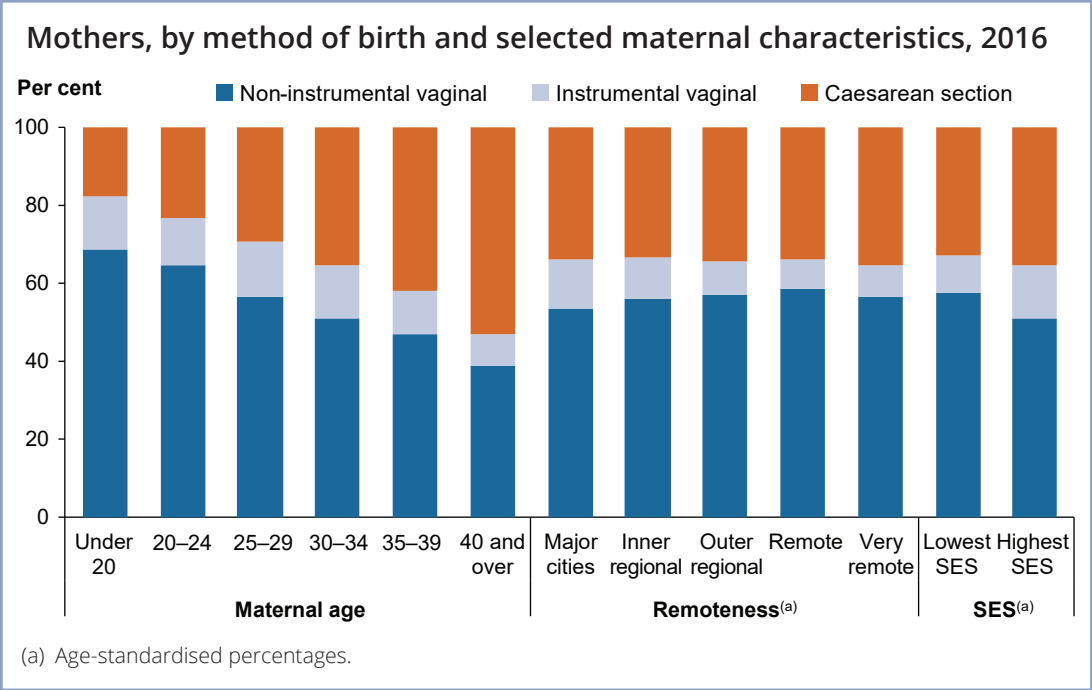
In 2016, 66% of mothers (205,364) had a vaginal birth and 34% (104,839) had a caesarean section. Mothers who had a caesarean section include all mothers who had no labour onset, as well as some mothers who required a caesarean section after labour started.

Most vaginal births (81%) were non-instrumental. When instrumental delivery was required, vacuum extraction was more commonly used than forceps (11% and 8%, respectively).

Non-instrumental vaginal delivery decreased with age and increased slightly with each category of remoteness:

- Non-instrumental vaginal delivery decreased as maternal age increased (from 69% for teenage mothers to 39% for mothers 40 and over).
- Fewer mothers living in *Major cities* had a non-instrumental vaginal delivery (53%) compared with mothers in *Very remote* areas (57%) (age-standardised).
- Mothers living in the highest SES areas were less likely to have a non-instrumental vaginal delivery (51%) than those in the lowest SES areas (58%) (age-standardised).

Instrumental vaginal delivery decreased with age (from 13.5% for teenage mothers to 8.3% for mothers 40 and over) and with increasing remoteness (from 12.9% in *Major cities* to 8.0% in *Very remote* areas, age-standardised). Instrumental vaginal delivery was more common among mothers living in the highest SES areas (13.7%) compared with the lowest SES areas (9.7%) (age-standardised).



Perineal status after vaginal birth

One-quarter of mothers had an intact perineum after vaginal birth (24%) while around half had either a first degree laceration or vaginal graze (23%) or a second degree laceration (30%). A small proportion of mothers had a third or fourth degree laceration (3%) or other types of laceration (7%). Around 1 in 5 mothers had an episiotomy (22%), and of these, 42% also had a laceration of some degree. Therefore, these figures do not sum to 100%.

Internationally, Australia's rate of third and fourth degree lacerations was higher than the average for Organisation for Economic Co-operation and Development (OECD) countries in 2014 for both non-instrumental and instrumental vaginal births:

- 2.5 per 100 non-instrumental vaginal births compared with the OECD average of 1.5.
- 7.2 per 100 instrumental vaginal births compared with the OECD average of 5.7 (OECD 2017).

Variation between countries is likely affected by differences in clinical practice and reporting (ACSQHC 2017).

Caesareans sections are more common among older mothers

Caesarean section rates increased with age, but differed little by remoteness and SES. Mothers aged 40 and over were almost 3 times as likely to deliver by caesarean section as teenage mothers (53% and 18%).

The overall rate of primary caesarean section (that is, caesarean sections to mothers with no previous history of caesarean sections) was 24%; this rate was higher for first-time mothers (34%) and lower for mothers who had previously given birth (11%).

The vast majority (86%) of mothers who had had a previous caesarean section had a repeat caesarean section, while the remainder had a vaginal birth (10.7% had a non-instrumental vaginal birth and 3.5% had an instrumental vaginal birth).

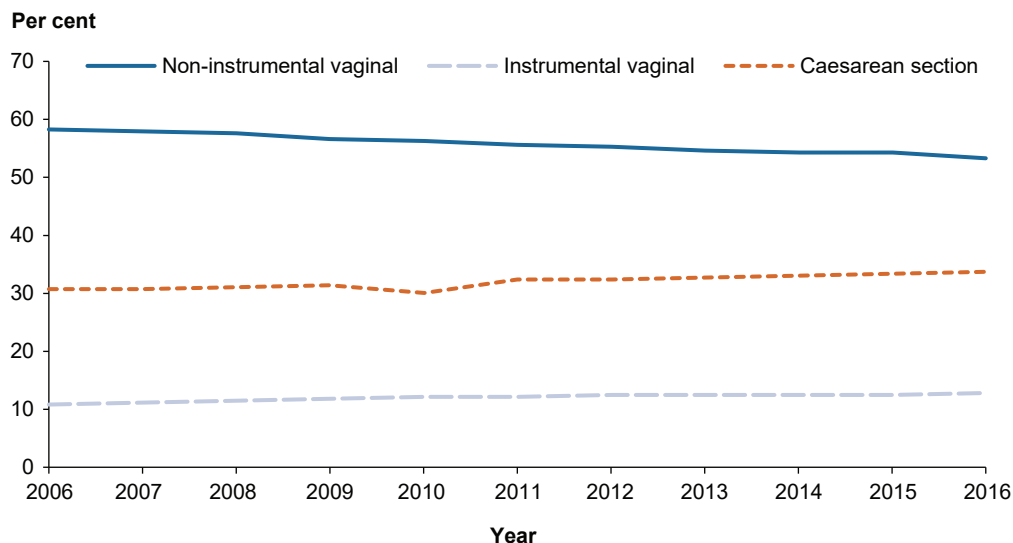
Having had a previous caesarean section was the most common main reason for having a caesarean (excludes data from Victoria and South Australia, see Appendix Table D2).

Caesarean sections have increased over time

Since 2006, vaginal non-instrumental delivery has fallen 5 percentage points (decreasing from 58% in 2006 to 53% in 2016) whereas the caesarean section rate has increased by 3 percentage points (from 31% in 2006 to 34% in 2016). Vaginal delivery with instruments has remained relatively stable between 11% and 12% throughout this period. These trends remain when changes in maternal age over time are taken into account. See Chapter 5 for more data on trends.

Internationally, the caesarean section rate has been increasing in most OECD countries. The OECD average increased from a rate of 20 per 100 live births in 2000 to 34 per 100 in 2014. Australia's rate remained higher than the OECD average over this time and ranked 24th out of 31 OECD countries in 2014 with a rate of 35 per 100 live births (rates ranked from lowest to highest). The rate was lowest in Iceland (15 per 100 live births) and highest in Turkey (51 per 100) (OECD 2017).

Mothers, by method of birth, 2006 to 2016



Robson classification of caesarean sections

In 2015, the World Health Organization (WHO) guidelines were revised to recommend that, rather than a population-based estimate of caesarean section rate, the Robson 10 group classification system (Robson classification) be used to evaluate and compare caesarean section rates between groups of women (ACSQHC 2017; RHR 2015). The Robson classification allocates women into 10 mutually exclusive groups based on obstetric characteristics, such as parity (number of previous pregnancies), onset of labour, whether there has been a previous caesarean section, and the baby's gestational age (RHR 2015) (for more detail see Appendix D).

In 2016, using the Robson classification, women with a breech pregnancy were most likely to have a caesarean section (92.6% for first births, 86.3% for subsequent births) followed by those with singleton pregnancies near term who had one or more previous caesarean sections (85.5%). Focusing on key groups within the Robson classification can provide a more detailed understanding of the relatively high caesarean section rate in Australia and can be used to inform targeted intervention.

Women who gave birth in 2016, by the 10 Robson classification groups

First time mother, singleton pregnancy, baby in breech (feet first) presentation

5,895 women gave birth in this group
5,461 had a caesarean section



Mother has previously given birth with current singleton baby in breech (feet first) presentation

4,594 women gave birth in this group
3,966 had a caesarean section



Mother has previously given birth with a **previous caesarean scar**, singleton pregnancy, baby in cephalic (head first) presentation, **≥37 weeks gestation, induced labour or caesarean section before labour**

45,130 women gave birth in this group
38,605 had a caesarean section



Multiple pregnancy, including women with **previous caesarean scars**

4,487 women gave birth in this group
3,112 had a caesarean section



All women with a singleton pregnancy, baby in transverse (side on) or oblique lie, including women with **previous caesarean scars**

3,075 women gave birth in this group
1,528 had a caesarean section



First time mother, singleton pregnancy, baby in vertex (head first) presentation, **≥37 weeks gestation, induced labour or caesarean section before labour**

57,252 women gave birth in this group
25,685 had a caesarean section



All women with a singleton pregnancy, baby in vertex (head first) presentation, **≤36 weeks gestation, including women with previous caesarean scars**

17,790 women gave birth in this group
7,185 had a caesarean section



Mother has previously given birth without a previous caesarean scar, singleton pregnancy, baby in vertex (head first) presentation, **≥37 weeks gestation, induced labour or caesarean section before labour**

38,709 women gave birth in this group
6,488 had a caesarean section



First time mother, singleton pregnancy, baby in vertex (head first) presentation, **≥37 weeks gestation, spontaneous labour (not induced)**

57,747 women gave birth in this group
9,402 had a caesarean section



Mother has previously given birth without a previous caesarean scar, singleton pregnancy, baby in vertex (head first) presentation, **≥37 weeks gestation, spontaneous labour (not induced)**

60,192 women gave birth in this group
1,676 had a caesarean section



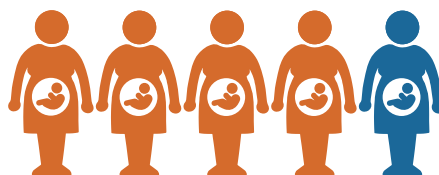
Pain relief during labour and operative delivery

Analgesia is used to relieve pain during labour (spontaneous or induced), while anaesthesia is used for operative delivery (caesarean section or instrumental vaginal birth). More than 1 type of analgesic or anaesthetic can be administered.

Of the 244,925 mothers who had labour in 2016, nearly 4 in 5 (78%) had pain relief. The most common types were nitrous oxide (inhaled) (55%), followed by regional analgesic (36%) and systemic opioids (17%). Mothers who did not have pain relief were more likely to be older, to have given birth before, to be Indigenous, and to live in the lowest SES areas or more remote areas, compared with those who had pain relief.

All mothers who have a caesarean section receive a type of anaesthetic, except in the rare case of post-mortem delivery. In 2016, the vast majority (94.0%) of mothers who had a caesarean section had a regional anaesthetic and 6.3% had a general anaesthetic (note that some mothers had both).

Most mothers who had an instrumental vaginal delivery also had an anaesthetic (88%). A regional anaesthetic was most common (63% of mothers who had an instrumental vaginal delivery), followed by a local anaesthetic to the perineum (27%).



Find out more in the *Perinatal data visualisations: Labour and birth*

4 in 5 mothers with labour onset received pain relief

3 Babies

Gestational age

1 in 12 babies are born pre-term

Gestational age is the duration of pregnancy in completed weeks.

In 2016, the average gestational age for all babies was 38.6 weeks, with the vast majority (91%) born at term (37–41 weeks).

Overall, 8.5% of babies were born pre-term (before 37 completed weeks' gestation) in 2016. Most of these births (81.1%) occurred between 32 and 36 completed weeks. The average gestational age for all pre-term births was 33.4 weeks.

Pre-term birth is associated with a higher risk of adverse neonatal outcomes. This is reflected in the average gestational age for liveborn babies (38.7 weeks), which was considerably higher than for stillborn babies (26.6 weeks). It is also reflected in the fact that most stillbirths were for pre-term babies (85.8%) and only 13.9% of stillbirths occurred at term.

Less than 1 per cent (0.6%) of all babies were born post-term (42 weeks and over).

From 2006 to 2016, the proportion of babies born between 37 and 39 weeks increased, while the proportion born from 40 weeks onwards decreased.



8.5% pre-term



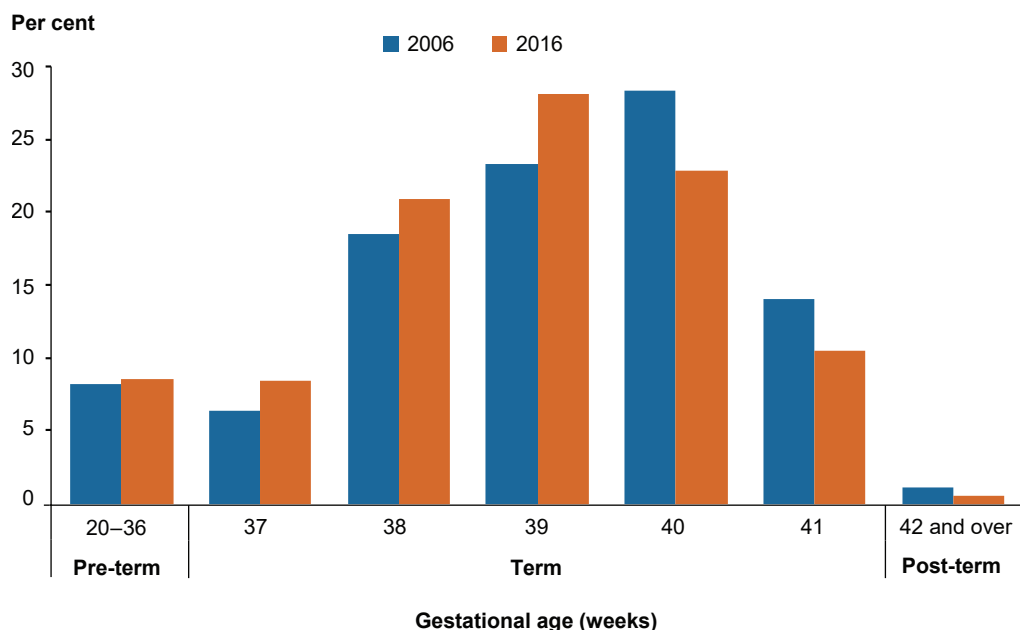
91% born at term



<1% post-term

Gestational age of babies in 2016

Babies, by gestational age, 2006 and 2016



Note: Pre-term births include a small number of births of less than 20 weeks' gestation.

Pre-term birth much more likely for multiple births

Babies born in multiple births were vastly more likely to be born pre-term— 64.2% of twins and 98.7% of all other multiples (triplets and higher) were born pre-term in 2016. This compared with 6.8% of singleton babies.

Other characteristics were also associated with increased likelihood of pre-term birth, noting that some babies may have had more than 1 of these characteristics. These included:

- babies of Indigenous mothers—13.6% born pre-term compared with 8.3% of babies of non-Indigenous mothers
- babies whose mothers smoked during pregnancy—12.9% born pre-term compared with 7.8% of babies whose mothers did not smoke
- babies born to mothers usually residing in more remote areas—12.9% in *Very remote* areas compared with 8.2% in *Major cities*
- babies of younger (under 20) and older (40 and over) mothers—11.5% and 12.5% were pre term, compared with 8.3% of babies with mothers aged 20–39.



Find out more in the *Perinatal data visualisations: Baby outcomes*

Birthweight

The vast majority of liveborn babies are in the normal birthweight range

A baby's birthweight is a key indicator of infant health and a determinant of a baby's chances of survival and health later in life. This section provides an overview of birthweight; the following sections focus on low birthweight and small for gestational age babies.

In 2016, the average birthweight of all babies was 3,322 grams. The average was slightly higher for liveborn babies (3,336 grams), with the vast majority of these born in the normal birthweight range (92% or 288,176); 6.5% (20,430) were low birthweight, and a small proportion were high birthweight (1.3% or 3,965).

The average birthweight of stillborn babies (1,076 grams) was far lower than for liveborn babies (3,336 grams). Four in 5 (83%) stillborn babies were low birthweight, and two-thirds (66%) weighed less than 1,000 grams.

Birthweight ranges

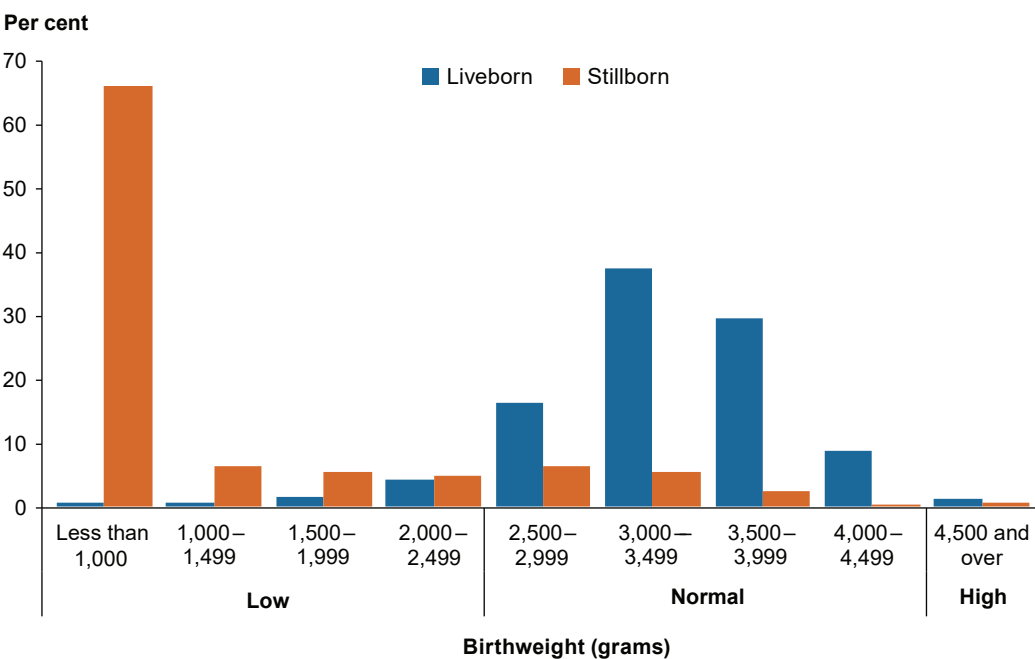
High: 4,500 grams and over

Normal: 2,500 to 4,499 grams

Low: less than 2,500 grams

(WHO 1992)

Babies, by birthweight and birth status, 2016



Low birthweight

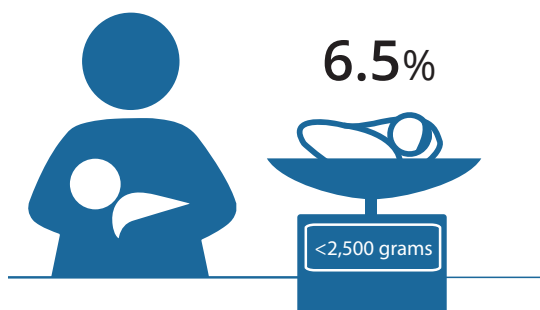
1 in 16 liveborn babies are low birthweight

Babies are considered to be of low birthweight when their weight at birth is less than 2,500 grams. Low birthweight is closely associated with pre-term birth—almost 3 in 4 low birthweight babies were pre-term, and more than half of pre-term babies were of low birthweight in 2016.

This section looks at low birthweight in more detail, and relates to live births only.

In 2016, 6.5% (20,430) of liveborn babies were of low birthweight. Of these babies:

- 15% or 3,118 weighed less than 1,500 grams
- 7% or 1,391 weighed less than 1,000 grams.



Proportion of low birthweight babies in 2016

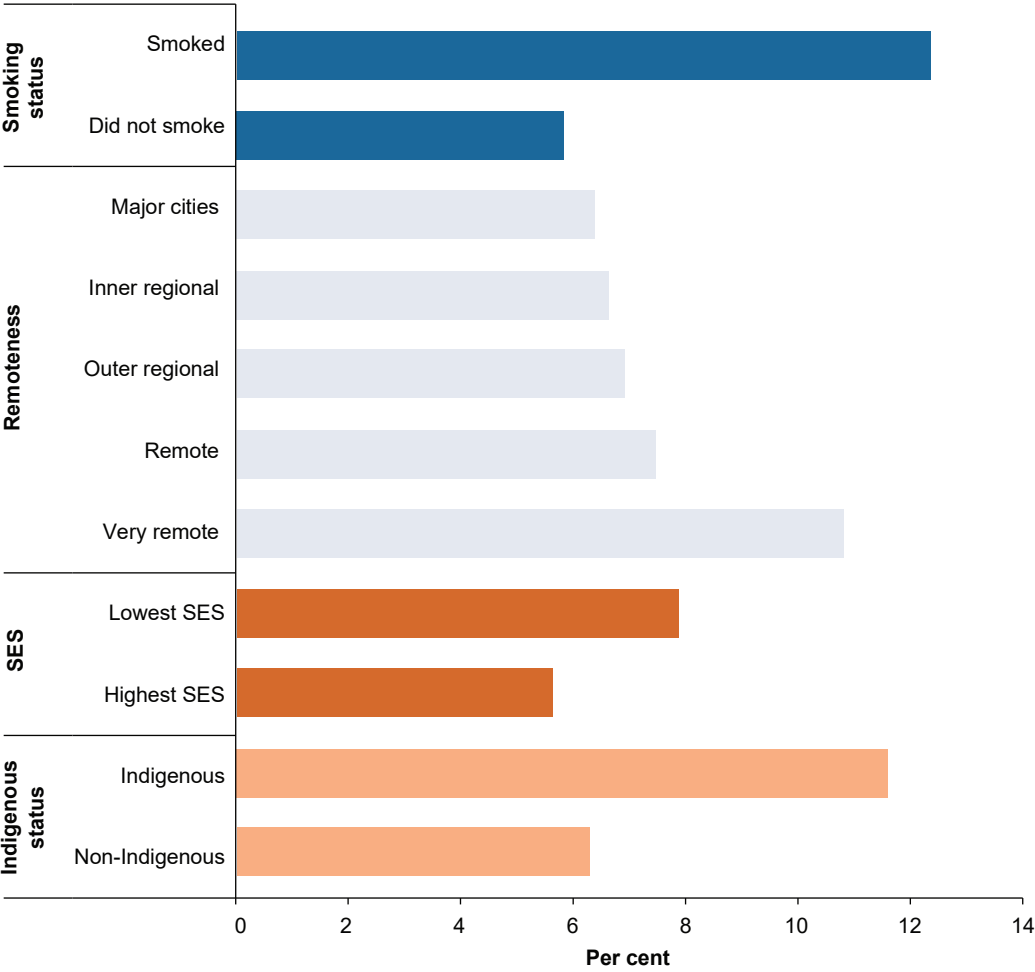
Between 2006 and 2016, there was little change in the proportion of low birthweight babies, remaining between 6.1% and 6.5% over this time.

The proportion of low birthweight babies was higher among:

- female babies (7.1%) compared with male babies (6.0%)
- twins (56%) and other multiples (96%) compared with singletons (5.1%)
- babies born in public hospitals (7.1%) compared with babies born in private hospitals (4.9%)
- babies of mothers who smoked during pregnancy (12.4%) compared with babies whose mothers did not (5.8%)
- babies of Indigenous mothers (11.6%) compared with those of non-Indigenous mothers (6.3%) (see Chapter 4 for more information).

Internationally, the proportion of low birthweight babies in Australia in 2015 (6.4%) was lower than the OECD average (6.5%), with Australia ranked 17th out of 35 OECD countries. The rate of low birthweight was lowest in Iceland (2.9%) and highest in Japan (9.5%) (OECD 2017).

Low birthweight liveborn babies, by selected maternal characteristics, 2016



Find out more in the *Perinatal data visualisations: Baby outcomes*

Small for gestational age

Babies of mothers who smoked during pregnancy were more likely to be small for gestational age

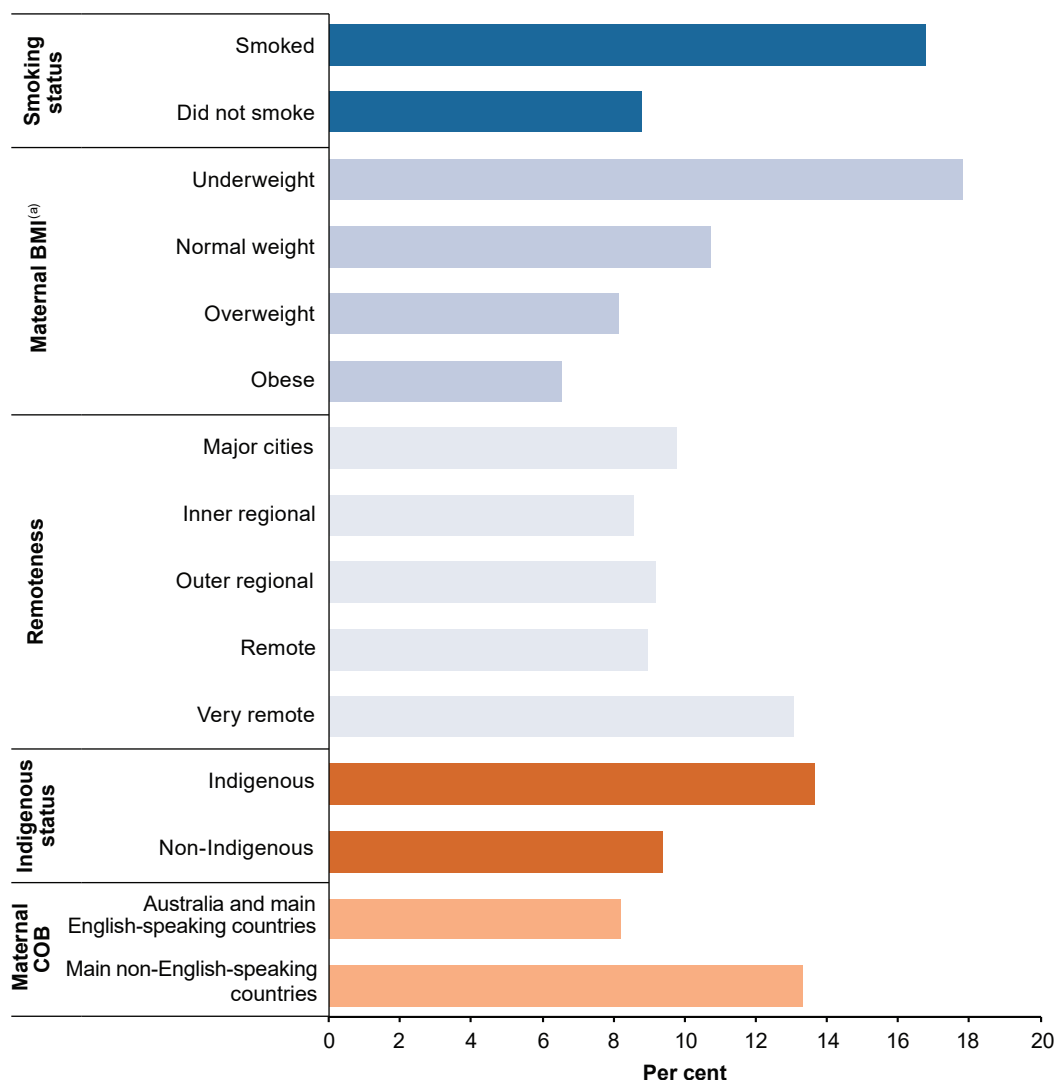
A baby may be small due to being born early (pre-term) or be small for gestational age, which indicates a possible growth restriction within the uterus. Poor fetal growth is associated with increased risk of stillbirth and with fetal distress during labour, and may predispose babies to long-term conditions in later life.

Babies are defined as small for gestational age if their birthweight is below the 10th percentile for their gestational age and sex, according to national birthweight percentiles. The latest birthweight percentiles were developed for Australia using information about liveborn singleton babies born between 2004 and 2013 (Johnson et al. 2016, for more detail see Appendix D). Data in this section relate to singleton live births only.

Certain characteristics were associated with increased likelihood of being small for gestational age in 2016, noting that some babies may have had more than 1 of these characteristics. These included:

- babies of Indigenous mothers—14% were small for gestational age compared with 9% of babies of non-Indigenous mothers
- babies of mothers born in main non-English-speaking countries (see Glossary)—13% compared with 8% of babies whose mothers were born in Australia or other main English-speaking countries
- babies born to mothers usually residing in more remote areas—13% in *Very remote* areas compared with 10% in *Major cities*
- babies of mothers living in the lowest SES areas—11% compared with 9% in the highest SES areas
- babies of younger mothers (under 20)—14% were small for gestational age, compared with 9% of babies with mothers aged 20–39
- babies whose mothers were underweight—18% compared with 11% of babies whose mothers were in the normal weight range according to BMI
- babies whose mothers smoked during pregnancy—17% compared with 9% of babies whose mothers did not smoke.

Babies who were small for gestational age, by selected maternal characteristics, 2016



(a) BMI source data and methods used for collection in states and territories are not uniform.

Note: Includes liveborn singleton babies only.

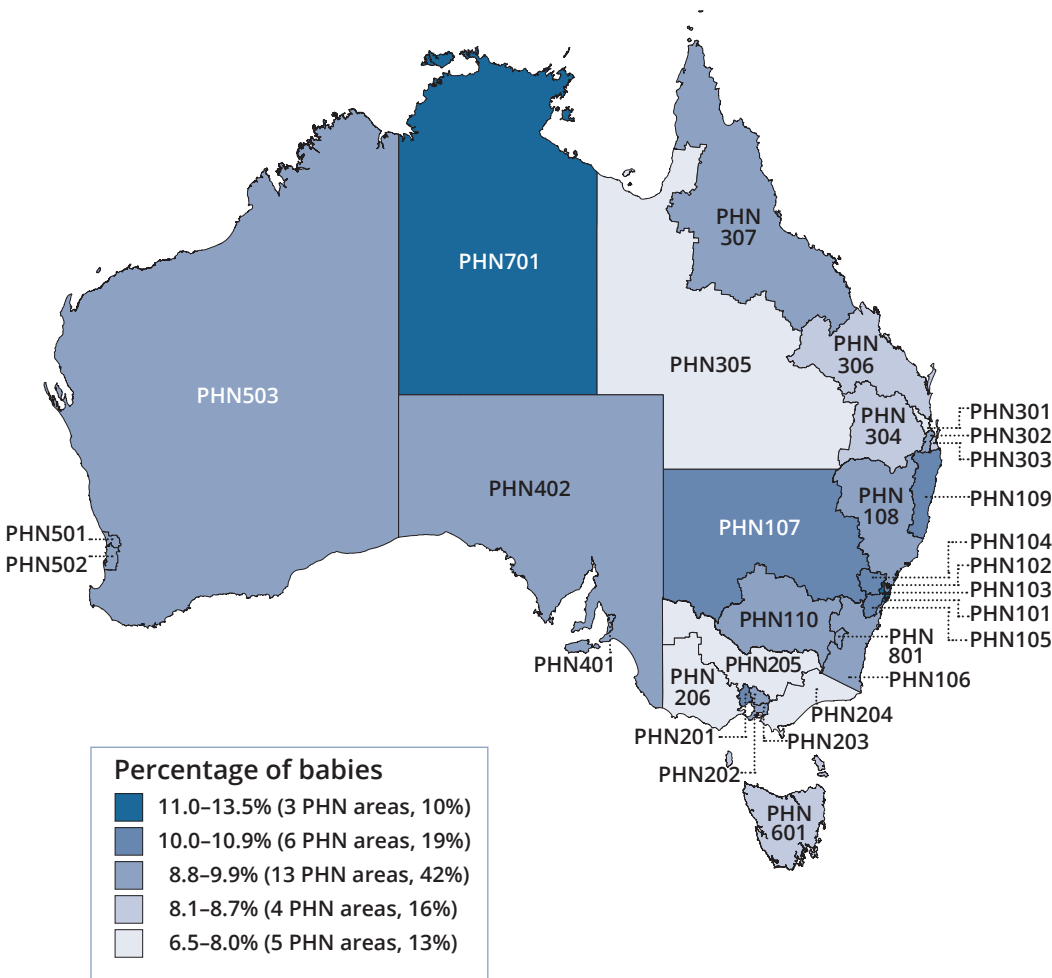


Find out more in the *Perinatal data visualisations: Baby outcomes*

Rates of small for gestational age babies vary depending on where mothers live

The proportion of liveborn singleton babies who were small for gestational age varied across the 31 PHN areas in Australia in 2016. The proportions ranged from 6.5% in the Gippsland PHN area to 13.5% in the Western Sydney PHN area.

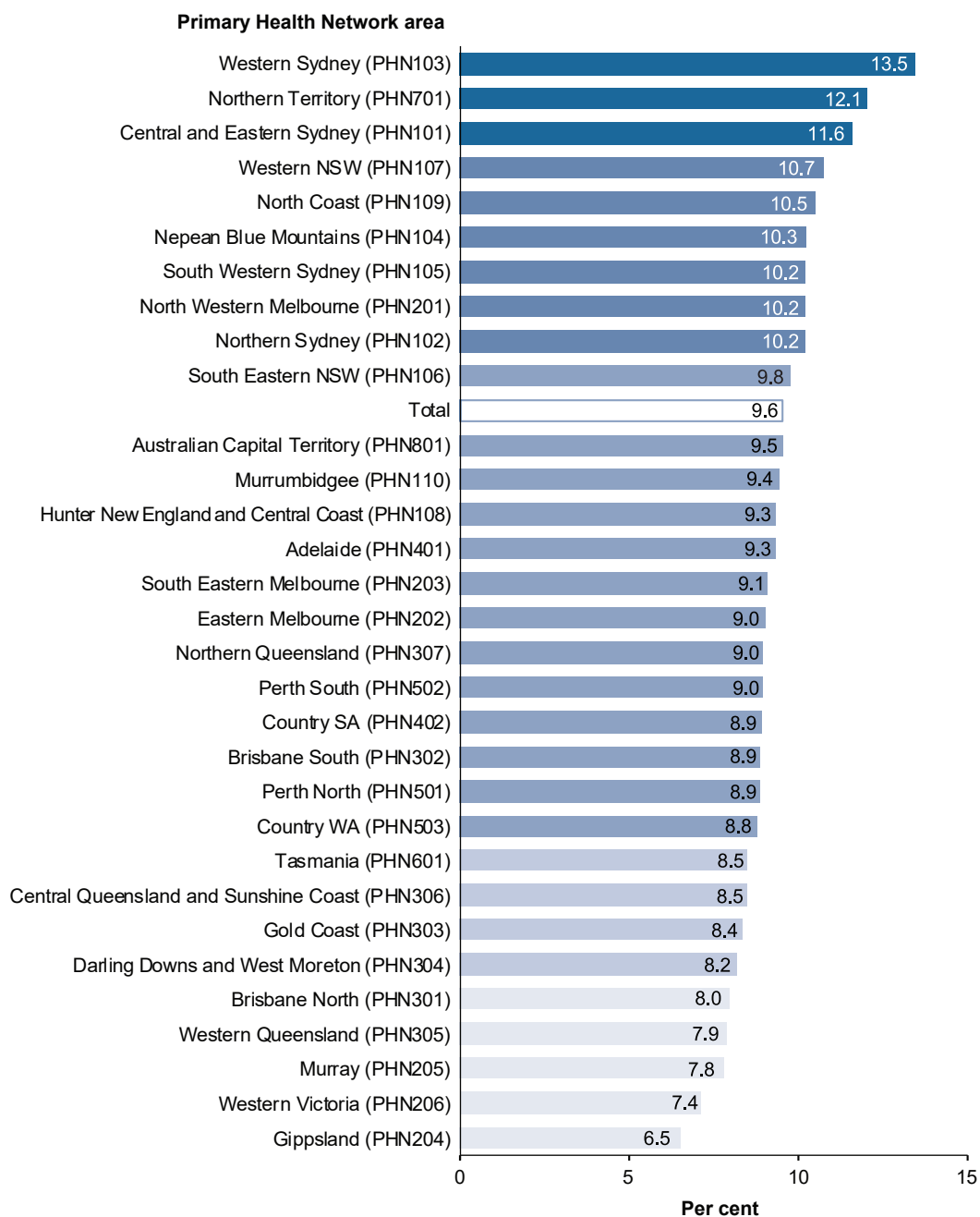
Map of percentage of small for gestational age babies, by Primary Health Network area of mother's usual residence, 2016



Notes

1. See Supplementary Table 5.6 for detailed data.
2. Includes liveborn singleton babies only.

Percentage of small for gestational age babies, by Primary Health Network area of mother's usual residence, 2016



Notes

1. See Supplementary Table 5.6 for detailed data.
2. Includes liveborn singleton babies only.

Baby presentation and method of birth

Multiple births are less likely to present head first

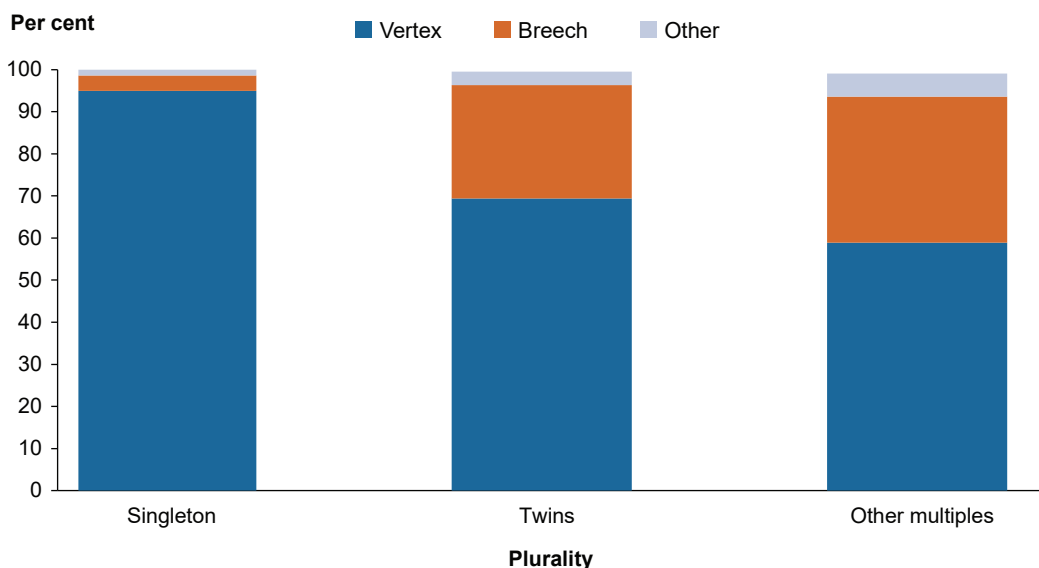
The presentation of the baby at birth refers to the anatomical part of the baby that is facing down the birth canal.

In 2016, the vast majority of babies (94% or 297,007) were in a vertex presentation at birth, in which the top of the head is facing down the birthing canal. Small proportions of babies had different (non-vertex) presentations:

- around 1 in 25 babies (4.1% or 12,992) were in a breech presentation (where the baby exits buttocks or feet first)
- around 1 in 100 babies (1.3% or 4,007) were in other presentations including face, brow, shoulder/transverse and compound presentations.

In 2016, multiple births were around 6 times as likely to be in non-vertex presentation as singletons (31% compared with 5%, respectively). The proportion was greater for higher-order multiples (triplets and higher) (40%) than for twins (30%). Non-vertex presentation increased with birth order for multiple births, from 23% among babies who were born first to 38% among subsequent babies.

Babies, by presentation at birth and plurality, 2016

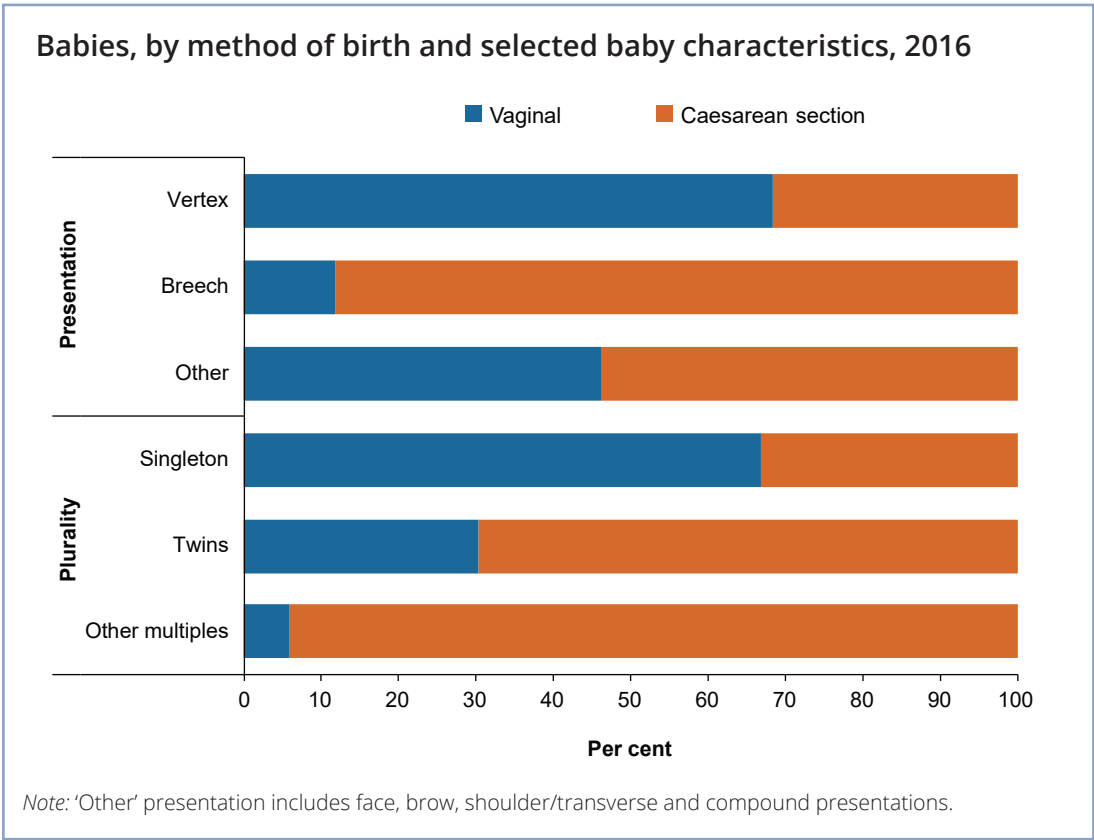


Note: 'Other' includes face, brow, shoulder/transverse and compound presentations.

A baby's presentation at birth can influence the method of birth. Most babies in a vertex presentation were delivered by vaginal birth (68%), with 32% delivered via caesarean section. Conversely, almost 9 in 10 babies (88%) presenting in breech position were delivered via caesarean section, with only 12% delivered by vaginal birth.

A baby's method of birth can also be influenced by plurality (the number of births resulting from a pregnancy). The likelihood of vaginal delivery decreased as plurality increased, from two-thirds (67%) of singleton babies, to around one-third (30%) of twins and 6% of other multiples. This pattern was reversed for caesarean sections, which were least common among singletons (33%) and most common among multiple births (70% of twins and 94% of other multiples).

See Chapter 2 for more information on method of birth for mothers, where the method of birth of the first-born baby is used when reporting multiple births.



Find out more in the *Perinatal data visualisations: Baby outcomes*

Apgar scores

Apgar scores are highest among babies born at term

Apgar scores are clinical indicators of a baby's condition shortly after birth. The score is based on 5 characteristics of the baby: skin colour, pulse, breathing, muscle tone and reflex irritability. Each characteristic is given between 0 and 2 points, with a total score between 0 and 10 points.

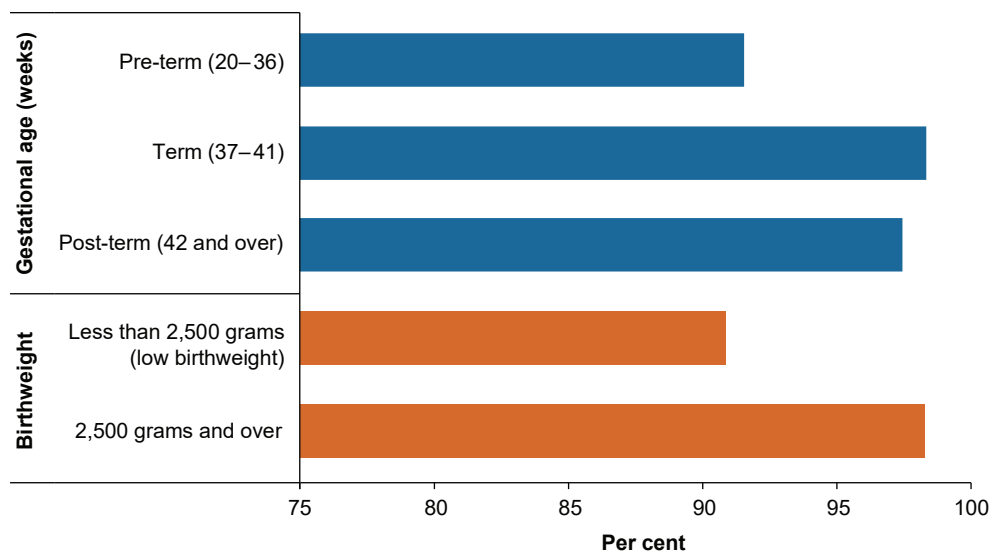
An Apgar score of 7 or more at 5 minutes after birth indicates the baby is adapting well to the environment, while a score of less than 7 indicates complications for the baby.

In 2016, almost all liveborn babies (98%) had an Apgar score of 7 or more. Apgar scores of 4–6 were recorded for 1.6% of all liveborn babies, while just 0.4% had scores of 0–3.

Apgar scores differed by gestational age and birthweight:

- 92% of babies born pre-term had an Apgar score of 7 or more, compared with 98% of babies born at term.
- 91% of low birthweight babies (less than 2,500 grams) had an Apgar score of 7 or more, compared with 98% of babies weighing 2,500 grams or more.

Liveborn babies, Apgar score of 7 or more at 5 minutes, by gestational age and birthweight, 2016



Find out more in the *National Core Maternity Indicators data visualisations: Apgar score*

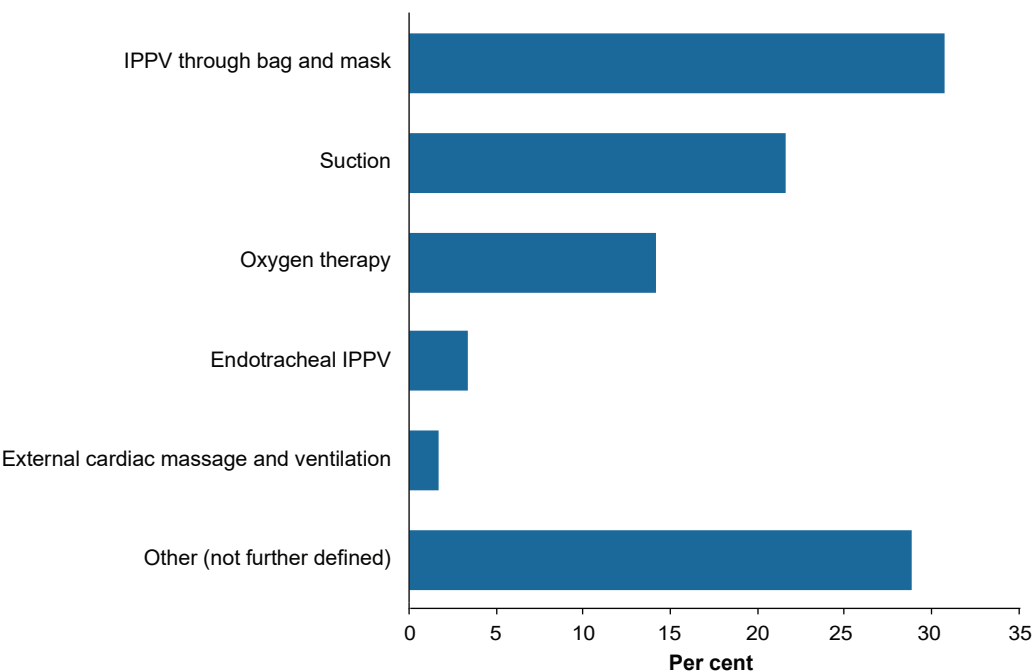
Resuscitation

1 in 5 liveborn babies require active resuscitation

Resuscitation is undertaken to establish independent breathing and heartbeat or to treat depressed respiratory effect and to correct metabolic disturbances. Resuscitation types range in severity from suction to external cardiac massage and ventilation. If more than 1 type of resuscitation is performed, the most severe type is recorded.

Almost one-fifth (19%) of liveborn babies required some form of active resuscitation immediately after birth in 2016 (excludes data from Western Australia, see Appendix Table D2). Around one-third of those requiring resuscitation received suction or oxygen therapy (36%) and a similar proportion (34%) received breathing assistance by intermittent positive pressure ventilation (IPPV) through a bag and mask or by endotracheal intubation. Less than 2% of babies who required resuscitation had external cardiac massage and ventilation.

Liveborn babies that received active resuscitation, by resuscitation measure, 2016



Note: Excludes data from Western Australia (see Appendix Table D2).



Find out more in the *Perinatal data visualisations: Baby outcomes*

Hospital births and length of stay

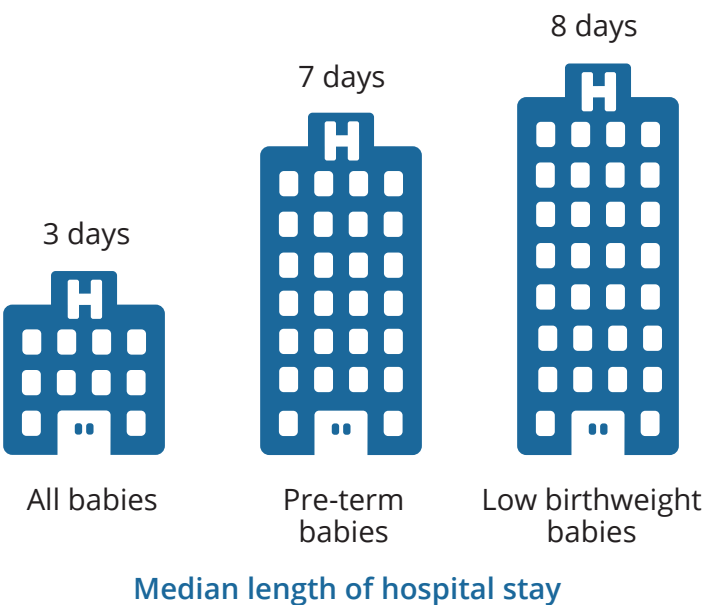
Pre-term babies, low birthweight babies and babies in multiple births stayed in hospital longer

The vast majority of babies were born in hospital (98% or 307,009 babies in 2016), and of these, most were discharged home (95% or 259,040). A small proportion of babies (4%) were transferred to another hospital and 1% were perinatal deaths (stillbirths or neonatal deaths occurring in the hospital of birth). Note that all data presented for this topic exclude data from Western Australia (see Appendix Table D2).

Among babies who were discharged home, the median length of stay in hospital was 3 days with around 9 in 10 (92%) staying 5 days or less.

A number of factors influence a baby's length of stay in hospital, including birthweight and gestational age: low birthweight babies had a median stay of 8 days (compared with 3 days for normal birthweight babies) and pre-term babies had a median stay of 7 days (compared with 3 days for babies delivered at term).

As noted in earlier sections, babies who are part of a multiple birth are more likely to be of low birthweight and to be born pre-term. This is reflected in the median length of stay in hospital, which was higher for twins (6 days) and for other multiples (25 days) than for singletons (3 days).



Admission to special care nurseries and neonatal intensive care units

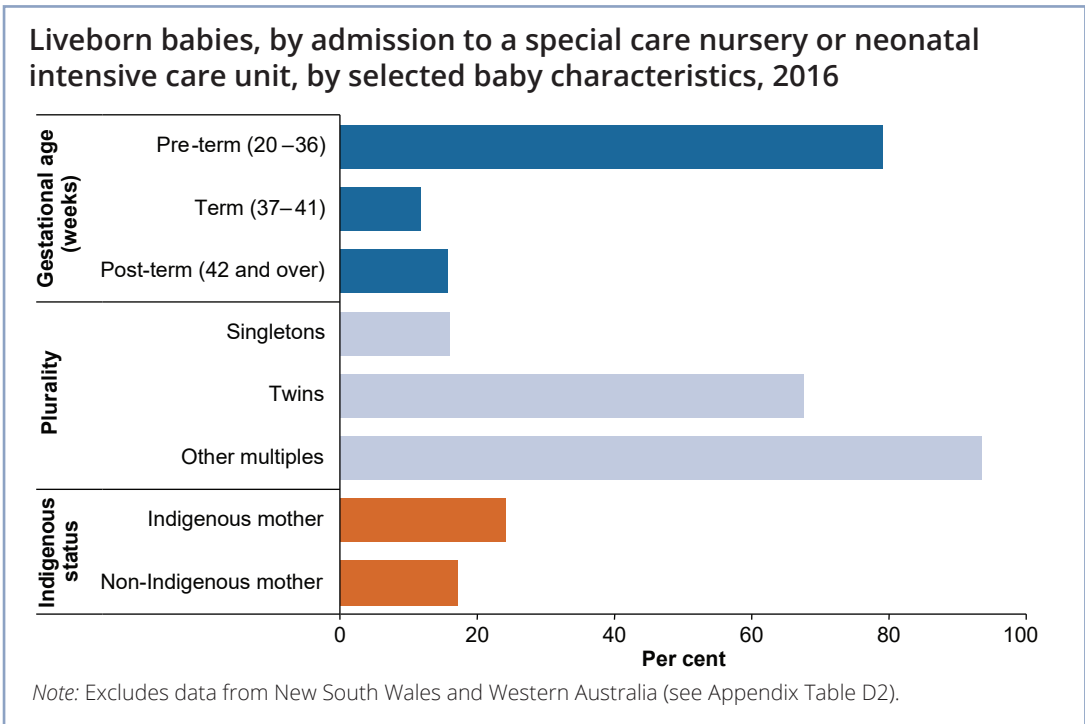
Pre-term babies and multiple births are more likely to be admitted for specialised care

Some liveborn babies require more specialised treatment and care than is available on the postnatal ward. Of all liveborn babies, 17% (31,216) were admitted to a special care nursery (SCN) or neonatal intensive care unit (NICU) in 2016. Note that babies who were transferred between hospitals (around 4% of all babies) and who were then admitted to an SCN or NICU may not be included in these data and data also exclude New South Wales and Western Australia (see Appendix Table D2).

Pre-term babies were more likely to be admitted to an SCN or NICU (79%) than babies delivered at term (12%) or post-term (15%). Most pre-term babies are of low birthweight, and 78% of low birthweight babies were admitted compared with 13% of normal birthweight babies and 23% of those with a high birthweight.

The majority of multiple births are pre-term, and therefore twins and other multiples were much more likely to be admitted than singletons (68% and 94% compared with 16%, respectively).

Babies born to Indigenous mothers were 1.4 times as likely to be admitted to an SCN or NICU as babies of non-Indigenous mothers.



Perinatal deaths

Gestational age and birthweight are the biggest predictors of perinatal death

Counting perinatal deaths

Various definitions are used for reporting and registering perinatal deaths in Australia. The National Perinatal Data Collection defines perinatal deaths as all fetal deaths (stillbirths) and neonatal deaths (deaths of liveborn babies aged less than 28 days) of at least 400 grams birthweight or at least 20 weeks' gestation.

Fetal and neonatal deaths may include late termination of pregnancy (20 weeks or more gestation).

Perinatal and fetal death rates are calculated using all live births and stillbirths in the denominator. Neonatal death rates are calculated using live births only.

Neonatal deaths may not be included for babies transferred to another hospital, re-admitted to hospital after discharge or who died at home after discharge. The AIHW has established a separate National Perinatal Mortality Data Collection to capture complete information on these deaths. The latest report from this collection is for deaths occurring in 2013 and 2014, and is available from the AIHW website <www.aihw.gov.au> (AIHW 2018).

Perinatal and infant death periods used by the National Perinatal Data Collection

Labour	Birth	28 days	1 year
<i>At least 20 weeks or 400 grams</i>	<i>0–27 days</i>	<i>28 days–<1 year</i> Postneonatal deaths	
Fetal deaths (stillbirths)	Neonatal deaths		
Perinatal deaths			
Infant deaths			

In 2016, there were 9 perinatal deaths for every 1,000 births, a total of 2,849 perinatal deaths. This included:

- 2,107 fetal deaths (stillbirths), a rate of 7 deaths per 1,000 births
- 742 neonatal deaths, a rate of 2 deaths per 1,000 live births.

Perinatal death rates decreased as gestational age and birthweight increased:

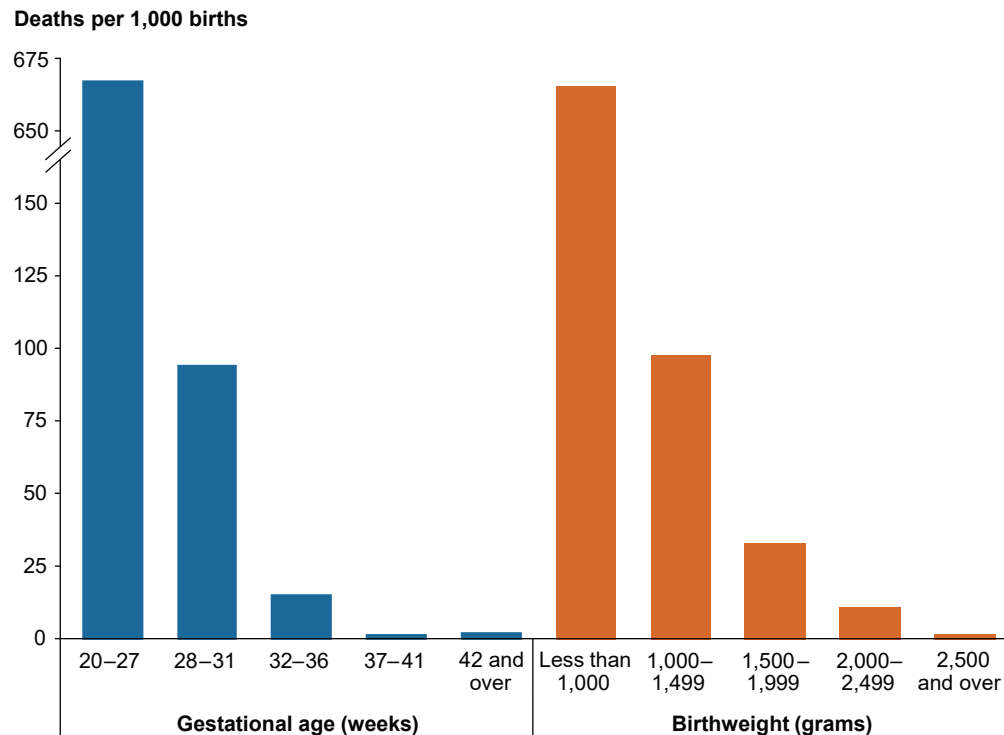
- For gestational age, rates were highest among babies born at 20–27 weeks' gestation (674 per 1,000 births) and lowest among babies born at term (37–41 weeks) (1 per 1,000 births).
- For birthweight, rates were highest among extremely low birthweight babies (less than 1,000 grams) (673 per 1,000 births) and lowest among babies with a birthweight of 2,500 grams or higher (2 per 1,000 births).

Other factors were also associated with higher rates of perinatal death (although to a lesser extent than gestational age and birthweight), including:

- maternal age—babies born to mothers under 20, 20–24 and 40 and over had the highest rates of perinatal death (20, 11 and 14 deaths per 1,000 births, respectively). Babies of mothers aged 30–34 had the lowest rate (8 per 1,000).
- maternal Indigenous status—perinatal death rates among babies of Indigenous mothers (15 per 1,000 births) were 1.7 times those of non-Indigenous mothers (9 per 1,000) (see Chapter 4 for more information).
- multiple births—twins and other multiples had perinatal death rates around 4 and 11 times that of singletons (35 and 85 deaths per 1,000 births compared with 8, respectively).

Patterns by these characteristics were similar for both fetal and neonatal deaths, noting that fetal death (stillbirth) rates were consistently higher than neonatal death rates.

Perinatal deaths by gestational age and birthweight, 2016



Congenital anomalies are the leading cause of perinatal deaths

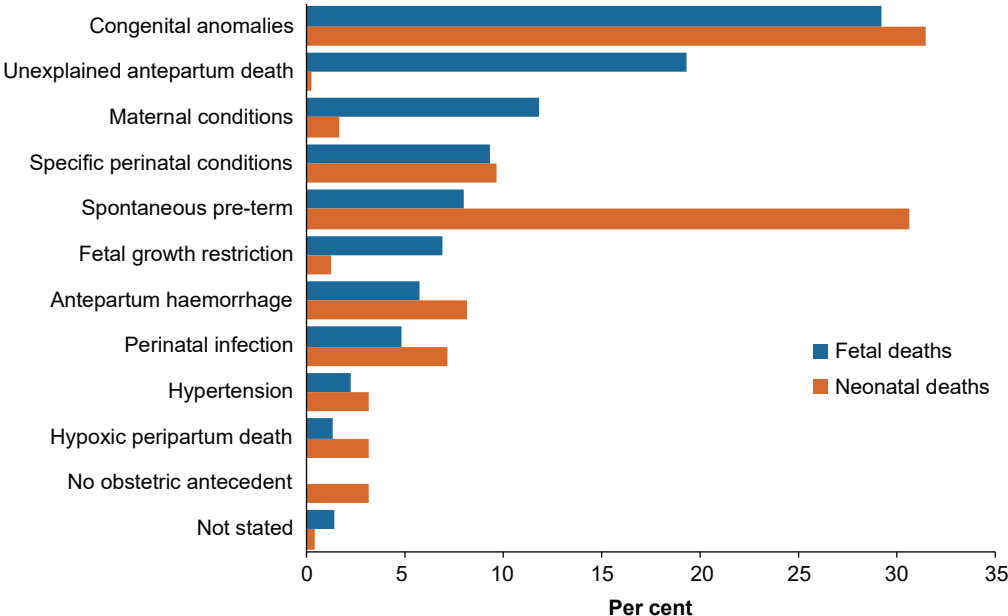
Classifying perinatal deaths

Causes of death for perinatal deaths are classified according to the Perinatal Society of Australia and New Zealand Clinical Practice Guideline for Perinatal Mortality Perinatal Death Classification (PSANZ-PDC).

Information about cause of death is based on data for 6 states and territories (Victoria, Queensland, South Australia, Tasmania, the Australian Capital Territory and the Northern Territory). Perinatal deaths in these 6 jurisdictions represented two-thirds of all perinatal deaths in 2016 (1,812 deaths).

The most common cause of all perinatal deaths was congenital anomalies, accounting for 3 in 10 (30%) perinatal deaths. This was followed by unexplained antepartum death and spontaneous pre-term (both 14%). The leading causes of death vary between fetal and neonatal deaths.

Fetal and neonatal deaths, by cause of death (PSANZ-PDC), 2016



Note: Excludes data from New South Wales and Western Australia (see Appendix Table D2).

These patterns were influenced by gestational age, maternal age and plurality. For example:

- perinatal deaths due to congenital anomalies increased with increasing maternal age
- spontaneous pre-term birth decreased with increasing gestational age
- the most common cause of death among singleton babies was congenital anomaly, while spontaneous pre-term birth and specific perinatal conditions were the most common causes of death among twins and other multiples
- most perinatal deaths of babies born to mothers aged under 20 were due to maternal conditions, while congenital anomalies were the most common cause of perinatal death for babies whose mothers were 40 and over.

4 Aboriginal and Torres Strait Islander mothers and their babies

Most Indigenous mothers and their babies are doing well, with improvements in outcomes for mothers and babies observed in recent years. There has been a notable increase in the proportion of Indigenous mothers attending an antenatal visit in the first trimester and a slight increase in the proportion attending 5 or more antenatal visits. The rate of Indigenous mothers smoking during pregnancy has decreased, as has the proportion of low birthweight babies of Indigenous mothers. Despite these improvements, significant gaps remain between outcomes for Indigenous and non-Indigenous mothers and babies.

Although a range of data by Indigenous status has been presented in earlier chapters, this chapter provides more in-depth information on Indigenous mothers and their babies.



Proportion of Indigenous mothers and babies in 2016

In 2016, 4.4% of all women who gave birth identified as being Aboriginal and/or Torres Strait Islander. These 13,608 women gave birth to 13,794 babies. Around 1 in 19 (5.2% or 16,479) of all babies born were Aboriginal and/or Torres Strait Islander (based on the Indigenous status of the baby).

Indigenous mothers

Indigenous mothers are more likely to be teenagers, and to live in remote or disadvantaged areas than non-Indigenous mothers

Younger maternal age, remoteness and socioeconomic disadvantage of areas of usual residence are associated with increased risk of a number of poorer maternal and perinatal outcomes.

In 2016, Indigenous mothers, compared with non-Indigenous mothers, were:

- 7 times as likely to be teenage mothers (14% compared with 2%). Only 9% of Indigenous mothers were aged 35 and over compared with 23% of non-Indigenous mothers
- around 14 times as likely to live in *Remote* and *Very Remote* areas as non-Indigenous mothers (21% compared with 1.5%, respectively)—similar to the pattern for all women of reproductive age in the population
- 2.4 times as likely to live in the lowest socioeconomic status (SES) areas as non-Indigenous mothers. Almost 1 in 2 Indigenous mothers lived in the lowest SES areas compared with 1 in 5 non-Indigenous mothers.

More Indigenous mothers are accessing antenatal care in the first trimester

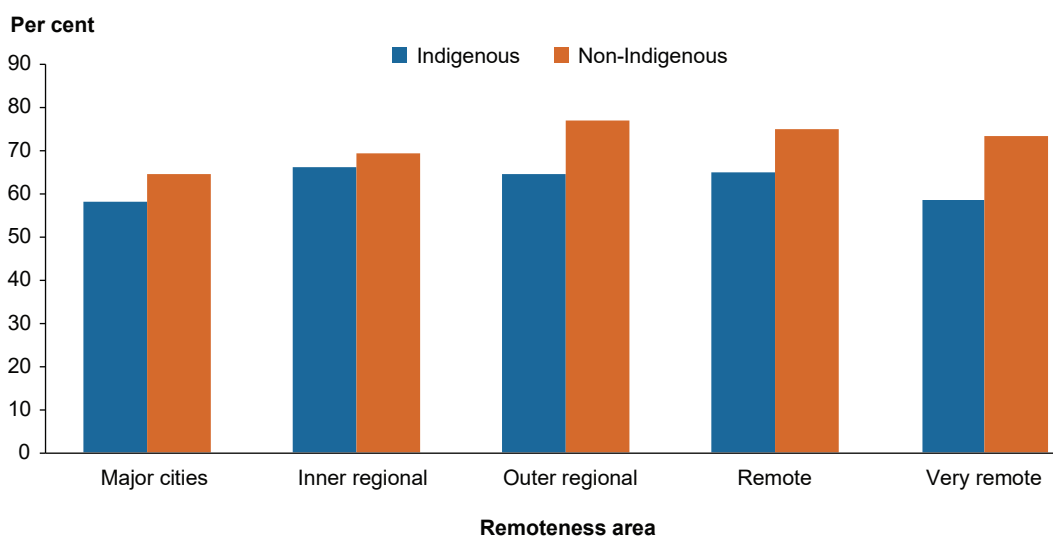
On average, in 2016, Indigenous mothers had 1 less antenatal visit than non-Indigenous mothers (9 and 10 visits, respectively—data exclude very pre-term births). Indigenous mothers were also more likely to attend antenatal care slightly later in pregnancy than non-Indigenous mothers—the average duration of pregnancy at the first antenatal visit was 13 and 12 weeks, respectively.

Fewer Indigenous mothers (62%) had their first antenatal visit in the first trimester of pregnancy (less than 14 completed weeks) than non-Indigenous mothers (67%) (age-standardised).

The age-standardised proportion of Indigenous mothers receiving antenatal care in the first trimester was highest in *Inner regional* areas (66%), compared with 58% in *Major cities* and *Very remote* areas. For non-Indigenous mothers, the proportion was highest in *Outer regional* areas (77%) and lowest in *Major cities* (64%).

The proportion of Indigenous mothers who attended antenatal care in the first trimester increased between 2010 and 2016, from 41% to 60%. For non-Indigenous mothers, there was a smaller increase over that time, from 61% to 67% (age-standardised; excludes data from New South Wales, see Appendix Table D2). This has resulted in a narrowing of the gap in antenatal care between Indigenous and non-Indigenous mothers.

Antenatal visit in the first trimester (less than 14 completed weeks), by Indigenous status and remoteness (age-standardised), 2016



Indigenous mothers who gave birth at 32 weeks or more were also less likely to attend 5 or more antenatal visits than non-Indigenous mothers—86% of Indigenous mothers had 5 or more visits compared with 94% of non-Indigenous mothers (age-standardised).

Between 2011 and 2016, the proportion of mothers attending 5 or more visits increased slightly for Indigenous mothers (from 84.8% to 88.5%) while remaining similar for non-Indigenous mothers (from 95.1% to 95.6%) (age-standardised, excludes data from Victoria and Western Australia, see Appendix Table D2).

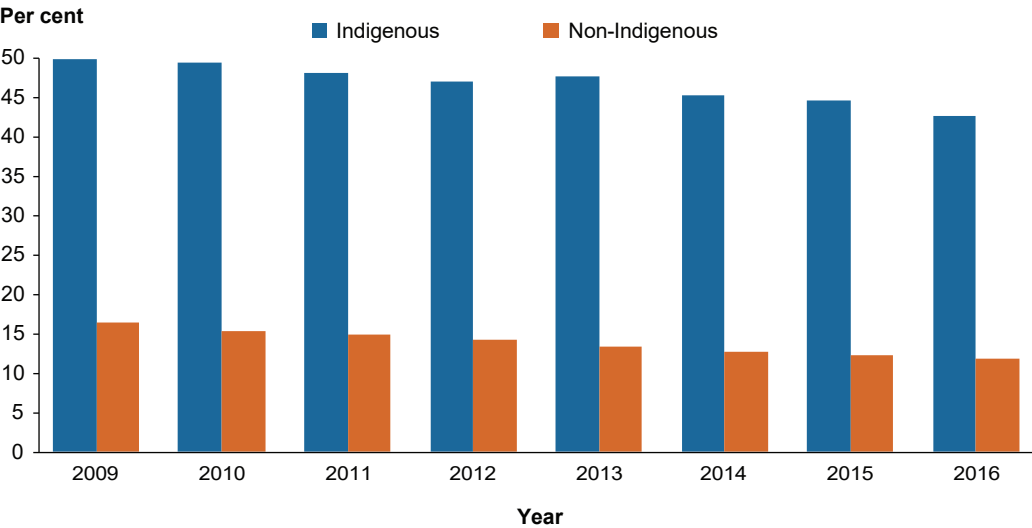
Fewer Indigenous mothers are smoking during pregnancy

Indigenous mothers accounted for 20% of mothers who smoked tobacco at any time during pregnancy in 2016, despite accounting for only around 4% of mothers. About 2 in 5 Indigenous mothers reported smoking during pregnancy—43% compared with 12% of non-Indigenous mothers (age-standardised).

The age-standardised proportion of Indigenous mothers who smoked at any time during pregnancy decreased from 50% in 2009 to 43% in 2016. The proportion of non-Indigenous mothers who smoked also decreased from 16% in 2009 to 12% in 2016.

The age-standardised rate of smoking cessation during pregnancy among Indigenous mothers was 13%, half the rate for non-Indigenous mothers (26%). This is based on mothers who reported smoking in the first 20 weeks of pregnancy and not smoking after 20 weeks of pregnancy.

Maternal smoking at any time during pregnancy, by Indigenous status (age-standardised), 2009 to 2016



Note: Definitions and methods used for data collection differ by state and territory.

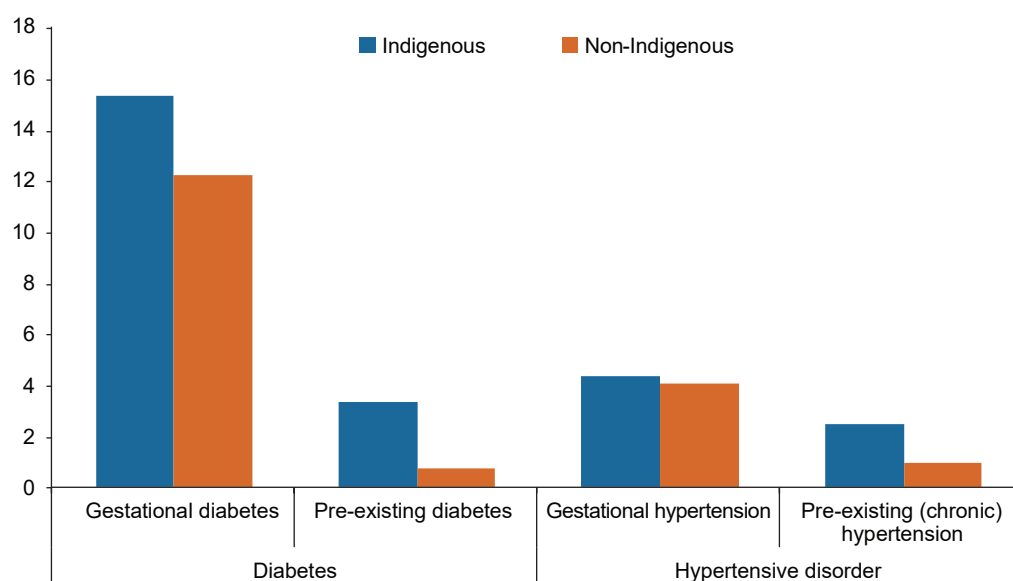
Indigenous mothers were more likely to be obese or to have pre-existing diabetes or hypertension

Compared with non-Indigenous mothers, Indigenous mothers were:

- 1.7 times as likely to be obese (34% compared with 20%; age-standardised)
- 1.3 times and 4.7 times as likely to have gestational diabetes (15%) and pre-existing diabetes (3.3%), respectively (compared with 12% and 0.7%, respectively; age-standardised; excludes data from Victoria, see Appendix Table D2)
- 1.3 times as likely to have pre-existing (chronic) hypertension (1.0% compared with 0.8%).

Rates of gestational hypertension were similar for Indigenous and non-Indigenous mothers (3.8% and 3.7%, respectively) (age standardised; excludes data from Victoria, see Appendix Table D2).

Selected maternal medical conditions during pregnancy, by Indigenous status (age-standardised), 2016



Note: Definitions and methods used for data collection differ by state and territory. Excludes data from Victoria (see Appendix Table D2).

Indigenous mothers were slightly more likely to have spontaneous labour onset

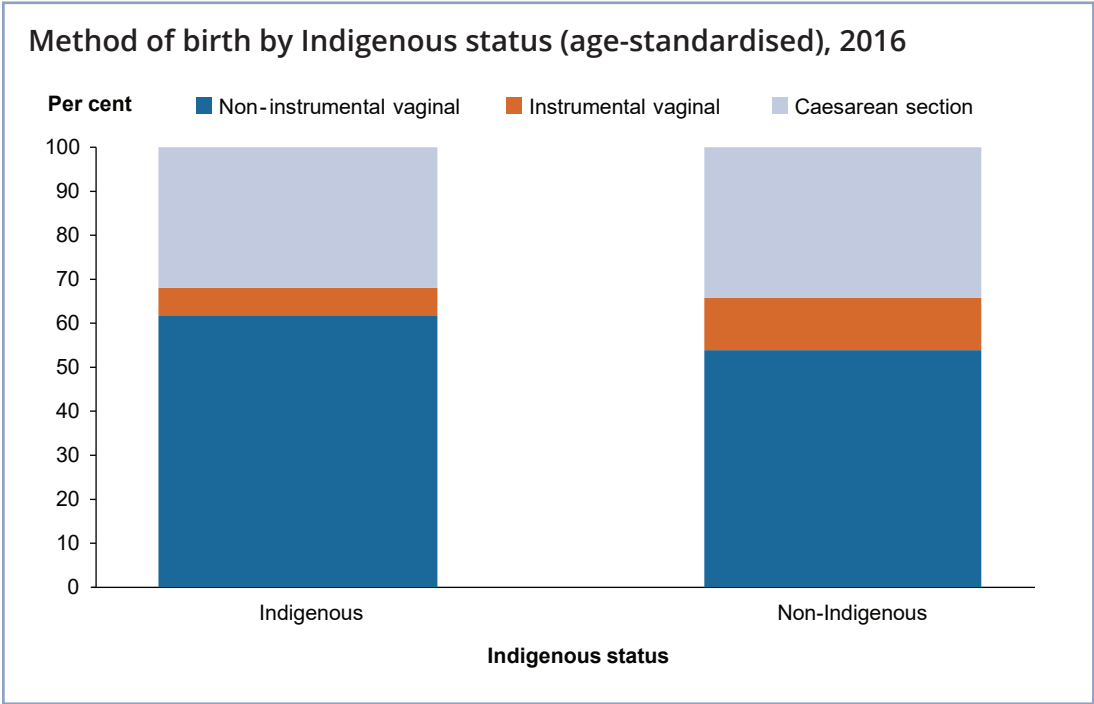
Indigenous mothers were slightly more likely to have spontaneous onset of labour (50%) and slightly less likely to have no labour (19%), compared with non-Indigenous mothers (47% and 22%, respectively), while rates of induced labour were the same for both Indigenous and non-Indigenous mothers (31%) (age standardised).

Indigenous mothers who had labour were slightly less likely to receive pain relief during labour compared with non-Indigenous mothers (72% compared with 78%, respectively; age standardised).

Non-instrumental vaginal births were more common for Indigenous mothers

Method of birth is influenced by maternal age, but even when controlling for differences in age structure between Indigenous and non-Indigenous mothers, some differences remain. Indigenous mothers were:

- more likely to have a non-instrumental vaginal birth (62%) than non-Indigenous mothers (54%)
- less likely to have an instrumental vaginal delivery (6% compared with 12% of non-Indigenous mothers)
- slightly less likely to have a caesarean section (32% compared with 34% of non-Indigenous mothers; age-standardised).



Find out more in the *Perinatal data visualisations*

Babies of Indigenous mothers

Babies of Indigenous mothers are more likely to be pre-term

In 2016, the average gestational age of babies of Indigenous mothers was 38.2 weeks, which was slightly lower than for babies of non-Indigenous mothers (38.6 weeks).

Around 1 in 7 babies of Indigenous mothers (14%) were born pre-term, compared with 8% of babies of non-Indigenous mothers.

Babies of Indigenous mothers who smoked were 1.3 times as likely to be born pre-term as babies born to non-Indigenous mothers who smoked.

Low birthweight rates are decreasing among babies of Indigenous mothers

In 2016, the average liveborn baby of an Indigenous mother weighed 125 grams less than a baby of a non-Indigenous mother (3,216 grams and 3,342 grams, respectively).

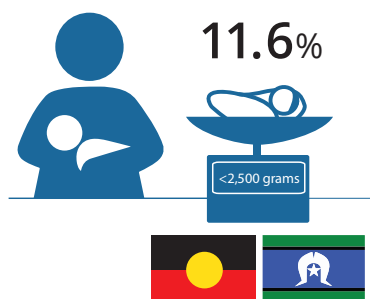
For liveborn babies of Indigenous mothers, 11.6% (1,583) were of low birthweight, compared with 6.3% (18,785) of babies with non-Indigenous mothers. These proportions were made up of:

- 9.5% of babies of Indigenous mothers and 5.4% of babies of non-Indigenous mothers in the low birthweight range of 1,500–2,499 grams
- 2.1% of babies of Indigenous mothers and 0.9% of babies of non-Indigenous mothers of very low birthweight (less than 1,500 grams)
- 2.1% of babies of Indigenous mothers and 0.8% of babies of non-Indigenous mothers of extremely low birthweight (less than 1,000 grams).

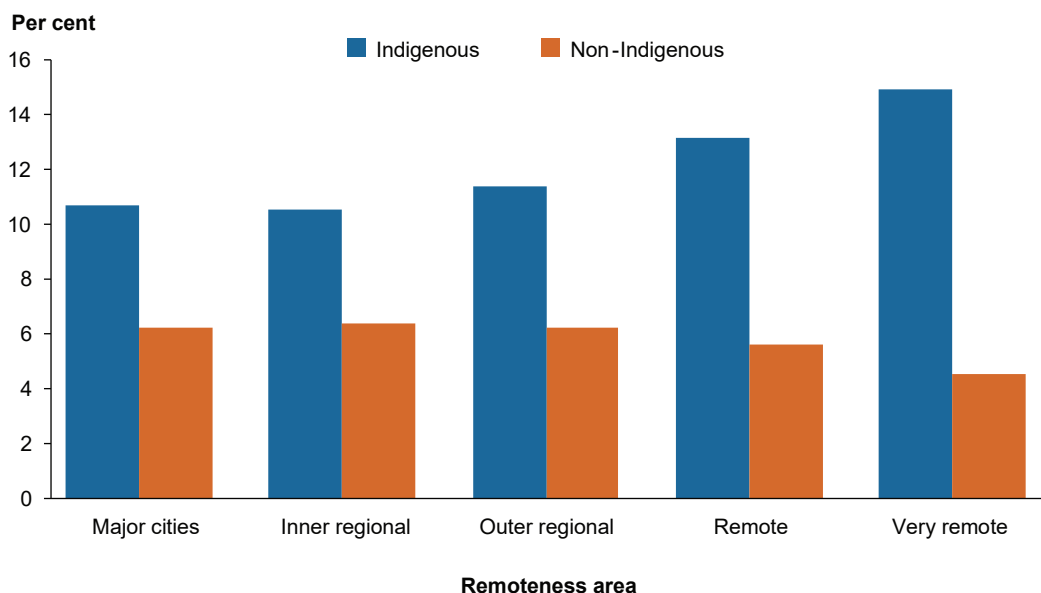
There was a slight decrease in the proportion of low birthweight babies born to Indigenous mothers between 2006 and 2016, from 12.4% to 11.6%. The proportion of low birthweight babies with non-Indigenous mothers remained between 6.2% and 6.3% over this time. See Chapter 5 for more data on trends.

Low birthweight babies of non-Indigenous mothers varied by remoteness, ranging from 6.3% in *Major cities* to 4.6% in *Very remote* areas. However, for babies of Indigenous mothers, the proportion was lowest in *Major cities* (10.7%) and highest in *Very remote* areas (15.0%).

Babies of Indigenous mothers were also about 1.5 times as likely to be small for gestational age (13.7%) as babies of non-Indigenous mothers (9.4%).



Low birthweight of liveborn babies, by Indigenous status of mother and remoteness, 2016



Babies of Indigenous mothers are more likely to be admitted for specialised care

Apgar scores, use of resuscitation and admission to special care nurseries (SCNs) or neonatal intensive care units (NICUs) can give an indication of the health of newborn babies.

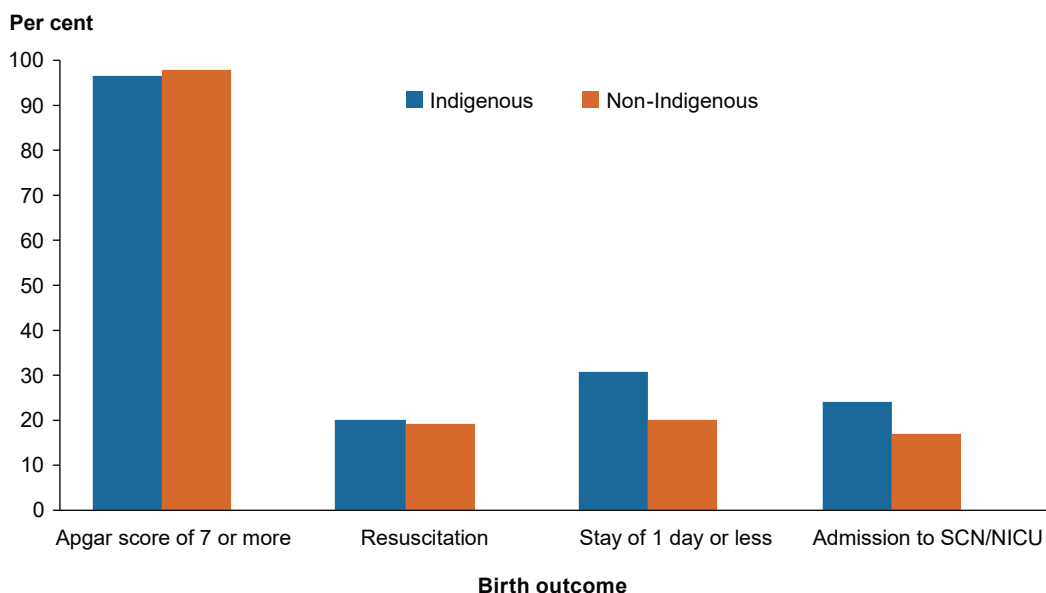
Liveborn babies of Indigenous mothers were more likely to be admitted to an SCN or NICU (24%) than babies of non-Indigenous mothers (17%) in 2016 (excludes data from New South Wales and Western Australia, see Appendix Table D2).

In 2016, similar proportions of liveborn babies to Indigenous and non-Indigenous mothers:

- had an Apgar score of 7 or more at 5 minutes (97% and 98%, respectively)
- required some form of resuscitation (20% and 19%, respectively; excludes data from Western Australia, see Appendix Table D2).

Babies of Indigenous mothers, born in hospital and discharged home, had a shorter median length of stay in hospital (2 days) than those of non-Indigenous mothers (3 days). Almost 1 in 3 babies of Indigenous mothers (31%) stayed for 1 day or less, compared with 1 in 5 babies (20%) of non-Indigenous mothers. However, babies of Indigenous mothers were 1.6 times as likely as those of non-Indigenous mothers to stay in hospital for 6 or more days (excludes data from Western Australia, see Appendix Table D2).

Liveborn babies, by Indigenous status of mother and selected birth outcomes, 2016



Note: Data for resuscitation and length of stay exclude Western Australia and data for admission to SCN/NICU exclude New South Wales and Western Australia (see Appendix Table D2).

Higher rates of perinatal death among babies of Indigenous mothers

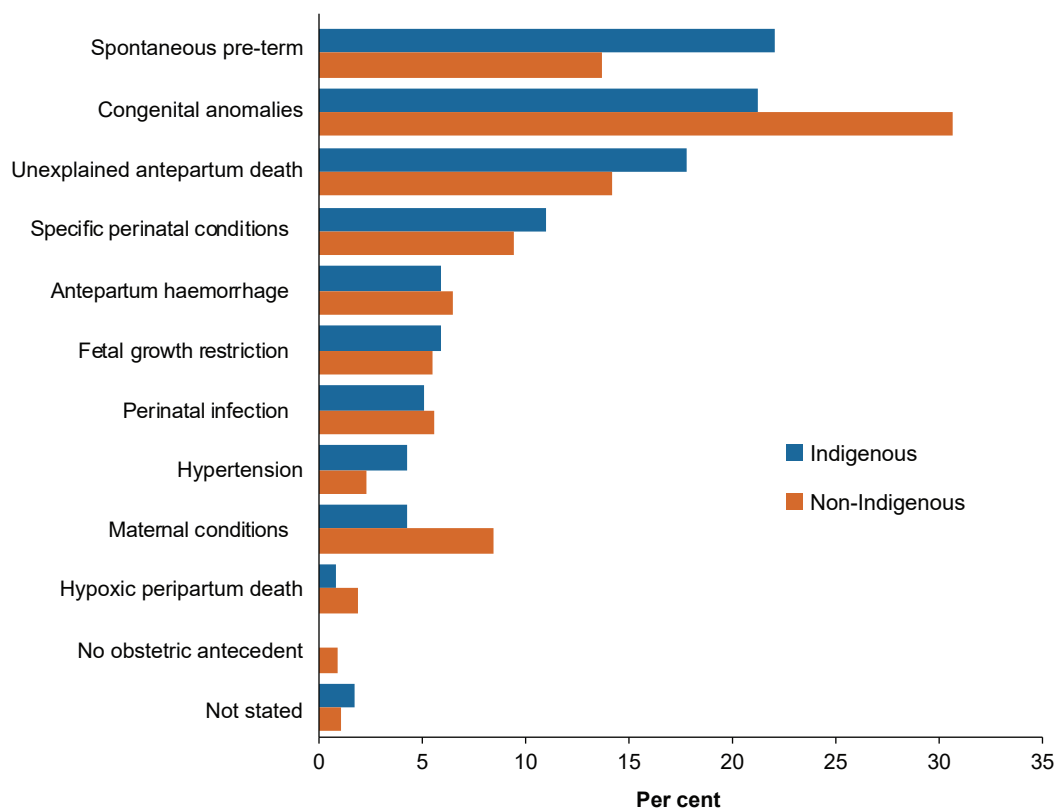
In 2016, there were 15 perinatal deaths for every 1,000 births among babies of Indigenous mothers—1.7 times the rate for babies of non-Indigenous mothers (9 per 1,000 births). This included:

- 11 fetal deaths (stillbirths) per 1,000 births for babies of Indigenous mothers and 4 fetal deaths per 1,000 births for babies of non-Indigenous mothers
- 6 neonatal deaths per 1,000 live births for babies of Indigenous mothers and 2 neonatal deaths per 1,000 live births for babies of non-Indigenous mothers.

Data on cause of death are available for Victoria, Queensland, South Australia, Tasmania, the Australian Capital Territory and the Northern Territory. The most notable differences in cause of death between babies of Indigenous and non-Indigenous mothers in the perinatal period are for spontaneous pre-term births and congenital anomalies:

- About one-quarter (22%) of perinatal deaths of babies of Indigenous mothers were due to spontaneous pre-term birth, compared with 14% of babies of non-Indigenous mothers.
- Congenital anomalies accounted for a smaller proportion of perinatal deaths among babies of Indigenous mothers (21%) compared with non-Indigenous mothers (31%).

Perinatal deaths, by Indigenous status of mother and cause of death, 2016



Notes

1. See 'Perinatal deaths' in Chapter 3 for more information on the PSANZ-PDC.
2. Excludes data from New South Wales and Western Australia (see Appendix Table D2).

5 Key statistics and trends

This chapter presents the data behind the key statistics and trends reported in Chapters 2 to 4. Detailed data tables, including state and territory data, are also available online from the AIHW website at <www.aihw.gov.au/reports/mothers-babies/australias-mothers-babies-2016-in-brief/>.

Key trends for Australia's mothers and babies, 2006 to 2016

Topic	Unit	Year										Annual change ^(a)	Per cent change ^(a)	
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015			2016
Mothers														
Women who gave birth	Number	277,440	289,499	292,159	294,547	295,456	297,343	307,570	304,777	307,844	304,268	310,247	2,752	*9.7
Women who gave birth per 1,000 women of reproductive age (15–44 years)	Rate	64.0	65.8	65.3	64.6	63.9	63.7	64.8	63.2	63.0	61.6	62.2	–0.3	*–4.8
Average maternal age (years)														
All mothers	Average	29.8	29.9	29.9	30.0	30.0	30.0	30.1	30.1	30.2	30.3	30.5	0.1	*1.9
Indigenous mothers	Average	25.0	25.2	25.1	25.2	25.2	25.3	25.2	25.3	25.5	25.6	25.9	0.1	*2.8
First-time mothers	Average	28.2	28.2	28.2	27.9	28.3	29.0	28.4	28.6	28.7	28.9	29.0	0.1	*3.4
Maternal age (years)														
Under 25	Per cent	18.9	18.7	18.7	18.3	18.0	17.5	17.2	16.9	16.0	15.3	14.4	–0.4	*–22.2
25–34	Per cent	59.7	59.0	58.4	58.9	59.0	59.8	60.4	60.9	61.9	62.3	62.7	0.4	*6.9
35 and over	Per cent	21.4	22.3	22.9	22.9	23.0	22.7	22.4	22.3	22.1	22.3	22.8	0.0	1.4
Antenatal visits														
5 or more antenatal visits ^(b)														
All mothers	Per cent	n.a.	n.a.	n.a.	n.a.	n.a.	95	95.4	95.5	95.3	95.6	95.7	0.1	*0.6
Indigenous mothers	AS per cent	n.a.	n.a.	n.a.	n.a.	n.a.	84.8	86.1	86.3	86.7	87.7	88.5	0.7	*4.0
Non-Indigenous mothers	AS per cent	n.a.	n.a.	n.a.	n.a.	n.a.	95.1	95.3	95.5	95.3	95.6	95.6	0.1	*0.5

(continued)

Key trends for Australia's mothers and babies, 2006 to 2016 (continued)

Topic	Unit	Year										Annual change ^(a)	Per cent change ^(a)	
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015			2016
Antenatal visit in the first trimester ^(d)														
All mothers	Per cent	n.a.	n.a.	n.a.	n.a.	62.8	62	62.7	62.4	62.4	64.7	68.6	0.8	*7.9
Indigenous mothers	AS per cent	n.a.	n.a.	n.a.	n.a.	41.4	46.6	50.2	52.6	52.1	56.6	59.9	2.8	*38.6
Non-Indigenous mothers	AS per cent	n.a.	n.a.	n.a.	n.a.	61.4	60.9	61.5	60.9	61.1	63.3	67.4	0.8	*8.0
Tobacco smoking during pregnancy														
Smoked at any time during pregnancy														
All mothers	Per cent	n.a.	n.a.	n.a.	14.6	13.7	13.2	12.5	11.7	11	10.4	9.9	-0.7	*-32.7
Indigenous mothers	AS per cent	n.a.	n.a.	n.a.	49.9	49.4	48.1	47.1	47.7	45.2	44.7	42.8	-1.0	*-13.4
Non-Indigenous mothers	AS per cent	n.a.	n.a.	n.a.	16.3	15.4	14.8	14.2	13.2	12.6	12.2	11.6	-0.7	*-29.0
Smoked in the first 20 weeks of pregnancy														
All mothers	Per cent	n.a.	n.a.	n.a.	n.a.	n.a.	12.9	12.1	11.3	10.6	10.1	9.5	-0.7	*-26.4
Indigenous mothers	AS per cent	n.a.	n.a.	n.a.	n.a.	n.a.	47.2	46.5	46.6	44.4	43.6	41.9	-1.1	*-11.3
Non-Indigenous mothers	AS per cent	n.a.	n.a.	n.a.	n.a.	n.a.	14.5	13.8	12.8	12.2	11.8	11.2	-0.7	*-22.7
Postnatal stay														
Less than 2 days	Per cent	12.7	13.8	14.4	17.0	16.3	17.2	18.0	19.6	20.5	20.7	21.4	0.9	*67.0
2-4 days	Per cent	64.3	64.9	65.3	63.7	66.3	65.9	65.4	65.0	64.9	64.9	64.7	0.0	0.4
5 or more days	Per cent	21.9	20.7	19.3	18.2	17.4	16.9	16.5	15.4	14.5	14.3	13.8	-0.8	*-37.6
Onset of labour														
Spontaneous labour	Per cent	56.6	56.6	57.0	56.2	56.0	54.8	54.2	52.7	51.3	50.1	48.4	-0.8	*-14.5
Induced labour	Per cent	25.1	25.3	24.8	25.3	25.2	26.0	26.3	27.6	28.4	29.3	30.5	0.5	*22.6
No labour	Per cent	18.3	18.1	18.2	18.4	18.8	19.1	19.4	19.7	20.3	20.5	21.0	0.3	*16.9

(continued)

Key trends for Australia's mothers and babies, 2006 to 2016 (continued)

Topic	Unit	Year										Annual change ^(a)	Per cent change ^(a)	
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015			2016
Method of birth														
Non-instrumental vaginal delivery	Per cent	58.5	57.9	57.5	56.8	56.3	55.6	55.2	54.8	54.4	54.2	53.4	-0.5	*-8.4
Instrumental vaginal delivery	Per cent	10.7	11.2	11.4	11.7	12.0	12.1	12.4	12.4	12.5	12.5	12.8	0.2	*16.9
Caesarean section	Per cent	30.8	30.9	31.1	31.5	30.2	32.3	32.4	32.8	33.1	33.3	33.8	0.3	*10.7
Multiple pregnancies														
Multiple pregnancies per 1,000 mothers	Rate	16.7	16.0	16.1	15.6	15.9	15.5	15.0	15.2	15.0	14.9	14.5	-0.2	*-11.2
Babies														
Babies born	Number	282,173	294,208	296,928	299,227	300,215	302,025	312,251	309,489	312,548	308,887	314,814	2,739	*9.5
Gestational age														
Pre-term (20–36 weeks)	Per cent	8.2	8.1	8.2	8.2	8.3	8.3	8.5	8.6	8.6	8.7	8.5	0.1	*6.4
Term (37–41 weeks)	Per cent	90.6	90.9	90.9	90.8	90.9	91.0	90.9	90.9	90.9	90.9	90.8	0.0	0.1
Post-term (42 weeks and over)	Per cent	1.1	0.9	0.9	0.9	0.8	0.7	0.6	0.5	0.5	0.4	0.6	-0.1	*-62.3
Birthweight ^(a)														
Low birthweight	Per cent	6.4	6.2	6.1	6.2	6.2	6.3	6.2	6.4	6.4	6.5	6.5	0.0	*4.4
Low birthweight babies with Indigenous mothers	Per cent	12.4	12.5	12.4	12.0	12.0	12.6	11.8	12.2	11.8	11.9	11.6	-0.1	*-5.9
Low birthweight babies with non-Indigenous mothers	Per cent	6.2	5.9	5.9	5.9	6.0	6.0	6.0	6.1	6.2	6.2	6.3	0.0	*4.7
Low birthweight Indigenous babies	Per cent	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11.1	10.8	11.1	10.8	-0.1	-1.5
Low birthweight non-Indigenous babies	Per cent	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	6.1	6.1	6.2	6.2	0.0	*2.2

(continued)

Key trends for Australia's mothers and babies, 2006 to 2016 (continued)

Topic	Unit	Year											Annual change ^(a)	Per cent change ^(a)
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
Birthweight ^(d) (continued)														
Low birthweight singleton	Per cent	4.8	4.7	4.7	4.7	4.8	4.8	4.8	4.8	4.9	5.0	5.1	0.0	*6.2
Low birthweight singleton babies with Indigenous mothers	Per cent	11.3	11.2	11.2	10.9	10.7	11.2	10.5	10.9	10.5	10.4	10.2	-0.1	*-8.9
Low birthweight singleton babies with non-Indigenous mothers	Per cent	4.6	4.5	4.4	4.5	4.5	4.5	4.5	4.6	4.7	4.8	4.8	0.0	*7.0
Low birthweight singleton Indigenous babies	Per cent	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	9.8	9.6	9.6	9.6	-0.1	-2.1
Low birthweight singleton non-Indigenous babies	Per cent	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	4.5	4.6	4.7	4.8	0.1	*5.1
Perinatal deaths														
Perinatal deaths per 1,000 births	Rate	10.4	10.3	10.2	7.4	10.2	10.2	9.6	9.7	9.6	9.2	9.1	-0.1	-7.9
Stillbirths per 1,000 births	Rate	7.4	7.4	7.4	7.8	7.3	7.4	7.2	7.1	7.0	7.0	6.7	-0.1	*-9.5
Neonatal deaths per 1,000 live births	Rate	3.0	2.9	2.8	2.2	2.9	2.8	2.4	2.6	2.5	2.2	2.4	-0.1	*-19.2

n.a. Not available

* Indicates results with statistically significant increases or decreases at the $p < 0.05$ level over the period 2006 to 2016. See Appendix D for further information on methods.

(a) Determined by linear regression (see Appendix D for further information on methods). The annual change is the estimated average annual change between 2006 and 2016. The percentage change is the percentage change between 2006 and 2016.

(b) Based on women who gave birth at 32 weeks' or more gestation (excluding unknown gestation). Trend data excludes Victoria and Western Australia (see Appendix Table D2).

(c) Trend data excludes New South Wales due to a change in data collection practice introduced in 2011.

(d) Includes liveborn babies only.

Notes

- Results should be interpreted with caution due to changes in data collection methods over time.
- Age-standardised (AS) per cents have been directly age-standardised to the Australian female population aged 15–44 as at 30 June 2001.

Key statistics by maternal characteristics and baby outcomes, 2016

Maternal characteristics	Mothers						Babies							
	Antenatal visit in first trimester		5 or more antenatal visits ^(a)		Smoked in the first 20 weeks of pregnancy		Caesarean section ^(b)		Pre-term		Low birthweight ^(c)		Apgar score less than 7 at 5 mins ^(d)	
	%	Rate ratio	%	Rate ratio	%	Rate ratio	%	Rate ratio	%	Rate ratio	%	Rate ratio	%	Rate ratio
Mother's Indigenous status ^(e)														
Indigenous	61.9	0.9	86.3	0.9	41.9	3.7	31.8	0.9	13.6	1.6	10.2	2.1	2.9	1.6
Non-Indigenous	67.1	..	94.0	..	11.2	..	33.9	..	8.3	..	4.8	..	1.9	..
Maternal age														
Under 20	57.7	..	89.5	..	30.5	..	17.6	..	11.5	..	9.1	..	2.8	..
20–24	61.7	1.1	92.2	1.0	20.8	0.7	23.1	1.3	8.6	0.8	6.1	0.7	2.4	0.9
25–29	66.8	1.2	94.0	1.0	10.1	0.3	29.1	1.6	7.9	0.7	4.7	0.5	1.9	0.7
30–34	70.8	1.2	94.8	1.1	6.1	0.2	35.5	2.0	7.9	0.7	4.6	0.5	1.8	0.6
35–39	72.0	1.2	95.2	1.1	6.0	0.2	42.1	2.4	9.2	0.8	5.0	0.5	1.8	0.6
40 and over	71.2	1.2	95.2	1.1	6.9	0.2	52.9	3.0	12.5	1.1	6.3	0.7	2.3	0.8
Remoteness														
Major cities	67.3	..	94.6	..	7.1	..	33.7	..	8.2	..	4.9	..	1.8	..
Inner regional	70.0	1.0	93.3	1.0	14.6	2.1	33.4	1.0	9.2	1.1	5.1	1.0	2.2	1.2
Outer regional	76.4	1.1	93.3	1.0	16.5	2.3	34.5	1.0	9.4	1.1	5.5	1.1	2.0	1.1
Remote	74.1	1.1	94.1	1.0	19.5	2.7	33.6	1.0	10.0	1.2	5.9	1.2	1.9	1.0
Very remote	66.4	1.0	90.0	1.0	34.6	4.8	35.3	1.0	12.9	1.6	9.3	1.9	3.2	1.8
Socioeconomic status (SES)														
Lowest SES	63.5	0.9	92.8	1.0	17.4	5.6	32.5	0.9	9.5	1.2	6.4	1.6	2.3	1.4
Highest SES	71.6	..	95.9	..	3.1	..	35.1	..	7.8	..	4.1	..	1.7	..
(continued)														

(continued)

Key statistics by maternal characteristics and baby outcomes, 2016 (continued)

	Mothers						Babies									
	Antenatal visit in first trimester			5 or more antenatal visits ^(a)			Smoked in the first 20 weeks of pregnancy			Caesarean section ^(b)						
	% Rate ratio	% Rate ratio	% Rate ratio	% Rate ratio	% Rate ratio	% Rate ratio	% Rate ratio	% Rate ratio	% Rate ratio	Pre-term		Low birthweight ^(c)		Apgar score less than 7 at 5 mins ^(d)		
										% Rate ratio	% Rate ratio	% Rate ratio	% Rate ratio	% Rate ratio		
Duration of pregnancy at first antenatal visit (weeks)																
Less than 14 (first trimester)	..	..	96.7	..	..	8.1	..	..	35.3	..	8.6	..	4.8	..	1.8	..
14–19	..	..	92.8	1.0	1.3	10.2	31.1	0.9	7.2	2.1	7.2	1.0	4.8	1.0	2.1	1.2
20 and over	..	..	82.7	0.9	2.0	16.3	30.8	0.9	8.9	2.2	8.9	1.0	6.4	1.3	2.2	1.2
Number of antenatal visits																
None	..	..	..	..	6.3	55.3	18.4	0.5	38.2	5.2	38.2	5.5	24.1	5.5	6.9	4.0
1	27.7	0.4	..	..	1.7	15.2	32.3	0.9	16.7	2.3	16.7	2.4	10.8	2.4	3.5	2.0
2–4	48.0	0.7	..	..	2.5	22.0	29.8	0.9	23.9	3.2	23.9	3.4	15.2	3.4	5.0	2.9
5 or more	70.3	..	..	..	..	8.8	34.2	..	7.4	..	7.4	..	4.4	..	1.7	..
Smoked in the first 20 weeks of pregnancy																
Smoked	58.7	0.8	87.3	0.9	..	..	31.8	0.9	12.9	1.6	12.9	2.5	10.9	2.5	2.7	1.5
Did not smoke	69.6	..	95.0	..	..	..	34.1	..	7.9	..	7.9	..	4.4	..	1.8	..
Baby outcomes																
Gestational age																
Pre-term	69.5	1.0	88.7	0.9	1.7	15.3	46.8	1.4	..	..	..	27.4	51.9	27.4	7.9	5.6
Term	68.5	..	94.6	..	..	9.1	32.8	..	..	..	..	..	1.9	..	1.4	..
Post-term	61	0.9	95.8	1.0	0.7	6.8	29.9	0.9	..	..	..	0.1	0.3	0.1	2.0	1.4

(continued)

Key statistics by maternal characteristics and baby outcomes, 2016 (continued)

	Mothers						Babies							
	Antenatal visit in first trimester		5 or more antenatal visits ^(a)		Smoked in the first 20 weeks of pregnancy		Caesarean section ^(b)		Pre-term		Low birthweight ^(c)		Apgar score less than 7 at 5 mins ^(d)	
	%	Rate ratio	%	Rate ratio	%	Rate ratio	%	Rate ratio	%	Rate ratio	%	Rate ratio	%	Rate ratio
Birthweight														
Low (less than 2,500 grams)	66.9	1.0	88.8	0.9	18.9	2.1	46.2	1.4	72.3	19.5	..	..	8.4	5.8
Normal (2,500 to 4,499 grams)	68.7	..	94.5	..	9.0	..	32.9	..	3.7	..	..	..	1.5	..
High (4,500 grams and over)	68.3	1.0	95.0	1.0	5.9	0.7	42.1	1.3	0.6	0.2	..	..	2.0	1.4
Plurality														
Singletons	..	..	..	..	..	..	33.5	..	6.8	..	5.1	..	1.8	..
Twins	..	..	..	..	..	..	67.7	2.0	64.2	9.4	56.1	11.1	4.9	2.7
Other multiples	..	..	..	..	..	..	80.2	2.4	98.7	14.4	96.1	19	12.6	6.9
Total	68.6	..	93.7	..	9.5	..	33.8	..	8.5	..	5.1	..	1.9	..

.. Not applicable

(a) Based on women who gave birth at 32 weeks' or more gestation (excluding unknown gestation).

(b) Per cents for caesarean section delivery have been directly age-standardised to the Australian female population aged 15–44 as at 30 June 2001, with the exception of the maternal age category.

(c) Includes liveborn singleton babies only, with the exception of the plurality category.

(d) Includes liveborn babies only.

(e) Per cents by mother's Indigenous status for antenatal visit in the first trimester, 5 or more antenatal visits, smoked in the first 20 weeks of pregnancy and caesarean section have been directly age-standardised to the Australian female population aged 15–44 as at 30 June 2001.

Note: Reference categories for rate ratios are indicated in italics. See Appendix D for further information on methods.

Appendixes

Appendixes are available for download from the AIHW website on the Australia's mothers and babies 2016—in brief web page <www.aihw.gov.au/reports/mothers-babies/australias-mothers-babies-2016-in-brief/>:

- Appendix A: About the National Perinatal Data Collection
- Appendix B: Perinatal national minimum data set items
- Appendix C: State and territory perinatal data collections
- Appendix D: Data quality, methods and interpretation.

Glossary

age-specific rate: A rate for a specific age group. The numerator and denominator relate to the same age group.

age standardisation: A method of removing the influence of age when comparing populations with different **age structures**. This is usually necessary because the rates of many diseases vary strongly (usually increasing) with age. The age structures of the different populations are converted to the same 'standard' structure, and then the disease rates that would have occurred with that structure are calculated and compared.

age structure: The relative number of people in each age group in a population.

antenatal: The period covering conception up to the time of birth. Synonymous with prenatal.

Apgar score: merical score used to indicate the baby's condition at 1 minute and at 5 minutes after birth. Between 0 and 2 points are given for each of 5 characteristics: heart rate, breathing, colour, muscle tone and reflex irritability. The total score is between 0 and 10.

augmentation of labour: Intervention after the spontaneous onset of labour to assist the progress of labour.

baby's length of stay: Number of days between date of birth and date of separation from the hospital of birth (calculated by subtracting the date of birth from the date of separation).

birth status: Status of the baby immediately after birth (stillborn or liveborn).

birthweight: The first weight of the baby (stillborn or liveborn) obtained after birth (usually measured to the nearest 5 grams and obtained within 1 hour of birth).

breech presentation: A fetal presentation in which the buttocks are at the opening of the uterus. In a frank breech, the legs are straight up in front of the body. In a complete breech the legs are folded, but the feet are above the buttocks. In an incomplete breech, the feet are below the buttocks.

caesarean section: A method of birth in which a surgical incision is made into the mother's uterus via the abdomen to directly remove the baby.

diabetes (diabetes mellitus): A chronic condition in which the body cannot properly use its main energy source, the sugar glucose. This is due to a relative or absolute deficiency in insulin. Insulin, a hormone produced by the pancreas, helps glucose enter the body's cells from the bloodstream and then be processed by them. Diabetes is marked by an abnormal build-up of glucose in the blood and can have serious short- and long-term effects.

episiotomy: An incision of the perineum and vagina to enlarge the vulval orifice.

fetal death (stillbirth): Death, before the complete expulsion or extraction from its mother, of a product of conception of 20 or more completed weeks of gestation or of 400 grams or more birthweight. Death is indicated by the fact that, after such separation, the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles.

fetal death rate: Number of fetal deaths per 1,000 total births (fetal deaths plus live births).

first degree laceration: Graze, laceration, rupture or tear of the perineal skin during delivery that may be considered to be slight or that involves fourchette, labia, vagina or vulva.

forceps: Handheld, hinged obstetric instrument applied to the fetal head to assist birth.

fourth degree laceration: Perineal laceration, rupture or tear, as in **third degree laceration**, occurring during delivery and also involving anal mucosa or rectal mucosa.

gestational age: Duration of pregnancy in completed weeks, calculated from the date of the first day of a woman's last menstrual period and her baby's date of birth; or via ultrasound; or derived from clinical assessment during pregnancy or from examination of the baby after birth.

high blood pressure/hypertension: Definitions vary but a well-accepted one is from the World Health Organization (WHO): a systolic blood pressure of 140 mmHg or more or a diastolic blood pressure of 90 mmHg or more, or [the person is] receiving medication for high blood pressure.

Indigenous: A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander.

induction of labour: Intervention to stimulate the onset of labour.

instrumental delivery: Vaginal delivery using **forceps** or **vacuum extraction**.

intrauterine growth restriction: A fetus whose estimated weight is below the 10th percentile for its gestational age.

live birth: The complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered liveborn (WHO definition).

low birthweight: Weight of a baby at birth that is less than 2,500 grams.

main non-English-speaking country: Countries where a language other than English is likely to be spoken. Includes all countries other than Australia, Canada, Republic of Ireland, New Zealand, South Africa, United Kingdom and the United States of America.

maternal age: Mother's age in completed years at the birth of her baby.

mode of separation: Status at separation of patient (discharge/transfer/death) and place to which patient is released (where applicable).

mother's length of stay: Number of days between admission date (during the admission resulting in a birth) and separation date (from the hospital where birth occurred). The interval is calculated by subtracting the date of admission from the date of separation.

neonatal death: Death of a liveborn baby within 28 days of birth.

neonatal mortality rate: Number of neonatal deaths per 1,000 live births.

non-Indigenous: People who have indicated that they are not of Aboriginal or Torres Strait Islander descent.

parity: Number of previous pregnancies resulting in live births or stillbirths, excluding the current pregnancy.

perinatal death: A fetal or neonatal death of at least 20 weeks' gestation or at least 400 grams birthweight.

perinatal mortality rate: Number of perinatal deaths per 1,000 total births (fetal deaths plus live births).

perineal status: State of the perineum following birth. Perineal status is categorised as intact, **first**, **second**, **third**, or **fourth degree laceration**, **episiotomy**, or as another type of perineal laceration, rupture or tear.

plurality: Number of births resulting from a pregnancy.

postneonatal death: Death of a liveborn baby after 28 days and within 1 year of birth.

post-term birth: Birth at 42 or more completed weeks of gestation.

presentation at birth: The part of the fetus that presents first at birth.

pre-term birth: Birth before 37 completed weeks of gestation.

primary caesarean section: Caesarean section to a mother with no previous history of caesarean section.

resuscitation of baby: Active measures taken shortly after birth to assist the baby's ventilation and heartbeat, or to treat depressed respiratory effort and to correct metabolic disturbances.

second degree laceration: Perineal laceration, rupture or tear, as in **first degree laceration**, occurring during delivery and also involving pelvic floor, perineal muscles or vaginal muscles.

spontaneous labour: Onset of labour without intervention.

stillbirth: See **fetal death (stillbirth)**.

teenage mother: Mother aged younger than 20 at the birth of her baby.

third degree laceration: Perineal laceration, rupture or tear, as in **second degree laceration**, occurring during delivery and also involving the anal floor, rectovaginal septum or sphincter not otherwise specified.

vacuum extraction: Assisted birth using traction or rotation on a suction cap applied to the baby's head.

Abbreviations

ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
BMI	body mass index
COB	country of birth
IPPV	intermittent positive pressure ventilation
NCMI	National Core Maternity Indicators
NICU	neonatal intensive care unit
NMDDP	National Maternity Data Development Project
NMDS	national minimum data set
NPDC	National Perinatal Data Collection
NSW	New South Wales
NT	Northern Territory
OECD	Organisation for Economic Co-operation and Development
PHN	Primary Health Network
PSANZ-PDC	Perinatal Society of Australia and New Zealand Clinical Practice Guideline for Perinatal Mortality Perinatal Death Classification
Qld	Queensland
SA	South Australia
SCN	special care nursery
SES	socioeconomic status
Tas	Tasmania
Vic	Victoria
WA	Western Australia
WHO	World Health Organization

References

- ACSQHC (Australian Commission on Safety and Quality in Health Care) 2017. The Second Australian Atlas of Healthcare Variation. Sydney: ACSQHC. Viewed 1 August 2017, <<https://www.safetyandquality.gov.au/atlas/atlas-2017/>>.
- AHMC (Australian Health Ministers' Conference) 2011. National Maternity Services Plan. Canberra: Australian Government Department of Health and Ageing.
- AIHW (Australian Institute of Health and Welfare) 2017. National Drug Strategy Household Survey 2016: detailed findings. Drug statistics series no. 31. Cat. no. PHE 214. Canberra: AIHW.
- AIHW 2018. Perinatal deaths in Australia 2013–2014. Cat. no. PER 94. Canberra: AIHW.
- CMACE & RCOG (Centre for Maternal and Child Enquiries & Royal College of Obstetricians and Gynaecologists) 2010. Management of women with obesity in pregnancy. CMACE/RCOG Joint Guideline. Viewed 1 August 2017, <<https://www.rcog.org.uk/globalassets/documents/guidelines/cmacercogjointguidelinemanagementwomenobesitypregnancya.pdf>>.
- Department of Health 2018. Clinical Practice Guidelines: Pregnancy Care. Canberra: Australian Government Department of Health.
- Johnson D, Prendergast L, Ramage C, Eldridge D, Liu C & Al-Yaman F 2016. 'Developing national birthweight for gestational age percentile charts for Australia'. Presentation at the Perinatal Society of Australia and New Zealand (PSANZ) 20th Annual Congress, Townsville, 22–25 May.
- OECD (Organisation for Economic Co-operation and Development) 2017. Health at a glance 2017: OECD indicators. Paris: OECD Publishing. Viewed 2 July 2018, <https://doi.org/10.1787/health_glance-2017-en>.
- RHR (Department of Reproductive Health and Research) 2015. WHO statement on caesarean section rates. WHO/RHR/15.02. Geneva: WHO. Viewed 21 November 2017, <http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/cs-statement/en/>.
- WHO (World Health Organization) 1992. International Statistical Classification of Diseases and Related Health Problems, 10th Revision. Geneva: WHO.

Acknowledgments

This report was authored by Deanna Eldridge, Kathryn Sedgwick and Denae Cotter of the Australian Institute of Health and Welfare (AIHW). The authors gratefully acknowledge the contributions of Joshua Alexander, Fadwa Al-Yaman, Garth Bearman, Jenny Hargreaves and Anna O'Mahony, also of the AIHW.

A large number of stakeholders provided valuable advice and input to the National Perinatal Data Collection and to this report, including the National Perinatal Data Development Committee and, in particular, the following staff from the state and territory health departments who provided data and reviewed this report:

- Tim Harrold and Sarah Pont, Centre for Epidemiology and Evidence, New South Wales Ministry of Health
- Shirin Anil, Diana Stubbs and Mary-Ann Davey from the Consultative Councils Unit, Stewardship and Support Branch, Safer Care Victoria and Kirsty Anderson from the Health Information and Reporting Branch, Department of Health and Human Services, Victoria
- Sue Cornes, Joanne Ellerington, Vesna Dunne and Ben Wilkinson, Statistical Services Branch, Department of Health, Queensland
- Maureen Hutchinson and Alan Joyce, Maternal and Child Health Unit, Information Data and Standards, Department of Health, Western Australia
- Katina D'Onise, Helen Thomas and Brooke Drechsler, Prevention and Population Health Branch, Department of Health, South Australia
- Peter Mansfield, Peggy Tsang and Cynthia Rogers, Health Information Unit, Department of Health and Human Services, Tasmania
- Rosalind Sexton and Wayne Anderson, Epidemiology Section, ACT Health
- Leanne O'Neil and Shu Qin Li, Health Gains Planning, Department of Health, Northern Territory.

The AIHW also acknowledges the time, effort and expertise of all maternity staff in collecting and providing the data for the National Perinatal Data Collection.

Related publications

This report, *Australia's mothers and babies 2016—in brief*, is part of an annual series. Earlier and subsequent editions can be downloaded for free from the AIHW website <www.aihw.gov.au/reports-statistics/population-groups/mothers-babies/reports>.

Supplementary tables and appendixes relating to this report were published separately online. See <www.aihw.gov.au/reports/mothers-babies/australias-mothers-babies-2016-in-brief/>.

The following AIHW publications and data visualisations relating to mothers and babies may also be of interest:

- AIHW 2018. Perinatal deaths in Australia 2013–2014. Cat. no. PER 94. Canberra: AIHW.
- AIHW 2018. Teenage mothers in Australia 2015. Cat. no. PER 93. Canberra: AIHW.
- AIHW 2018. MyHealthyCommunities: Child and maternal health in 2013–2015. Web report, available at <www.aihw.gov.au/reports/primary-health-care/child-maternal-health-2013-2015>. Canberra: AIHW.
- AIHW 2017. Maternal deaths in Australia 2012–2014. Cat. no. PER 92. Canberra: AIHW.
- Perinatal data visualisations, available at <www.aihw.gov.au/reports/mothers-babies/perinatal-data-visualisations/contents/data-visualisations>.
- National Core Maternity Indicators data visualisations, available at <www.aihw.gov.au/reports/mothers-babies/ncmi-data-visualisations>.



Australia's mothers and babies 2016—in brief presents key statistics and trends on pregnancy and childbirth of mothers, and the characteristics and outcomes of their babies. This publication is designed to accompany the perinatal data visualisations available online at <http://www.aihw.gov.au/perinatal-data/>.

aihw.gov.au



Stronger evidence,
better decisions,
improved health and welfare