



# Aboriginal and Torres Strait Islander mothers and babies

Web report | Last updated: 31 Oct 2023 | Topic: [Mothers & babies](#) | [Media release](#)

## About

Better understanding the health of Aboriginal and Torres Strait Islander mothers and babies informs efforts to ensure mothers and babies stay healthy through pregnancy and beyond. In 2020, there were 14,605 babies born to 14,384 Aboriginal and Torres Strait Islander mothers in Australia. Explore the characteristics and health of Aboriginal and Torres Strait Islander mothers and their babies through interactive data visualisations, and in-depth information and trends on the antenatal period, labour and birth, and outcomes for babies at birth.

Cat. no: PER 120

- [Acknowledgements](#)
- [Data](#)

### Findings from this report:

- [In 2020, there were 14,605 babies born to 14,384 Aboriginal and Torres Strait Islander mothers](#)
  - [Aboriginal and Torres Strait Islander mothers aged under 20 years has halved \(from 22% in 2005 to 11% in 2020\)](#)
  - [Aboriginal and Torres Strait Islander mothers who smoked during pregnancy decreased from 51% in 2010 to 43% in 2020](#)
  - [In 2020, 87% of liveborn babies of Aboriginal and Torres Strait Islander mothers had a healthy birthweight](#)
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## Summary

In 2020, there were 14,605 babies born to 14,384 Aboriginal and Torres Strait Islander mothers in Australia, and the birth rate was 75 per 1,000 Aboriginal and Torres Strait Islander females of reproductive age.

### Aboriginal and Torres Strait Islander mothers

#### The birth rate of Aboriginal and Torres Strait Islander mothers was higher than for non-Indigenous mothers

In 2020, the rate of Aboriginal and Torres Strait Islander females giving birth was 75 per 1,000 females of reproductive age, compared with 55 per 1,000 non-Indigenous females.

#### Around 2 in 5 Aboriginal and Torres Strait Islander mothers lived in *Major cities* or socioeconomically disadvantaged areas

In 2020, 37% of Aboriginal and Torres Strait Islander mothers lived in *Major cities* (up from 31% in 2012) and 44% lived in the most socioeconomically disadvantaged areas (down from 50% in 2012).

#### Aboriginal and Torres Strait Islander maternal age has increased over time

In 2020, the average age of Aboriginal and Torres Strait Islander mothers was 26.5 years (up from 24.9 years in 2005), and 11% were aged under 20 years (down from 22% in 2005).

#### Many Aboriginal and Torres Strait Islander mothers accessed antenatal care and fewer are smoking

In 2020, 71% of Aboriginal and Torres Strait Islander mothers accessed antenatal care in the first trimester of pregnancy, and 87% had 5 or more antenatal care visits. The proportion of Aboriginal and Torres Strait Islander mothers who reported smoking at anytime during pregnancy has fallen from 51% in 2010 to 43% in 2020.

#### 2 in 3 Aboriginal and Torres Strait Islander mothers had an induction or gave birth by caesarean section

In 2020, 36% of Aboriginal and Torres Strait Islander mothers had induced labour (up from 20% in 2005), and the rate of Aboriginal and Torres Strait Islander mothers giving birth by caesarean section has also risen (from 24% in 2005 to 32% in 2020).

### Babies of Aboriginal and Torres Strait Islander mothers

#### Most babies of Aboriginal and Torres Strait Islander mothers were born at term

In 2020, 86% of babies of Aboriginal and Torres Strait Islander mothers were born at term, and the most common gestational age was 39 weeks (27%).

#### The majority of babies of Aboriginal and Torres Strait Islander mothers had a healthy birthweight and were a normal size for their gestational age

In 2020, 87% of babies of Aboriginal and Torres Strait Islander mothers had a healthy birthweight and 73% were a normal size for their gestational age.

High-level data for Aboriginal and Torres Strait Islander babies is available in the [Aboriginal and Torres Strait Islander babies summary](#) and detailed data are available in the data visualisations in the [Outcomes for babies of Aboriginal and Torres Strait Islander mothers](#) chapters and in the [Aboriginal and Torres Strait Islander mothers and babies data tables](#).

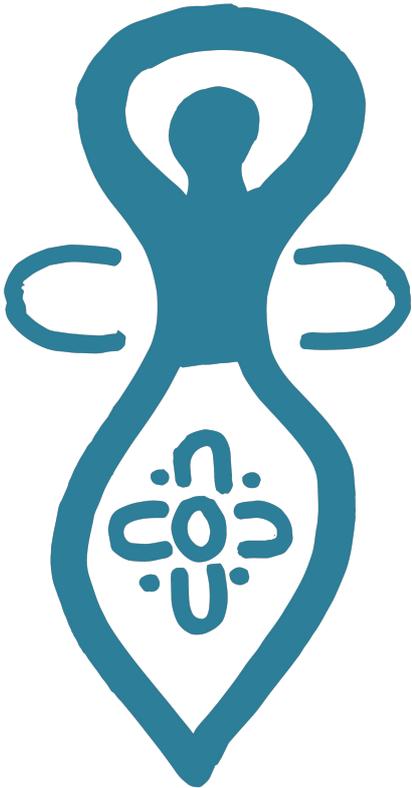
### In this report

## Demographics



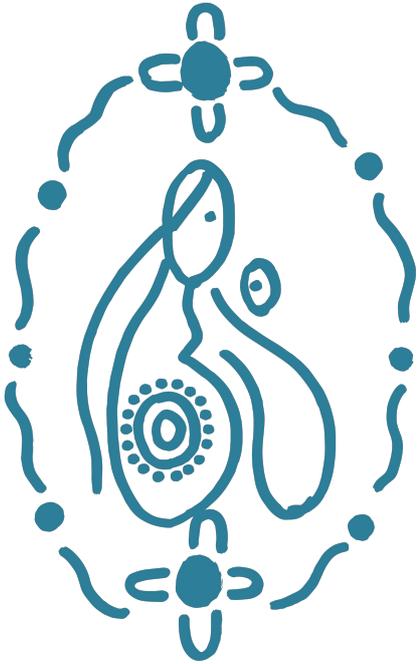
This section looks at key characteristics and geographies.

## Antenatal period



This section looks at key risk factors and medical conditions during the antenatal period (from conception until birth).

## Labour and birth



This section looks at the key aspects and outcomes for the labour and birthing process.

### **Outcomes for babies of Aboriginal and Torres Strait Islander mothers**



This section looks at key information and outcomes for the babies of Aboriginal and Torres Strait Islander mothers after birth.

### **Aboriginal and Torres Strait Islander babies summary**

This section summarises key information for Aboriginal and Torres Strait Islander babies.

#### **Maternal and perinatal mortality**

This section provides information related to maternal deaths, stillbirths and neonatal deaths.

#### **Maternal and perinatal outcomes modelling**

This section provides the results of multivariate analysis of risk factors and perinatal outcomes.



## Summary

The artwork used throughout this website was created by **Linda (Nungjingi) Huddleston**.

Linda belongs to the Gurindji, Malngin, Mudpurra, Ngardi, Walpiri (Northern Territory) and Wiradjuri (New South Wales) peoples. Linda is a renowned Aboriginal artist who has been creating dot paintings for over 20 years.

Artwork	Topic	Description
	Demographics	This artwork represents Mountains or Hills. The 'U' shapes are the caretakers protecting their sacred sites and the circles are billabongs.
	Antenatal period	This artwork represents a pregnant woman. The circle with 'U' shapes represents the baby and mother and fathers' tribes inside the womb, the outer 'U' shape are the babies' ancestors.
	Labour and birth	This artwork represents the mother during labour and after birth. The circles with 'U' shapes are the mother and fathers' tribes.
	Baby outcomes	This artwork represents a new baby. The circle with 'U' shapes are mother and fathers' tribes, the 2 inner shapes are the birthing stones - each time a baby is born they would mark the stones and bury them so they could keep a record on how many babies belonged to that tribe.

## Introduction

Aboriginal and Torres Strait Islander peoples comprise hundreds of groups with distinct languages, histories, and cultural traditions (AIHW 2020).

Health is a holistic concept for Aboriginal and Torres Strait Islander peoples and social and emotional wellbeing - as well as cultural, ecological and spiritual aspects - are viewed as the foundation of physical and mental health (Bourke et al. 2018; Verbunt et al, 2021). As such, the health and wellbeing of an Aboriginal and Torres Strait Islander person is linked to the wellbeing of their family, community, environment, and culture (Bourke et al. 2018).

This report will explore demographics, risk factors, health conditions and labour and birth outcomes for Aboriginal and Torres Strait Islander mothers, babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies.

### Box 1: Data sources, definitions and methods

This report is based on the National Perinatal Data Collection (NPDC), a national population-based cross-sectional collection of data on pregnancy and childbirth. Analysis of NPDC data can show associations only - they are not suitable for determining causation.

This report primarily focuses on Aboriginal and Torres Strait Islander females who gave birth, however, for some key measures comparisons are made with non-Indigenous females who gave birth. Data are reported for females who gave birth in each calendar year and babies born in each calendar year, from 2005 (or earliest year of data depending on data item quality and availability) to 2020.

This report presents data by multiple geographies including:

- **Primary Health Network (PHN):** established by the Department of Health and Aged Care to increase the efficiency and effectiveness of medical services and improve the coordination of care for patients
- **Indigenous region (IREG):** developed by the Australian Bureau of Statistics (ABS) as part of the 2016 Australian Statistical Geography Standard (ASGS) and are based on historical boundaries. It is important to note that IREG structure does not account for the diverse Aboriginal and Torres Strait Islander communities and language groups within the geographic area
- **Remoteness area:** developed by the ABS as part of the ASGS Remoteness Structure, 2016 and determined according to the Accessibility/Remoteness Index of Australia, which is a measure of relative access to services based upon population and distance to services
- **Socio-Economic Indexes for Areas Index of Relative Socioeconomic Disadvantage (SEIFA IRSD):** The measures of socioeconomic disadvantage used in this report are based on the 2016 SEIFA IRSD, developed by the ABS. SEIFA IRSD is a measure of average disadvantage of all people living in a geographic area and cannot be presumed to apply to all individuals living in the area
- **Statistical Area Level 3 (SA3):** developed by the ABS as part of the 2016 ASGS and comprise geographical areas built from whole Statistical Areas Level 2 (SA2).

For more information see [Technical notes](#).

## References

AIHW (2020) *Aboriginal and Torres Strait Islander Health Performance Framework 2020 summary report*. Cat. no. IHPF 2. Canberra: AIHW.

Bourke S, Wright A, Guthrie J, Russell L, Dunbar T and Lovett R (2018) 'Evidence review of Indigenous culture for health and wellbeing', *International Journal of Health, Wellness & Society* 8(4), doi:10.18848/2156-8960/CGP.

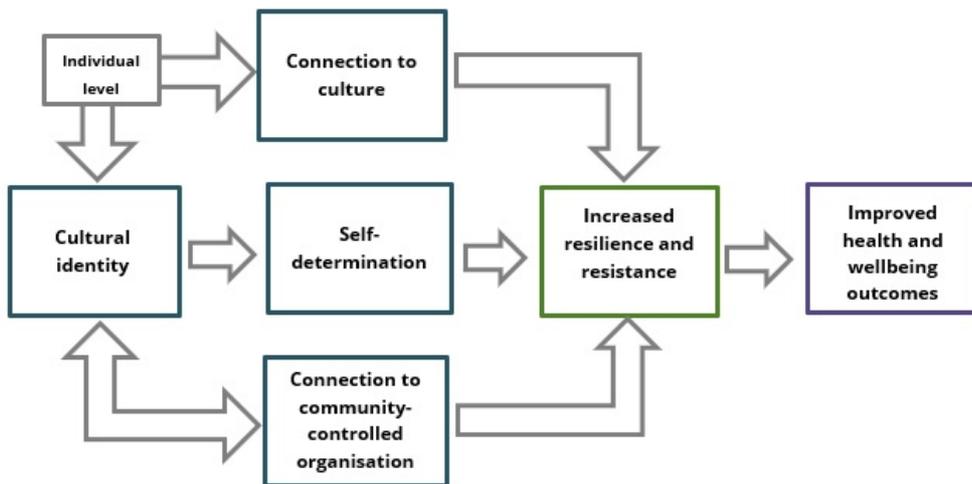
Verbunt E, Luke J, Paradies Y, Bamblett M, Salamone C, Jones A and Kelaher M (2021) 'Cultural determinants of health for aboriginal and Torres Strait Islander people - a narrative overview of reviews', *International Journal for Equity in Health* 20(181), doi: 10.1186/s12939-021-01514-2.

## Introduction

Cultural determinants of health are interlinked elements including: cultural expression, continuity of culture, self-determination and leadership, family, kinship and community, language, Indigenous beliefs and knowledge and connection to Country (see Box 1) (Arabena 2020; Verbunt et al. 2021). Aboriginal and Torres Strait Islander peoples and communities draw strength, resilience and empowerment, and maintain or improve health and wellbeing through these cultural determinants (see Figure 1) (Arabena 2020; Verbunt et al. 2021).

Aboriginal and Torres Strait Islander culture - which incorporates knowledge and belief systems, languages, art and music, access to traditional lands and connection to Country - and extended family networks and kinship systems are recognised as protective factors and can positively influence overall health and wellbeing (Gee et al. 2014; Bourke et al. 2018; Verbunt et al. 2021; DoHAC 2020).

Figure 1. Causal framework of the cultural determinants of health for Aboriginal and Torres Strait Islander peoples



Source: adapted from Verbunt et al. 2021.

### Box 1: What is Country?

Country is a term used by Aboriginal and Torres Islander peoples to describe complex ideas about the lands, waterways, and seas they are connected to and ideas about law, place, custom, language, spiritual belief, cultural practice, material sustenance, family and identity (AIATSIS 2022).

## References

- AIATSIS (Australian Institute of Aboriginal and Torres Strait Islander Studies) (2022) *Welcome to Country*, Australian Institute of Aboriginal and Torres Strait Islander Studies website, accessed 10 October 2022.
- Arabena K (2020), *'Country Can't Hear English': A guide supporting the implementation of cultural determinants of health and wellbeing with Aboriginal and Torres Strait Islander peoples*, Melbourne: Karabena Publishing.
- Bourke S, Wright A, Guthrie J, Russell L, Dunbar T and Lovett R (2018) 'Evidence review of Indigenous culture for health and wellbeing', *International Journal of Health, Wellness & Society* 8(4), doi:10.18848/2156-8960/CGP.
- Department of Health and Aged Care (2020) *Clinical Practice Guidelines: Pregnancy Care*. Canberra: Australian Government Department of Health and Aged Care.
- Gee G, Dudgeon P, Schultz C, Hart A, Kelly K (2014) Aboriginal and Torres Strait Islander social and emotional wellbeing. In Dudgeon, P, Milroy, H, Walker, R. (Ed.), *Working together: Aboriginal and Torres Strait Islander mental health and wellbeing principles and practice* (2nd ed.). Canberra: Department of the Prime Minister and Cabinet.
- Verbunt E, Luke J, Paradies Y, Bamblett M, Salamone C, Jones A and Kelaheer M (2021) 'Cultural determinants of health for aboriginal and Torres Strait Islander people - a narrative overview of reviews', *International Journal for Equity in Health* 20(181), doi: 10.1186/s12939-021-01514-2.



## Introduction

A person's wellbeing is influenced by the social determinants of health.

### Box 1: Social determinants of health

The concept of 'social determinants of health' recognises the potent and complex effects of the social environment on health outcomes.

The World Health Organization (WHO) considers the circumstances in which people are born, live and work as being the most important social determinants of health. These include income, power, education and social support.

The social determinants of health shape the immediate determinants of health, including biomedical factors and health behaviours. This means that a person's health advantage or disadvantage is influenced by broader social and economic conditions under which they live (for more information, see [Social determinants of health](#)).

According to the [Aboriginal and Torres Strait Islander Health Performance Framework](#), over one third of the health gap between Aboriginal and Torres Strait Islander peoples and non-Indigenous Australians, can be attributed to differences in the social determinants of health (income, housing education and employment) (AIHW 2020).

Better health outcomes for Aboriginal and Torres Strait Islander peoples require an understanding that the factors influencing health are complex and interrelated, and that addressing social determinants of health outside the health sector, and cultural determinants of health, is also fundamental (AIHW 2020).

## References

AIHW (Australian Institute of Health and Welfare) (2020) *Aboriginal and Torres Strait Islander Health Performance Framework 2020 summary report*. Cat. no. IHPF 2. Canberra: AIHW.

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## Introduction

Health inequities are also related to interactions with and access to the health system (AIHW 2020). According to the [Aboriginal and Torres Strait Islander Health Performance Framework](#), Aboriginal and Torres Strait Islander Australians experience multiple barriers in relation to health system access including cost, lack of culturally safe services (see Box 3), lack of appropriate services, racism and discrimination and government policies which have contributed to family disruption (AIHW 2020; DoHAC 2020).

According to the [Aboriginal and Torres Strait Islander Health Performance Framework](#), in 2018-19 30% of Aboriginal and Torres Strait Islander peoples reported that they needed to, but did not see, a health care provider on at least one occasion in the past 12 months (AIHW 2020). Cost, long waiting time, lack of transport and services being far from where people live were among the top reasons for lack of access to services.

### Box 1: Cultural safety in health care for Aboriginal and Torres Strait Islander health care users

Cultural safety focuses on the right to autonomy, dignity, empowerment, and respect, and acknowledges societal position, culture, and diversity within a broader structural framework when addressing the care needs of an individual (DoHAC 2020).

Cultural safety is defined with reference to the experiences of Aboriginal and Torres Strait Islander health care users, of the care they are given and their ability to access services and to raise concerns (AIHW 2022). Cultural safety in health care has the following elements:

- **Culturally respectful health care services:** Cultural respect is achieved when the health system is a safe environment for Aboriginal and Torres Strait Islander health care users, and where cultural differences are respected. Cultural respect is reflected in health care provision, structures, policies and programs.
- **Patient experience of health care:** The experiences of Aboriginal and Torres Strait Islander health care users, including having their cultural identity respected, is critical for assessing cultural safety. Aspects of cultural safety include good communication, respectful treatment, empowerment in decision making and the inclusion of family members.
- **Access to health care services:** Aboriginal and Torres Strait Islander people do not always have the same level of access to health services as non-Indigenous Australians (AIHW 2022).

Culturally appropriate and relevant care is the responsibility of the entire health system (AIHW 2020). The [National Agreement on Closing the Gap](#) priority reform 3 'Transforming Government Organisations' states that mainstream government organisations must improve accountability and respond to the needs of Aboriginal and Torres Strait Islander people by committing to systemic and structural transformation (Productivity Commission 2020).

The [National Aboriginal and Torres Strait Islander Health Plan 2021-2031](#) is another key policy which aims to improve health and wellbeing outcomes for Aboriginal and Torres Strait Islander people (DoHAC 2021). The Health Plan acknowledges the importance of both the cultural and social determinants of health and aims to ensure Aboriginal and Torres Strait Islander people have a healthy life through access to culturally safe and equitable health care (DoHAC 2021).

Transformation elements outlined in the agreement to achieve this reform include:

- identify and eliminate racism
- embed and practice meaningful cultural safety
- deliver services in partnership with Aboriginal and Torres Strait Islander organisations communities and people,
- increase accountability through transparent funding allocations
- support Aboriginal and Torres Strait Islander cultures
- improve engagement with Aboriginal and Torres Strait Islander people (Productivity Commission 2020).

Aboriginal Community Controlled Health Services are crucial in providing care, and an increase in the number of Aboriginal and Torres Strait Islander peoples in the health workforce will improve access to culturally appropriate health care for Aboriginal and Torres Strait Islander peoples (AIHW 2020).

In 2020, according to the Department of Health and Aged Care National Health Workforce Dataset, there were 762,794 registered health professionals in Australia. Of relevance to Aboriginal and Torres Strait Islander mothers and babies, 55% (418,349) were Nurses and Midwives, 16% (121,187) were Medical Practitioners and 0.1% (760) were Aboriginal and Torres Strait Islander Health Practitioners (AIHW analysis of DoHAC 2022).

Overall, 1.2% (9,346) of registered health professionals identified as Aboriginal or Torres Strait Islander, 1.5% (6,214) of Nurses and Midwives, 0.6% (694) of Medical Practitioners and 100% (760) of Aboriginal and Torres Strait Islander Health Practitioners (AIHW analysis of DoHAC 2022).

Improvements in the way the health system serves Aboriginal and Torres Strait Islander peoples is also fundamental for addressing the health gap (AIHW 2020). Particularly in relation to the priority reforms of the [National Agreement on Closing the Gap](#) including, working in partnership and sharing decision making with Aboriginal and Torres Strait Islander peoples, building the community-controlled sector, transforming government organisations to deliver culturally safe services and sharing data and information to meet the needs of communities (Productivity Commission 2020).

## References

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AIHW (Australian Institute of Health and Welfare) (2022) *Cultural safety in health care for Indigenous Australians: monitoring framework*. Cat. no. IHW 222. Canberra: AIHW.

AIHW (2020) *Aboriginal and Torres Strait Islander Health Performance Framework 2020 summary report*. Cat. no. IHPF 2. Canberra: AIHW.

DoHAC (Department of Health and Aged Care) (2022) Health Workforce Data, AIHW analysis of National Health Workforce Dataset, accessed 24 October 2022.

DoHAC (2021) *National Aboriginal and Torres Strait Islander Health Plan 2021-2031* Canberra: Australian Government Department of Health and Aged Care.

DoHAC (2020) *Clinical Practice Guidelines: Pregnancy Care*. Canberra: Australian Government Department of Health and Aged Care.

Productivity Commission (2020) National Agreement on Closing the Gap [website], accessed 20 March, 2023.

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## Introduction

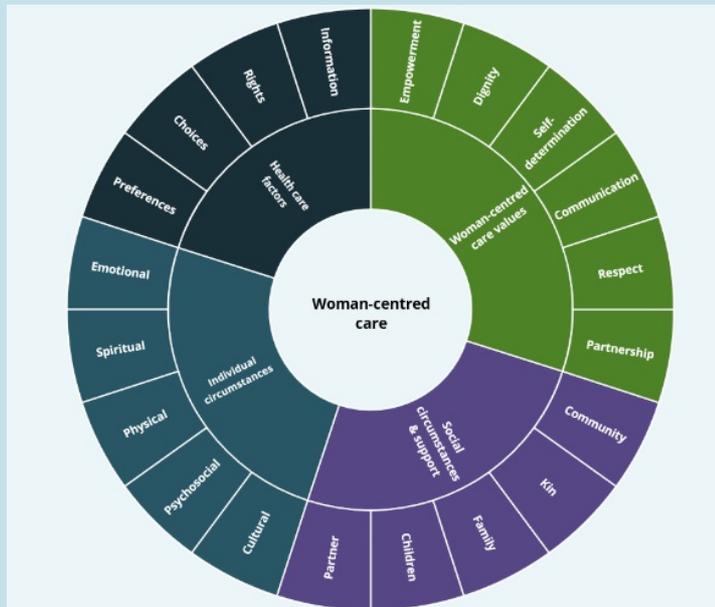
Culturally safe maternity services are fundamental to improving outcomes and experiences for Aboriginal and Torres Strait Islander mothers and babies (Kildea et al. 2016). Supportive policies, applying the principles of woman-centred care (see Box 1 and Figure 1) and Birthing on Country models of care may address many elements of cultural safety for Aboriginal and Torres Strait Islander women.

### Box 1: Principles of woman-centred care

Woman-centred care is care which:

- recognises the woman's baby or babies, partner, family, kin and community
- respects cultural and religious diversity as defined by the woman herself
- considers the woman's individual circumstances, and aims to meet the woman's physical, emotional, psychosocial, spiritual and cultural needs
- is built on a reciprocal partnership through effective communication
- enables individual decision-making and self-determination for the woman to care for herself and her family
- respects the woman's ownership of her health information, rights and preferences while protecting her dignity and empowering her choices (DoHAC 2019).

Figure 1: Key values and principles of woman-centred care



Source: adapted from DoHAC 2019.

Key policies relating to delivery of care to Aboriginal and Torres Strait Islander mothers and babies are the:

- *National Women's Health Strategy 2020-2030*: identifies pregnant women and their children and Aboriginal and Torres Strait Islander women and girls as priority populations, and maternal, sexual and reproductive health as a priority area (DoHAC 2018).
- *Woman-centred care: Strategic directions for Australian maternity services*: purpose is to ensure Australian maternity services are equitable, safe, woman-centred, informed and evidence-based, that women are the decision-makers in their care and maternity care reflects their individual needs. This strategy identifies cultural safety as a principle for woman-centred maternity care for Aboriginal and Torres Strait Islander women, and Birthing on Country as a key enabler for culturally safe care (DoHAC 2019).

Birthing on Country refers to maternity services which are developed and delivered in partnership with Aboriginal and Torres Strait Islander women and communities (Kildea et al. 2016). The aim of Birthing on Country maternity services is to improve outcomes for Aboriginal and Torres Strait Islander mothers and babies by developing programs which strengthen connection to culture and Country - regardless of geographical location - during birthing and acknowledge the cultural risk of not birthing on Country (Kildea et al. 2016).

The aim of Birthing on Country is to improve outcomes for Aboriginal and Torres Strait Islander mothers and babies by developing programs which strengthen connection to culture and Country - regardless of geographical location - during birthing, and acknowledge the cultural risk of not birthing on Country (Kildea et al. 2016).

Guiding principles for a Birthing on Country program are:

- respect for, and incorporation of, Aboriginal and Torres Strait Islander knowledge and traditional practice

- respect for family and men’s involvement
- partnership approach
- women’s business
- continuity of carer
- connection with Country
- capacity building approach (training and education)
- holistic definition of health
- choice
- evidenced based clinical practice
- social model of health and wellbeing (Kildea et al. 2016).

It should be noted that Birthing on Country does not refer purely to geographic location, it is the provision of cultural safe continuity of care to women pregnant with an Aboriginal and Torres Strait Islander baby, wherever maternal health services are sought.

## References

Department of Health and Aged Care (2018) *National Women’s Health Strategy, 2020-2030*. Canberra: Australian Government Department of Health and Aged Care.

Department of Health and Aged Care (2019) *Woman-centred care: Strategic directions for Australian maternity services*. Canberra: Australian Government Department of Health and Aged Care.

Kildea S, Lockey R, Roberts J, Magick Dennis, F (2016) *Guiding Principles for Developing a Birthing on Country Service Model and Evaluation Framework, Phase 1* Canberra: Mater Medical Research Unit and the University of Queensland on behalf of the Maternity Services Inter-Jurisdictional Committee for the Australian Health Minister’s Advisory Council.

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## Demographics



### Demographics

In 2020, 4.9% (14,384) of females who gave birth in Australia identified as Aboriginal and/or Torres Strait Islander. Of these, 4.5% (13,050) identified as Aboriginal, 0.2% (588) identified as Torres Strait Islander and 0.3% (746) identified as both Aboriginal and Torres Strait Islander.

For this report Aboriginal and/or Torres Strait Islander females who gave birth are grouped together.



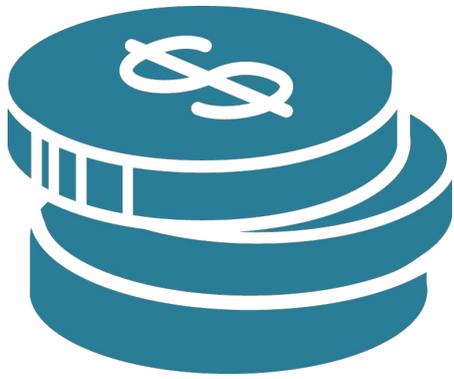
In 2020, the rate of Aboriginal and Torres Strait Islander females giving birth was 75 per 1,000 females of reproductive age



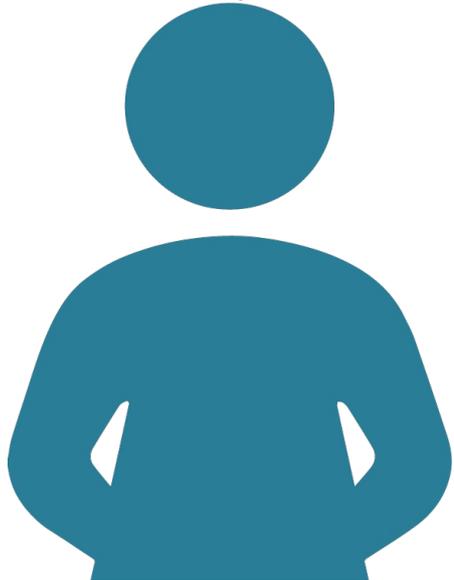
In 2020, almost 2 in 3 Aboriginal and Torres Strait Islander mothers lived in New South Wales or Queensland



In 2020, nearly 1 in 5 Aboriginal and Torres Strait Islander mothers lived in remote or very remote areas



In 2020, 44% of Aboriginal and Torres Strait Islander mothers lived in the most disadvantaged areas



In 2020, the average age of Aboriginal and Torres Strait Islander mothers was 26.5 years



In 2020, 6.1% of Aboriginal and Torres Strait Islander mothers had a parity of 5 or more

## Demographics



### Birth rate

In 2020, Aboriginal and Torres Strait Islander females in Australia had a birth rate of 75 per 1,000 Aboriginal and Torres Strait Islander females of reproductive age (aged 15 to 44 years). This was higher than the birth rate for non-Indigenous females (55 per 1,000 non-Indigenous females of reproductive age).

Over the 15 year period from 2005 to 2020, the birth rate for Aboriginal and Torres Strait Islander females has been consistently higher than non-Indigenous females. The birth rate for Aboriginal and Torres Strait Islander females fluctuated between 68 per 1,000 in 2005 and 77 per 1,000 in 2016, and was 75 per 1,000 in 2020. In comparison the birth rate for non-Indigenous females ranged between 61 per 1,000 in 2015 and 66 per 1,000 in 2007, however, since 2016 the non-Indigenous birth rate has been decreasing every year, and was 55 per 1,000 in 2020.

The data visualisation below shows the birth rate for Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by state or territory of birth from 2005. To see the national birth rate, click on 'Australia' in the legend.

#### **Figure 1: Rate per 1,000 Aboriginal and Torres Strait Islander females of reproductive age by state or territory of birth from 2005 to 2020**

Line graph of birth rate by state and territory and Indigenous status. The birth rate for Aboriginal and Torres Strait Islander mothers increased over time

Visualisation not available for printing

Between 2005 and 2020, the birth rate for Aboriginal and Torres Strait Islander females has decreased for those aged under 20 years (from 36 per 1,000 Aboriginal and Torres Strait Islander females of reproductive age in 2005 to 19 per 1,000 in 2020). This pattern was also seen among those aged 20-24 years (decreasing from 62 per 1,000 to 55 per 1,000 Aboriginal and Torres Strait Islander females, respectively) but increased for the other maternal age groups.

In comparison, there was a decrease in birth rate for non-Indigenous females of reproductive age for those aged under 20, 20-24 and 25-29, and an increase in birth rate for those aged 30-34, 35-39 and 40 and over. However, these changes over time were not as substantial as those seen for Aboriginal and Torres Strait Islander mothers.

The data visualisation below shows the birth rate for Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by maternal age group from 2005.

#### **Figure 2: Rate per 1,000 Aboriginal and Torres Strait Islander females of reproductive age by maternal age group from 2005 to 2020**

Line graph of birth rate by maternal age and Indigenous status. Birth rate for Aboriginal and Torres Strait mothers aged under 20 years decreased.

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In 2020, the birth rate for Aboriginal and Torres Strait Islander females varied considerably by Indigenous region (IREG), ranging from 106 per 1,000 Aboriginal and Torres Strait Islander females of reproductive age in Mount Isa to 44 per 1,000 in Jabiru - Tiwi.

The data visualisation below shows the birth rate Aboriginal and Torres Strait Islander females who gave birth by IREG from 2013.

#### **Figure 3: Rate per 1,000 Aboriginal and Torres Strait Islander females of reproductive age by Indigenous region (IREG) from 2013 to 2020**

Map for birth rate by Indigenous region (IREG). The birth rate for Aboriginal and Torres Strait Islander mothers varied across IREGs in 2020.

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## Demographics



### Geography

Geographical factors - where Aboriginal and Torres Strait Islander mothers live and give birth - are particularly important for a number of reasons, including the deep cultural and spiritual connection to Country and the large distances some Aboriginal and Torres Strait Islander mothers need to travel to access services (AIATSIS 2022; AIHW 2017).

The residential location of Aboriginal and Torres Strait Islander females who gave birth in 2020 can be considered in terms of a number of geographical constructs. For example:

- **State or territory of usual residence:** 0.8% (113) of Aboriginal and Torres Strait Islander mothers lived in the Australian Capital Territory and 33% (4,667) lived in New South Wales
- **Indigenous region (IREG):** 0.3% (50) of Aboriginal and Torres Strait Islander mothers lived in the IREG of 'Port Lincoln - Ceduna' and 11% (1,522) lived in the IREG of 'Brisbane'
- **Primary Health Network (PHN):** 0.3% (47) of Aboriginal and Torres Strait Islander mothers lived in the PHN of 'Northern Sydney' and 11% (1,652) lived in the PHN of 'Northern Queensland'.

The data visualisation below shows the number and proportion of Aboriginal and Torres Strait Islander females who gave birth by the state or territory where a mother usually lived in 2020, by various geographies.

**Figure 1: Proportion of Aboriginal and Torres Strait Islander females who gave birth by various geographies for 2020**  
Map of proportions of Aboriginal and Torres Strait Islanders mothers across Australia grouped by various geographies.

Visualisation not available for printing

Aboriginal and Torres Strait Islander mothers may have to travel away from their community to give birth due to a lack of acceptable or appropriate maternal health or acute services. In these instances, Birthing on Country models of care ensure mothers receive culturally safe care despite being away from their community (AIHW 2017; Barclay 2016; Kildea et al 2016).

For more information on Birthing on Country see [Introduction](#) and for more information on routine relocation see [Antenatal length of stay](#).

The data below explore whether mothers gave birth in a hospital with a public maternity service in the same state or territory, Indigenous region (IREG) or Statistical area level 3 (SA3) as their usual residence. Note that these geographies of usual residence do not necessarily align with a mother's Country, nor does the alignment of the geography of a mother's usual residence with the geography of the public hospital they birthed in mean that the hospital followed Birthing on Country principles.

In 2020, of Aboriginal and Torres Strait Islander mothers who gave birth in a hospital with a public maternity service:

- 47% (6,288) gave birth in a hospital located in an SA3 that was different from the SA3 of their place of usual residence
- 15% (1,943) gave birth in a hospital located in an IREG that was different from the IREG of their place of usual residence
- 1.8% (239) gave birth in a hospital located in a state or territory that was different from the state or territory of their usual residence

In comparison, for non-Indigenous females who gave birth in a public hospital:

- 59% (120,911) gave birth in a hospital located in a SA3 that was different from the SA3 of their place of usual residence.
- 3.7% (7,573) gave birth in a hospital located in an IREG that was different from the IREG of their place of usual residence
- 1.2% (2,412) gave birth in a hospital located in a state or territory that was different from the state or territory of their usual residence

Note that the proportions displayed above for SA3 may reflect that many SA3s do not have a hospital within that area.

The Maternity Care Classification System collects data on models of care from participating Australian maternity services. A maternity model of care describes how a group of women are cared for during pregnancy, birth and the postnatal period, that is, how maternity care is provided. This includes identifying: the women a model is designed for; the maternity carers involved and the role they play; and aspects of how and where care is provided. Based on these characteristics, each model of care can be grouped into one of 11 major model categories. For example, the most common major model of care category is *public hospital maternity care* (AIHW 2022).

Some models of care involve the routine relocation of women prior to giving birth. The intention is that all women cared for in the model require relocation from their communities to another location prior to labour for intrapartum care and birth. Routine relocation usually applies to models where women reside in a rural or remote community with no access to a birth facility and are routinely relocated to a larger town or city some weeks prior to birth (AIHW 2022) (for more information on routine relocation see [Antenatal length of stay](#)).

Of the models of care that have routine relocation as a model characteristic:

- 74% (54) did not specifically target Aboriginal and Torres Strait Islander women, but were available to all women living in an area (including Aboriginal and Torres Strait Islander women)
- 26% (19) targeted Aboriginal and Torres Strait Islander women.

Note that models of care may or may not have a target group and those that do may have more than one target group.

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## Demographics



### Remoteness area

Results from the 2018-2019 National Aboriginal and Torres Strait Islander Health Survey show many differences in self-reported health and wellness measures for Aboriginal and Torres Strait Islander peoples living in different remoteness areas (AIHW analysis of ABS 2019).

For example, Aboriginal and Torres Strait Islander peoples living in remote areas were less likely than those living in non-remote areas to report:

- fair/poor health status (20% compared with 25%)
- mental health and behavioural conditions (9.8% compared with 28%)
- asthma (8.6% compared with 17%) or arthritis (5.9% compared with 12%)
- not consuming alcohol in the last 12 months or having never consumed alcohol (36.9% compared with 22.9%) (AIHW analysis of ABS 2019).

Also, Aboriginal and Torres Strait Islander peoples living in remote areas were more likely than those living in non-remote areas to report:

- diabetes mellitus (11.8% compared with 7.0%), hypertension (10% compared with 7.9%) or kidney disease (3.4% compared with 1.4%)
- being a current smoker (59% compared with 40%) (AIHW analysis of ABS 2019).

Many Aboriginal and Torres Strait Islander peoples who live in remote areas, live on Country and continue ancestral cultural practices which have been ongoing for tens of thousands of years, and report positive wellbeing related to their connection to culture and community (Cairney et al. 2017). It is important to note that Aboriginal and Torres Strait Islander peoples who live in urban areas also have this connection to Country, culture and community.

Aboriginal and Torres Strait Islander women living in remote areas can experience poorer health outcomes, which are compounded by factors related to geographic isolation, such as poorer access to appropriate housing, essential services and employment opportunities (AIHW 2020).

Previous reports have shown that Aboriginal and Torres Strait Islander mothers who lived in remote areas were more likely to face socioeconomic disadvantage, have poorer access to maternity care, have higher rates of behavioural risk factors and pre-existing maternal health conditions, and have babies who experienced poorer outcomes than Aboriginal and Torres Strait Islander mothers who lived in non-remote areas (AIHW 2022).

This report shows that Aboriginal and Torres Strait Islander females who gave birth and lived in *Remote* or *Very remote* areas were more likely than those living in non-remote areas to:

- be aged under 20
- smoke during pregnancy
- be underweight (a body mass index of less than 18.5. For more information see [Healthy maternal weight](#)).
- have pre-existing and gestational diabetes
- give birth to a baby who was pre-term, of low birthweight or small for gestational age.

In 2020 7.4% of Aboriginal and Torres Strait Islander females who gave birth lived in *Remote* areas and 11% lived in *Very remote* areas, compared with 1.1% and 0.4%, respectively, of non-Indigenous females.

Over time, the proportion of Aboriginal and Torres Strait Islander females who gave birth and lived in *Very remote* areas has declined (from 15% in 2012 to 11% in 2020), whilst there has been a corresponding increase in those living in *Major cities* (from 31% in 2012 to 37% in 2020).

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by remoteness area from 2012.

### Figure 1: Proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by remoteness area from 2012 to 2020

Line graph of remoteness areas by Indigenous status. Aboriginal and Torres Strait Islander mothers who lived in major cities increased

Visualisation not available for printing

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## Demographics



### Socioeconomic status

Socioeconomic status is a key social determinant of health, and the association between socioeconomic disadvantage and health can explain a substantial part of the health gap between Aboriginal and Torres Strait Islander people and non-Indigenous Australians (Arabena 2020; AIHW 2020).

However, focusing solely on the social determinants of health - and socioeconomic disadvantage - does not acknowledge the importance of the cultural determinants which are pivotal for Aboriginal and Torres Strait Islander peoples to achieve and maintain optimum health and wellbeing (Verbunt et al. 2021) (for more information see [Cultural determinants of health](#)).

Previous reports show that mothers who live in the most socioeconomically disadvantaged areas are more likely to be aged under 20, smoke during pregnancy, be obese, and give birth to pre-term or low birthweight babies than mothers who lived in the least disadvantaged areas (AIHW 2022).

Socioeconomic disadvantage in this report is based on the relative disadvantage of an area - calculated by looking at multiple factors such as income, level of education employment (for more information see Box 1 in the [Introduction](#)).

This report shows that Aboriginal and Torres Strait Islander females who gave birth and lived in the most disadvantaged areas were more likely than those in the least disadvantaged areas to:

- be aged under 20
- smoke during pregnancy
- be underweight or obese (a body mass index of 30 or more. For more information see [Healthy maternal weight](#)).
- have pre-existing diabetes and hypertension
- give birth to a baby who was pre-term, of low birthweight or small for gestational age.

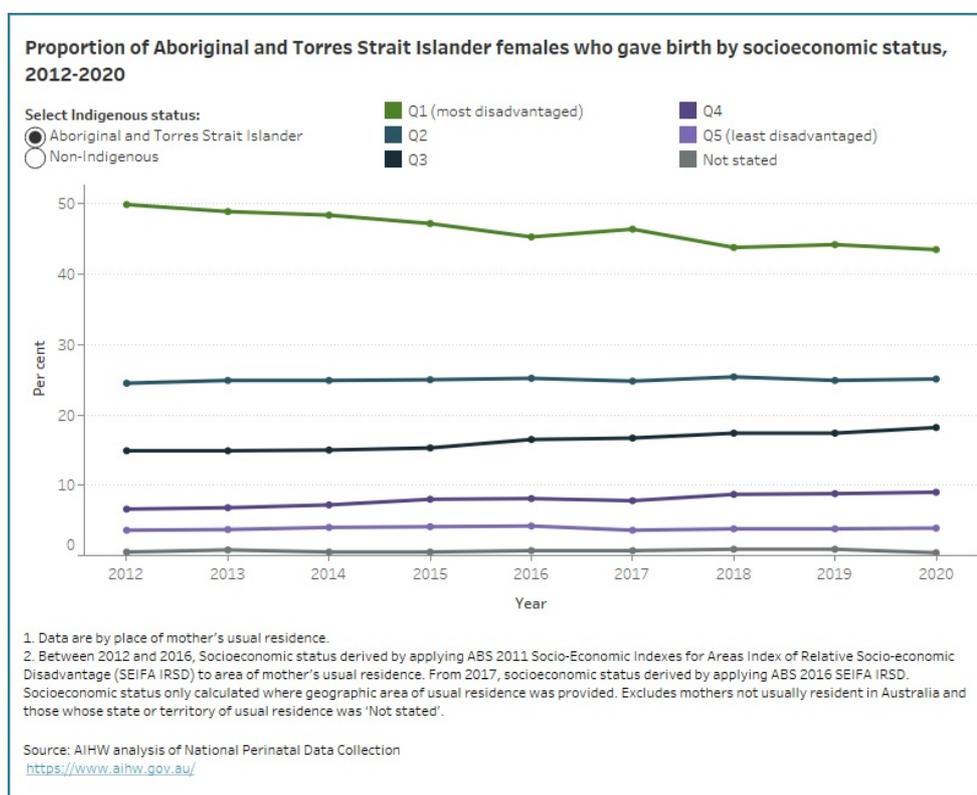
In 2020, 44% of Aboriginal and Torres Strait Islander females who gave birth lived in the most disadvantaged areas and 3.9% lived in the least disadvantaged areas, which contrasts with non-Indigenous females (18% for both).

Over time, the proportion of Aboriginal and Torres Strait Islander females who gave birth and lived in the most disadvantaged areas has declined (from 50% in 2012 to 44% in 2020), whilst there has been a corresponding increase in those living in the third and fourth areas of disadvantage (from 15% in 2012 to 18% in 2020 for quintile 3 and from 6.6% in 2012 to 9.0% in 2020 for quintile 4). The proportion of Aboriginal and Torres Strait Islander mothers living in the least disadvantaged areas has remained largely unchanged (ranging between 3.6% in 2012 and 2017 and 4.2% in 2016).

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by socioeconomic status of the area in which they lived, from 2012.

### Figure 1: Proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by socioeconomic status from 2012 to 2020

Line graph of socioeconomic status by Indigenous status. Aboriginal and Torres Strait Islander mothers living in the most disadvantaged areas decreased



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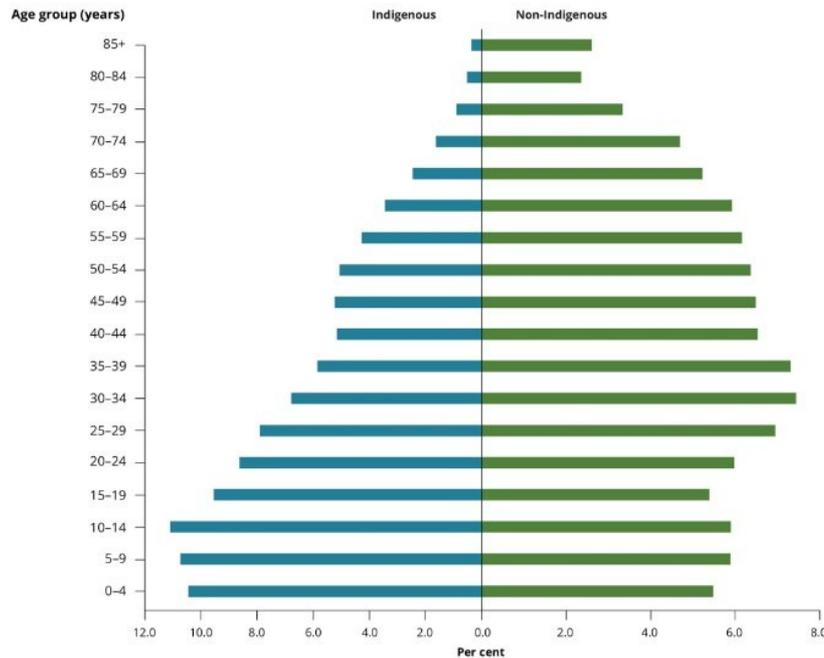
## Demographics



### Maternal age

The Aboriginal and Torres Strait Islander population has a younger age structure than the non-Indigenous population. Figure 1 shows the difference in the age profile of Aboriginal and Torres Strait Islander and non-Indigenous females according to the ABS 2021 Census Estimated Residential Population for Indigenous Australians (ABS 2021).

**Figure 1: Australian female population distribution, by Indigenous status and age group, 2021**



Source: AIHW analysis of ABS 2021.

In 2020 - reflecting these differences in age structure - the mean age of Aboriginal and Torres Strait Islander females who gave birth was 26.5 years, the median age was 26 years, and the most common maternal age group was 25-29 years (30%). In comparison, the mean age of non-Indigenous females who gave birth was 31.2 years, the median age was 31 years, and the most common maternal age group was 30-34 years (38%).

Whilst most mothers have normal pregnancies and healthy babies regardless of age, mothers aged under 20 years and those aged 40 years and over can have an increased risk of maternal and infant complications and adverse pregnancy outcomes (AIHW 2022).

This report shows that Aboriginal and Torres Strait Islander females who gave birth and were aged under 20 years were more likely than other maternal age groups to smoke at any time during pregnancy or in the first 20 weeks of pregnancy, be underweight, have an episiotomy and give birth to a baby who was of low birthweight or small for gestational age.

Aboriginal and Torres Strait Islander mothers who were aged over 40 years were more likely than other maternal age groups to be obese, have pre-existing or gestational diabetes, have induced labour and give birth to a baby who was pre-term.

In 2020, a higher proportion of Aboriginal and Torres Strait Islander females who gave birth were aged under 20 years (11%) compared with non-Indigenous females (1.3%). Conversely, non-Indigenous females were more than twice as likely to be aged 40 years and over (4.6% compared with 2.0%).

Over time, the age of Aboriginal and Torres Strait Islander mothers has increased (from a mean of 24.9 years in 2005 to 26.5 years in 2020), and the proportion who gave birth aged under 20 years has halved (from 22% in 2005 to 11% in 2020).

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by maternal age group, mean age and median age from 2005.

**Figure 2: Proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by maternal age from 2005 to 2020**

Line graph for maternal age group, mean maternal age and median maternal age by Indigenous status.

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In 2020, the mean age of first-time Aboriginal and Torres Strait Islander mothers was 23.2 years, and the median age was 22 years. The mean age of Aboriginal and Torres Strait Islander mothers who had previously given birth was 28.2 years, and the median age was 28 years.

Aboriginal and Torres Strait Islander mothers in the younger age groups were more likely to live in the most disadvantaged areas (13% of mothers aged under 20 years and 32% aged 20-24 years), compared with the least disadvantaged areas (5.1% and 20%).

Younger mothers were also more likely to live in *Remote* and *Very remote* areas (14% of mothers aged under 20 years for both areas), compared with 9.6% in *Major cities*.

The data visualisation below presents data on the maternal age group of Aboriginal and Torres Strait Islander females who gave birth, by selected maternal characteristics for 2020.

**Figure 3: Proportion of Aboriginal and Torres Strait Islander females who gave birth by maternal age group and selected topic for 2020**

Bar chart for maternal age group by selected topics. 30% of Aboriginal and Torres Strait Islander mothers were aged between 25 and 29 years.

Visualisation not available for printing

For related information see the Regional Insights for Indigenous Communities section on [Maternal age](#).

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## Demographics



### Parity

Parity refers to the number of previous pregnancies, whether resulting in a live or still birth. Research suggests that parity may be associated with some adverse conditions and outcomes, for example babies of first-time mothers may be pre-term, of low birthweight or small for gestational age (Koulalli et al. 2020; Prakesh 2010).

Alternatively, having had 5 or more previous pregnancies has been associated with maternal, obstetric and fetal complications, such as gestational diabetes, anaemia, pre-eclampsia placenta previa, placental abruption and being born large for gestational age (Singh et al. 2015).

There are many factors, such as maternal age, that need to be considered regarding the risks associated with parity, and most mothers have uncomplicated pregnancies and healthy babies, regardless of parity.

In 2020, Aboriginal and Torres Strait Islander females who gave birth were more likely to have a higher parity than non-Indigenous females. In 2020, 11% of Aboriginal and Torres Strait Islander mothers had a parity of 3, 5.9% had a parity of 4 and 6.1% had a parity of 5 or more (compared with 4.4%, 1.6% and 1.2%, respectively, for non-Indigenous females).

Between 2010 and 2020, the proportion Aboriginal and Torres Strait Islander females who were first-time mothers has remained stable (between 32% and 34%) and the proportion of Aboriginal and Torres Strait Islander females with a parity of 5 or more has decreased (from 8.5% in 2010 to 6.1% in 2020).

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by parity from 2010.

#### Figure 1: Proportion of Aboriginal and Torres Strait Islander females who gave birth by parity from 2010 to 2020

Line graph of parity by Indigenous status. Aboriginal and Torres Strait Islander mothers with a parity of five or more decreased

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In 2020, Aboriginal and Torres Strait Islander mothers who lived in the most disadvantaged areas had a higher parity (12% with a parity of 3 and 14% with a parity of 4 or more), compared with Aboriginal and Torres Strait Islander mothers who lived in the least disadvantaged areas (6.0% and 8.5%, respectively).

Aboriginal and Torres Strait Islander females who gave birth and lived in *Major cities* were the most likely to be first-time mothers (37%, compared with between 30% and 34% for other remoteness areas).

The data visualisation below presents data on the parity of Aboriginal and Torres Strait Islander females who gave birth, by selected maternal characteristics for 2020.

#### Figure 2: Proportion of Aboriginal and Torres Strait Islander females who gave birth by parity and selected topic for 2020

Bar chart for parity by selected topics. 34% of Aboriginal and Torres Strait Islander mothers were first-time mothers

Visualisation not available for printing

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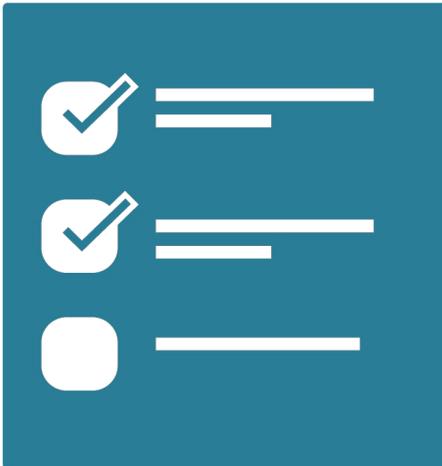
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## Antenatal period



### Antenatal period

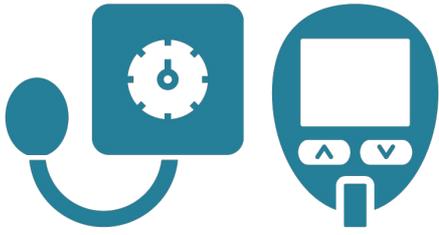
The antenatal period covers the time from conception until birth. This section looks at the duration of pregnancy at the first antenatal visit, the number of antenatal visits and maternal history and health, including smoking and alcohol consumption during pregnancy, body mass index (BMI) and maternal medical conditions.



In 2020, 71% of Aboriginal and Torres Strait Islander mothers had their first antenatal care visit in the first trimester and 87% had 5 or more antenatal care visits



In 2020, 57% of Aboriginal and Torres Strait Islander mothers did not smoke and 92% did not consume alcohol in the first 20 weeks of pregnancy



In 2020, 15% of Aboriginal and Torres Strait Islander mothers had gestational diabetes and 3.2% had gestational hypertension

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## Antenatal period



### Antenatal care

On this page:

- [Duration of pregnancy at first antenatal care visit](#)
- [Number of antenatal care visits](#)

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. Antenatal care is associated with positive maternal and child health outcomes - the likelihood of receiving effective health interventions is increased through attending antenatal care. It does not include visits where the sole purpose is to confirm the pregnancy (AIHW 2022).

Aboriginal and Torres Strait Islander mothers are more likely to engage with maternity care when Aboriginal and Torres Strait Islander peoples are involved in the design and delivery of services and when care is woman-centred, culturally safe and involves continuity of care (DoHAC 2020; Kildea et al. 2021; Parker et al. 2014).

Some examples of programs which are designed to meet the needs of Aboriginal and Torres Strait Islander mothers, and have reported positive outcomes are:

- **Birthing in our Community (BiOC) Program:** based in urban Queensland, this program reported improvements include increased antenatal care attendance, a reduction in preterm birth, and an increase in exclusive breastfeeding at discharge from hospital (Kildea et al. 2021).
- **Aboriginal Maternal and Infant Health Service:** based in New South Wales, this service reported outcomes include increased likelihood of attending antenatal care in the first trimester of pregnancy and attending 7 or more antenatal care visits and a reduced likelihood of babies being born preterm or of low birthweight (HCA 2019).
- **Aboriginal Family Birthing Program:** based in South Australia, participants in this program reported positive experiences of antenatal care, (Middleton et al. 2017) and there were reported improvements in attending antenatal care in the first trimester of pregnancy and attending 5 or more antenatal care visits (Brown et al. 2016).

### Duration of pregnancy at the first antenatal care visit

The first antenatal visit is important as it involves a comprehensive physical, emotional and social assessment, providing advice on a range of topics, and identifying if additional care is required (DoHAC 2020).

The Australian Pregnancy Care Guidelines (DoHAC 2020) recommend that a woman has her first antenatal care visit within the first 10 weeks of pregnancy.

Note that in some instances the first antenatal visit may be the first hospital antenatal clinic visit and that in these cases, earlier antenatal care provided in the Primary Care setting would not be reported.

In 2020, 58% of Aboriginal and Torres Strait Islander females who gave birth had their first antenatal care visit in the first 10 weeks of pregnancy, and 71% had their first antenatal care visit in the first trimester (before 14 weeks' gestation) of pregnancy (compared with 67% and 80%, respectively, for non-Indigenous females).

Over time, the proportion of Aboriginal and Torres Strait Islander mothers who had their first antenatal care visit in the first 10 weeks of pregnancy has increased (from 35% in 2012 to 58% in 2020), as has the proportion who had their first antenatal care visit in the first trimester of pregnancy (from 50% in 2012 to 71% in 2020).

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth who had their first antenatal care visit in the first 10 weeks of pregnancy or the first trimester of pregnancy, from 2012.

### Figure 1: Proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by duration pregnancy at their first antenatal care visit from 2012 to 2020

Line graph of duration of pregnancy at first antenatal visit by Indigenous status. Aboriginal and Torres Strait Islander mothers who had their first antenatal visit at less than 10 weeks increased.

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In 2020, Aboriginal and Torres Strait Islander mothers who had greater proportions of having attended their first antenatal care visit in the first trimester were those who:

- lived in the fourth area of disadvantage (quintile 4) (74%, compared with 69% of those who lived in the most disadvantaged areas)
- lived in *Inner regional* and *Outer regional* areas (both 73%, compared with 63% for *Remote* areas)

- were aged 20-24 years, 25-29 years and 30-34 years (all 71%, compared with 62% of those aged 40 years and over)
- first-time mothers (75%, compared with 56% of those with a parity of 4 or more).

The data visualisation below presents data on the duration of pregnancy at their first antenatal visit of Aboriginal and Torres Strait Islander females who gave birth, by selected maternal characteristics for 2020.

**Figure 2: Proportion of Aboriginal and Torres Strait Islander females who gave birth by duration of pregnancy at first antenatal care visit and selected topic for 2020**

Line graph of duration of pregnancy at first antenatal visit by Indigenous status. Aboriginal and Torres Strait Islander mothers who had their first antenatal visit at less than 10 weeks increased.

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Aboriginal and Torres Strait Islander mothers who lived in some geographical locations were more likely to have their first antenatal care visit in the first trimester. Explore the map below to view data on the number and proportion of Aboriginal and Torres Strait Islander mothers who had their first antenatal care visit in the first trimester, by IREG and PHN for 2020 and SA3 for 2017-2020.

**Figure 3: Proportion of Aboriginal and Torres Strait Islander females who gave birth and had their first antenatal care visit in the first trimester by various geographies**

Map of proportions of Aboriginal and Torres Strait Islander mothers who had their first antenatal care visit in the first trimester across Australia grouped by various geographies.

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**Number of antenatal care visits**

Ongoing antenatal visits are required for specific activities as pregnancy progresses, including assessing fetal growth, testing for pregnancy-related conditions, and preparing for labour and birth (DoHAC 2020).

For first-time mothers (primiparous), at least 10 antenatal visits are recommended during pregnancy, for women who have given birth before (multiparous) and for subsequent uncomplicated pregnancies, 7 visits are recommended (DoHAC 2020).

In 2020, 53% of Aboriginal and Torres Strait Islander females who gave birth and were first-time mothers had 10 or more antenatal care visits and 71% of Aboriginal and Torres Strait Islander females who had previously given birth had 7 or more antenatal care visits. In comparison, 59% of non-Indigenous females who gave birth and were first-time mothers had 10 or more antenatal care visits and 85% of non-Indigenous females who had previously given birth had 7 or more antenatal care visits.

Between 2012 and 2020, the proportion of Aboriginal and Torres Strait Islander first-time mothers who had 10 or more antenatal care visits has fluctuated, ranging from 52% to 57%.

In the same period, the proportion of Aboriginal and Torres Strait Islander mothers who had previously given birth and had 7 or more antenatal care visits has also fluctuated, ranging from 68% to 72%.

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth and had 10 or more antenatal care visits for primiparous females or 7 or more antenatal care visits for multiparous females, from 2012.

**Figure 4: Proportion of primiparous or multiparous Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by number of antenatal care visits from 2012 to 2020**

Line graph of antenatal visits by Indigenous status. Primiparous Aboriginal and Torres Strait Islander mothers who had at least 10 antenatal care visits increased.

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In 2020, 87% of Aboriginal and Torres Strait Islander mothers had 5 or more antenatal care visits.

The proportion of all mothers who had 5 or more antenatal care visits is a commonly used measure for indicator reporting. For example, the proportion of pregnant Aboriginal and Torres Strait Islander women with 5 or more antenatal visits is a supporting indicator measure for Closing the Gap socioeconomic outcome area 2: ‘Aboriginal and Torres Strait Islander children are born healthy and strong’ (Productivity Commission 2020).

In 2020, the proportion of Aboriginal and Torres Strait Islander mothers who had 5 or more antenatal care visits decreased as relative disadvantage increased. For example, 92% of Aboriginal and Torres Strait Islander females who lived in the least disadvantaged areas had 5 or more antenatal care visits, compared with 86% of those living in the most disadvantaged areas.

Aboriginal and Torres Strait Islander mothers were slightly less likely to have had 5 or more antenatal care visits if they:

- lived in *Remote* areas (85%, compared with 88% for all other remoteness areas)
- were aged 40 years or more (85%, compared with between 86% and 88% for other maternal age groups)
- had a parity of 4 or more (78%, compared with 92% of first-time mothers)

The data visualisation below presents data on the number of antenatal visits for Aboriginal and Torres Strait Islander females who gave birth, by selected maternal characteristics for 2020.

### Figure 5: Proportion of Aboriginal and Torres Strait Islander females who gave birth by number of antenatal care visits and selected topic for 2020

Bar chart for number of antenatal visits by selected topics. 87% of Aboriginal and Torres Strait Islander mothers had 5 or more antenatal care visits

Visualisation not available for printing

Aboriginal and Torres Strait Islander mothers who lived in some geographical locations were more likely to have 5 or more antenatal care visits. Explore the map below to view data on the number and proportion of Aboriginal and Torres Strait Islander mothers who had 5 or more antenatal care visits, by IREG and PHN for 2020 and SA3 for 2017-2020.

### Figure 6: Proportion of Aboriginal and Torres Strait Islander females who gave birth and had 5 or more antenatal care visits by various geographies

Map of proportions of Aboriginal and Torres Strait Islander mothers who had 5 or more antenatal care visits across Australia grouped by various geographies.

Visualisation not available for printing

For related information see:

- the Regional Insights for Indigenous Communities section on [Antenatal care](#).
- Aboriginal and Torres Strait Islander Health Performance Framework indicator [3.01 antenatal care](#).

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## Antenatal period



### Risk factors

On this page:

- [Smoking during pregnancy](#)
- [Alcohol consumption during pregnancy](#)
- [Maternal body mass index](#)

Rates of health risk factors, such as smoking and obesity, are higher for Aboriginal and Torres Strait Islander peoples (AIHW 2020a).

### **Smoking during pregnancy**

Smoking during pregnancy is a 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 (AIHW 2022a).

Smoking is associated with socioeconomic disadvantage - with the prevalence of smoking increasing with levels of socioeconomic disadvantage (Bonevski and Baker 2012). Evidence suggests that action at both the system level and the individual level can reduce smoking rates (Bonevski and Baker 2012).

Aboriginal and Torres Strait Islander peoples are more likely to smoke than non-Indigenous Australians (AIHW 2020a). The vast majority of Aboriginal and Torres Strait Islander people who smoke want to quit or wish they had never started smoking (Kennedy and Maddox 2022).

Some pregnant Aboriginal and Torres Strait Islander women have reported difficulties with stopping smoking due to their social environment and daily stressors and a lack of culturally sensitive support and information (Passey et al. 2012; Tzelepis et al. 2017).

This report shows that Aboriginal and Torres Strait Islander females who gave birth and smoked at any time during their pregnancy were more likely than those who did not smoke, to give birth to a baby who was born pre-term, of low birthweight or small for gestational age (for more information on the effect of maternal smoking see Baby outcomes).

The National Perinatal Data Collection collects information on self-reported smoking status at 3 time points - at any time during pregnancy, in the first 20 weeks of pregnancy and after 20 weeks of pregnancy.

In 2020:

- 43% of Aboriginal and Torres Strait Islander females who gave birth reported having smoked at any time during their pregnancy
- 42% reported having smoked in the first 20 weeks of pregnancy
- 38% reported having smoked after 20 weeks of pregnancy

In comparison, among non-Indigenous females who gave birth 7.5% smoked at any time during pregnancy, 7.1% smoked in the first 20 weeks of pregnancy and 5.4% smoked after 20 weeks of pregnancy.

Over time, the proportion of Aboriginal and Torres Strait Islander mothers who smoked at any time during pregnancy has decreased (from 51% in 2010 to 43% in 2020), as has the proportion who smoked in the first 20 weeks of pregnancy (from 50% in 2011 to 42% in 2020) and after 20 weeks of pregnancy (from 45% in 2011 to 38% in 2020).

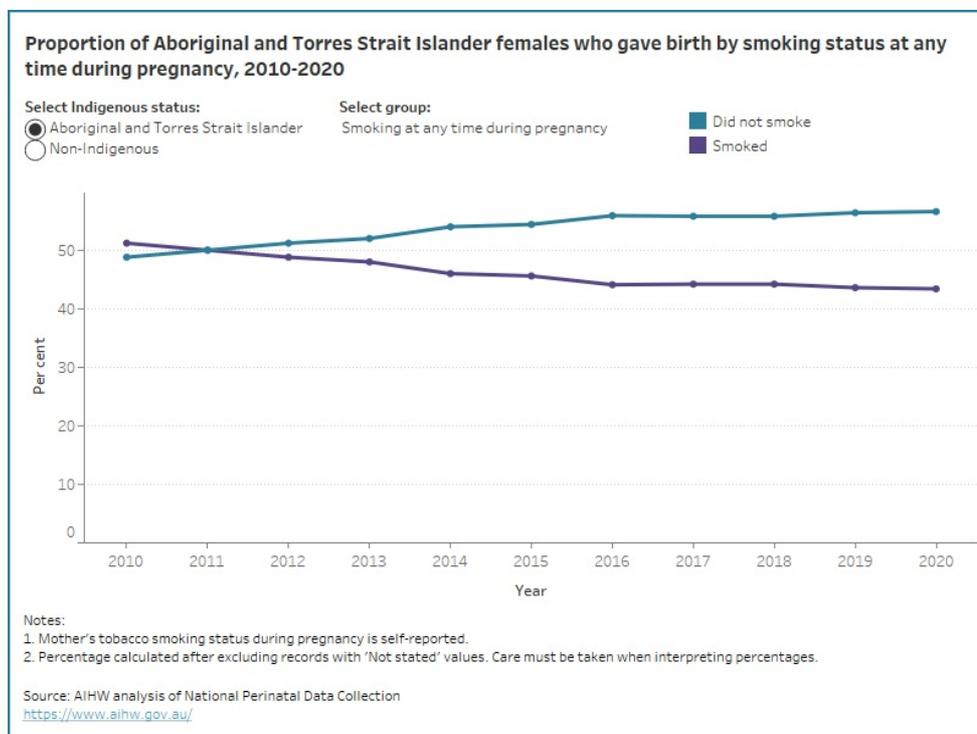
Some Aboriginal and Torres Strait Islander women who were participants in the community-led *Which Way? Smoking Cessation Study* reported that they would prefer smoking cessation support programs that were delivered in groups, face to face at an Aboriginal health service and by Aboriginal Health Workers (Kennedy and Maddox 2022). One example of a smoking cessation program which uses community level population health promotion activities is the [Tackling Indigenous Smoking](#) program (TISRIC 2020).

Some Aboriginal and Torres Strait Islander mothers may smoke before knowing they are pregnant and stop once they find out they are pregnant. In 2020, 13% of Aboriginal and Torres Strait Islander mothers who reported having smoked in the first 20 weeks of pregnancy did not continue to smoke after 20 weeks of pregnancy.

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by smoking status at any time during pregnancy from 2010, and smoking status in the first 20 weeks of pregnancy or after 20 weeks of pregnancy from 2011.

### **Figure 1: Proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by smoking status from 2010 to 2020**

Line graph of smoking status by Indigenous status. Aboriginal and Torres Strait Islander mothers who did not smoke increased.



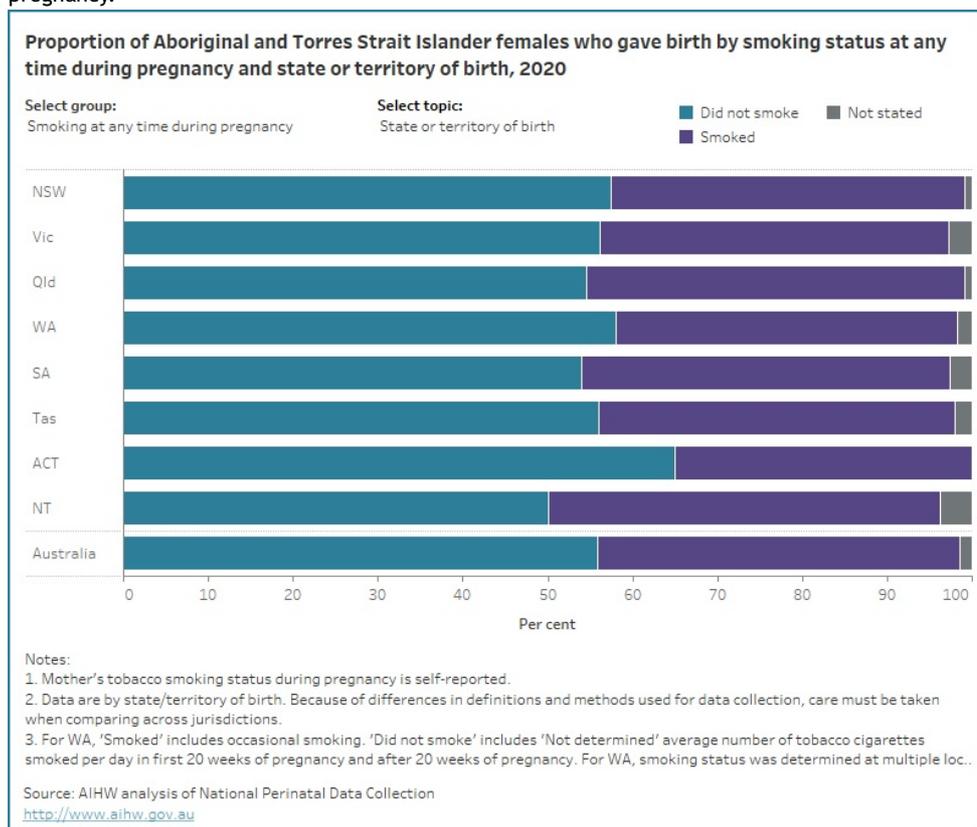
In 2020, the proportions of Aboriginal and Torres Strait Islander mothers who smoked at any time during pregnancy were highest for those who:

- lived in the most disadvantaged areas (49%, compared with 26% of those who lived in the least disadvantaged areas)
- lived in *Very remote* areas (53%, compared with 37% of those who lived in *Major cities*)
- were aged under 20 years (45%, compared with 41% of those in the most common maternal age group (aged 25-29 years))
- had a parity of 4 or more (59%, compared with 36% of first-time mothers)

The data visualisation below presents data on the smoking status at any time during pregnancy, in the first 20 weeks of pregnancy and after 20 weeks of pregnancy for Aboriginal and Torres Strait Islander females who gave birth, by selected maternal characteristics for 2020.

**Figure 2: Proportion of Aboriginal and Torres Strait Islander females who gave birth by smoking status and selected topic for 2020**

Bar chart for smoking status by selected topics. 56% of Aboriginal and Torres Strait Islander mothers did not smoke at any time during pregnancy.



Aboriginal and Torres Strait Islander mothers who lived in some geographical locations were more likely to smoke at any time during pregnancy. Explore the map below to view data on the number and proportion of Aboriginal and Torres Strait Islander mothers who smoked at any time during pregnancy, by IREG and PHN for 2020 and SA3 for 2017-2020.

### Figure 3: Proportion of Aboriginal and Torres Strait Islander females who gave birth and smoked at any time during pregnancy by various geographies

Map of proportions of Aboriginal and Torres Strait Islander mothers who smoked at any time during pregnancy across Australia grouped by various geographies.

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For related information see:

- the Regional Insights for Indigenous Communities section on [Smoking status](#).
- Aboriginal and Torres Strait Islander Health Performance Framework indicator [2.21 Health behaviours during pregnancy](#).

### Alcohol consumption during pregnancy

Alcohol consumption in pregnancy can lead to poorer perinatal outcomes including low birthweight, being small for gestational age, pre-term birth and fetal alcohol spectrum disorder (NHMRC 2020). Therefore, National Health and Medical Research Council guidelines recommend that to prevent harm to their unborn child, women who are pregnant should avoid consuming alcohol (NHMRC 2020).

A survey of Aboriginal and Torres Strait Islander mothers' drinking choices found that those who abstained from consuming alcohol during pregnancy reported doing so as they were aware of the responsibility to their developing baby and were supported by family and community (Gibson et al. 2020). Building on these strengths in public health messaging and ensuring Aboriginal and Torres Strait Islander mothers have access to culturally safe and woman-centred antenatal care is key to reducing alcohol-related harm (Gibson et al. 2020).

In addition to antenatal care, the [Australian Indigenous HealthInfoNet Alcohol and Other Drugs Knowledge Centre](#) lists many programs aimed at supporting Aboriginal and Torres Strait Islander women, and their families, to address alcohol consumption.

In 2020, 8.2% of Aboriginal and Torres Strait Islander females who gave birth consumed alcohol in the first 20 weeks of pregnancy and 3.6% consumed alcohol after 20 weeks of pregnancy (compared with 2.4% and 0.6%, respectively, of non-Indigenous females).

Aboriginal and Torres Strait Islander mothers were more likely to consume alcohol in the first 20 weeks of pregnancy if they:

- lived in the most disadvantaged areas (9.8%)
- lived in *Very remote* areas (14%)
- were aged 30-34 years (11%)
- had a parity of 4 or more (12%).

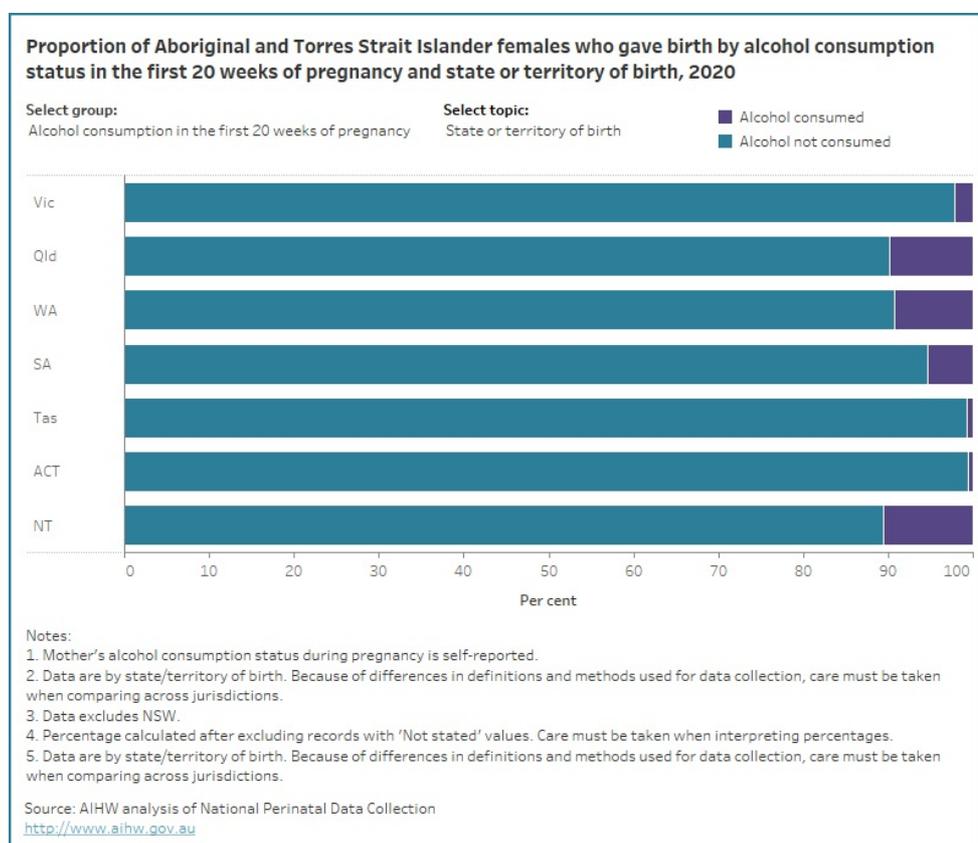
Some Aboriginal and Torres Strait Islander mothers may consume alcohol before knowing they are pregnant and stop once they find out they are pregnant. Aboriginal and Torres Strait Islander mothers showed a decline in alcohol consumption after 20 weeks of pregnancy with:

- 4.6% of those who lived in the most disadvantaged areas consuming alcohol
- 7.4% of those who lived in *Very remote* areas consuming alcohol
- 5.6% of those aged 30-34 years consuming alcohol
- 6.4% of those with a parity of 4 or more consuming alcohol.

The data visualisation below presents data on the alcohol consumption status in the first 20 weeks of pregnancy and after 20 weeks of pregnancy for Aboriginal and Torres Strait Islander females who gave birth, by selected maternal characteristics for 2020.

### Figure 4: Proportion of Aboriginal and Torres Strait Islander females who gave birth by alcohol consumption status and selected topic for 2020

Bar chart for alcohol consumption by selected topics. Most Aboriginal and Torres Strait Islander mothers did not consume alcohol in the first 20 weeks of pregnancy.



## Maternal body mass index

Obesity in pregnancy puts mothers at increased risk of conditions such as pre-eclampsia, and their babies have higher rates of congenital anomaly, stillbirth and neonatal death (AIHW 2022a). Mothers who are underweight may have underlying maternal health conditions - leading to increased risk of complications - and babies of mothers who are underweight are more likely to be born preterm and of low birthweight (Burnie et al. 2022).

### Box 1: Body mass index

BMI is calculated by dividing a person's weight in kilograms by the square of their height in metres. BMI does not necessarily reflect body fat distribution or describe the same degree of fatness in different individuals. At a population level, however, it is a practical and useful measure to identify overweight and obesity (AIHW 2020b).

A BMI of:

- less than 18.5 is classified as underweight
- between 18.5 and less than 25 is classified as normal weight
- between 25 and less than 30 is classified as overweight
- 30 or more is classified as obese

In the NPDC, BMI refers to pre-pregnancy BMI. However, source data and methods used for data collection are not uniform nationally. For example, BMI can be calculated based on self-reported height and weight or on those measured at their first antenatal visit.

Factors that contribute to living with overweight or obesity include a lack of physical activity and poor nutrition. According to the 2018-2019 National Aboriginal and Torres Strait Islander Health survey, 90% of Aboriginal and Torres Strait Islander females reported that they did not meet the physical activity guidelines and 96% reported that they did not meet daily fruit and vegetable consumption guidelines (age-standardised).

In comparison, 86% of non-Indigenous females did not meet the physical activity guidelines and 93% did not meet daily fruit and vegetable consumption guidelines (age-standardised) (AIHW analysis of ABS 2019). Aboriginal and Torres Strait Islander peoples may face challenges in accessing affordable and healthy food, potentially leading to obesity and/or malnutrition and increasing the risk of nutrition-related diseases such as type 2 diabetes (AIHW 2022b; AIHW 2020a).

This report shows that Aboriginal and Torres Strait Islander mothers who gave birth and were obese, were more likely than those who had a healthy weight to give birth to a baby with a high birthweight or who were large for gestational age.

Aboriginal and Torres Strait Islander mothers who were underweight were more likely than those with a healthy weight, to give birth to a baby who was pre-term, of low birthweight or small for gestational age (for more information on the effect of maternal BMI see Baby outcomes).

In 2020, 35% of Aboriginal and Torres Strait Islander females who gave birth had a healthy weight, 6.2% were underweight, 25% were overweight and 34% were obese (compared with 47%, 2.9%, 28%, and 22%, respectively, of non-Indigenous females).

Over time, the proportion of Aboriginal and Torres Strait Islander mothers who were living with obesity has increased (from 29% in 2012 to 34% in 2020) and the proportion of Aboriginal and Torres Strait Islander mothers who were overweight and underweight remained stable (between 24% and 26% and 6.4% and 7.7%, respectively).

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by BMI group, from 2012.

#### **Figure 5: Proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by body mass index from 2012 to 2020**

Line graph of maternal body mass index and Indigenous status. The rate of Aboriginal and Torres Strait Islander mothers living with obesity has increased

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The maternal age group with the highest proportion of Aboriginal and Torres Strait Islander mothers who were obese were those aged 40 years and over (43%) and the lowest proportion were those aged under 20 years (14%).

The proportion of Aboriginal and Torres Strait Islander mothers who were underweight was highest for those who lived in *Very remote* areas (8.2%), were aged under 20 (13%) and first-time mothers (7.8%).

The data visualisation below presents data on BMI group for Aboriginal and Torres Strait Islander females who gave birth, by selected maternal characteristics for 2020.

#### **Figure 6: Proportion of Aboriginal and Torres Strait Islander females who gave birth by body mass index and selected topic for 2020**

Bar chart for BMI group by selected topics. 35% of Aboriginal and Torres Strait Islander mothers had a normal weight.

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Aboriginal and Torres Strait Islander mothers who lived in some geographical locations were more likely to be living with obesity. Explore the map below to view data on the number and proportion of Aboriginal and Torres Strait Islander mothers who were living with obesity, by IREG and PHN for 2020 and SA3 for 2017-2020.

#### **Figure 7: Proportion of Aboriginal and Torres Strait Islander females who gave birth and were living with obesity by various geographies**

Map of proportions of Aboriginal and Torres Strait Islander mothers who were living with obesity across Australia grouped by various geographies.

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## Antenatal period



### Maternal medical conditions

On this page:

- [Diabetes](#)
- [Hypertension](#)

The burden of disease - including the prevalence of chronic diseases - is higher for Aboriginal and Torres Strait Islander peoples (AIHW 2020).

Diabetes and hypertension (high blood pressure) are significant sources of maternal illness and death (Marschner et al. 2023). Pregnant women with pre-existing or gestational diabetes or pre-existing or gestational hypertension disorders have increased risk of developing adverse outcomes in pregnancy.

### Diabetes

Diabetes affecting pregnancy can be pre-existing (that is, type 1 or type 2) or may arise because of the pregnancy (gestational diabetes).

#### Box 1: Types of diabetes in pregnancy

- **Type 1 diabetes** is an autoimmune disease, which destroys the cells in the pancreas. The pancreas produces insulin, and people need insulin replacement to survive. It is usually diagnosed in childhood or early adulthood.
- **Type 2 diabetes** is the most common form of diabetes at the population level. People with Type 2 diabetes produce insulin, but do not produce enough, and/or cannot use it effectively. It involves a genetic component, but is largely preventable, and associated with a later onset. Modifiable risk factors for type 2 diabetes include physical inactivity, poor diet, being overweight or obese, and tobacco smoking.
- **Gestational diabetes** is characterised by glucose intolerance of varying severity, which develops or is first recognised during pregnancy, mostly in the second or third trimester. It usually disappears after the baby is born but can recur in later pregnancies (AIHW 2023) (for more information see [Gestational diabetes](#)).

The type and severity of complications differs according to the type of diabetes experienced in pregnancy and can have both short-term and long-term implications (AIHW 2023).

In the short-term, diabetes in pregnancy is associated with increased risks of caesarean section birth, induced labour, failed induction of labour, pre-existing hypertension, pre-eclampsia, pre-term birth, stillbirth, low and high birthweight, resuscitation, and special care nursery/ neonatal intensive care unit admission (AIHW 2023; AIHW 2019a). Mothers with gestational diabetes -and their babies - experience complications at a lower rate than mothers with pre-existing diabetes (AIHW 2023).

Long term effects of diabetes in pregnancy include increased future risk of other chronic diseases, such as type 2 diabetes, for both mothers with gestational diabetes during pregnancy and their babies (AIHW 2019a).

Management of diabetes in pregnancy depends on the severity of the disease and can include lifestyle programs, which involve changes to diet and exercise, oral glucose-lowering drugs, non-insulin injectable glucose-lowering medications, insulin injections, or a combination of these methods (AIHW 2019b; Wood et al. 2021).

Aboriginal and Torres Strait Islander women are at increased risk of developing type 2 and recurrence of gestational diabetes and may face structural and practical barriers in preventing and managing diabetes in pregnancy including socioeconomic disadvantage, food insecurity, lack of opportunities and facilities for participating in physical activity and competing priorities such as caring responsibilities (AIHW 2019; Wood et al. 2021).

A recent survey of Aboriginal and Torres Strait Islander women with a history of diabetes in pregnancy, and health professionals, found that women and their care givers preferred diabetes management programs that were co-designed with Aboriginal and Torres Strait Islander peoples, involved connections with community, culture and Country, promoted healthy food options, and acknowledged and advocated for change at the structural level (Wood et al. 2021).

This report shows that Aboriginal and Torres Strait Islander females who gave birth and had pre-existing diabetes were more likely than those who had no diabetes to give birth to a baby who was pre-term, had either low birthweight or high birthweight or were large for gestational age.

Aboriginal and Torres Strait Islander mothers who were diagnosed with gestational diabetes during their pregnancy were also more likely to give birth to a baby who was large for gestational age than mothers who did not have diabetes (for more information on the effect of maternal diabetes see [Outcomes for babies of Aboriginal and Torres Strait Islander mothers](#)). In 2020, 0.1% of Aboriginal and Torres Strait

Islander females who gave birth had type 1 diabetes, 1.9% had type 2 diabetes and 15% had gestational diabetes (compared with 0.3%, 0.4% and 14%, respectively, of non-Indigenous females).

Between 2014 and 2020 the proportion of Aboriginal and Torres Strait Islander mothers with type 2 diabetes ranged from 1.2% to 1.9%. Over the same period the proportion of Aboriginal and Torres Strait Islander mothers with gestational diabetes has increased (from 9.3% in 2014 to 15% in 2020).

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by diabetes status, from 2014.

**Figure 1: Proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by diabetes status from 2014 to 2020**

Line graph for diabetes type by Indigenous status. Aboriginal and Torres Strait Islander mothers with gestational diabetes increased.

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In 2020, Aboriginal and Torres Strait Islander females who gave birth and lived in the most disadvantaged areas were more likely to have pre-existing diabetes (3.1%) and gestational diabetes (16%) compared with those who lived in the least disadvantaged areas (0.9% and 14%, respectively).

Aboriginal and Torres Strait Islander mothers who gave birth and lived in *Remote* and *Very remote* areas were more likely to have pre-existing diabetes (4.1% and 5.6%, respectively) than those who lived in *Major cities* (1.5%) and were also more likely to have gestational diabetes (17% for *Remote* areas, 21% for *Very remote* areas and 13% for *Major cities*).

The proportion of Aboriginal and Torres Strait Islander mothers with pre-existing diabetes increased with maternal age, from 0.5% of Aboriginal and Torres Strait Islander mothers under 20 years and 1.2% of those aged 20-24 years, to 5.5% of Aboriginal and Torres Strait Islander mothers aged 35-39 years and 10% of those aged 40 years and over.

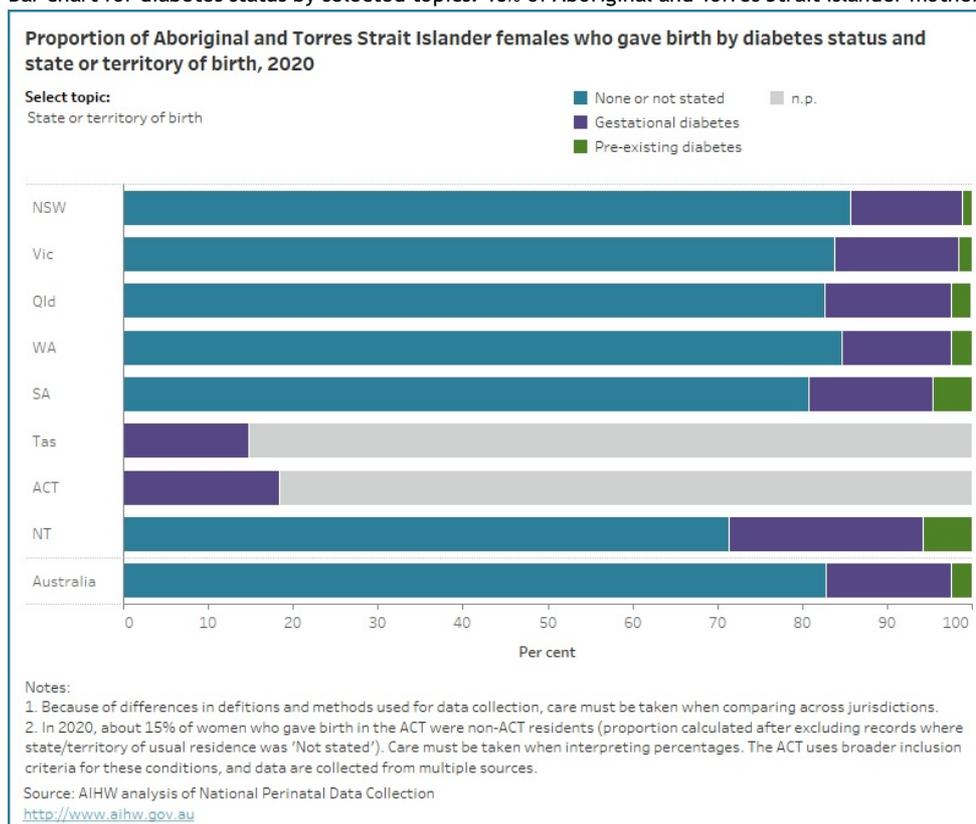
This pattern was also seen for gestational diabetes, increasing from 8.0% of Aboriginal and Torres Strait Islander mothers under 20 years and 11.1% of those aged 20-24 years, to 24% of Aboriginal and Torres Strait Islander mothers aged 35-39 years and 26% of those aged 40 years and over.

The proportion Aboriginal and Torres Strait Islander females who gave birth and had gestational diabetes was lower for first-time mothers (13%) than those with a parity of 3 (19%) and 4 or more (18%).

The data visualisation below presents data on the diabetes status of Aboriginal and Torres Strait Islander females who gave birth, by selected maternal characteristics for 2020.

**Figure 2: Proportion of Aboriginal and Torres Strait Islander females who gave birth by diabetes status and selected topic for 2020**

Bar chart for diabetes status by selected topics. 15% of Aboriginal and Torres Strait Islander mothers had gestational diabetes.



Aboriginal and Torres Strait Islander mothers who lived in some geographical locations were more likely to have gestational diabetes. Explore the map below to view data on the number and proportion of Aboriginal and Torres Strait Islander mothers who had gestational diabetes, by IREG and PHN for 2020 and SA3 for 2017-2020.

### Figure 3: Proportion of Aboriginal and Torres Strait Islander females who gave birth and had gestational diabetes by various geographies

Map of proportions of Aboriginal and Torres Strait Islander mothers who had gestational diabetes across Australia grouped by various geographies.

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## Hypertension

Hypertension affecting pregnancy can be pre-existing (that is, chronic) or may arise or worsen because of the pregnancy (gestational hypertension or pre-eclampsia).

### Box 2: Hypertensive disorders of pregnancy

- **Chronic hypertension:** a systolic blood pressure of 140 mmHg or more or a diastolic blood pressure of 90 mmHg or more (DoHAC 2020). In pregnancy, chronic hypertension is confirmed prior to conception or prior to 20 weeks gestation (Queensland Health, 2021).
- **Gestational hypertension:** a form of hypertension that is first diagnosed after 20 weeks gestation. Blood pressure returns to normal after the baby is born (DoHAC 2020).
- **Pre-eclampsia:** a multi-system disorder characterised by hypertension diagnosed after 20 weeks of pregnancy, increased protein in the urine and involvement of one or more other organ systems and/or the fetus (DoHAC 2020).

Complications of hypertension that can affect the mother include cerebral injury, liver and kidney failure, increased risk of maternal mortality and recurrence of gestational hypertension or pre-eclampsia in subsequent pregnancies (Queensland Health 2021). Complications which can affect the baby include being born pre-term, being small for gestational age, being admitted to the special care nursery and increased risk of stillbirth (Queensland Health 2021).

A study of Aboriginal and Torres Strait Islander women found they had higher risk factors associated with hypertension, including pre-pregnancy obesity and features of the metabolic syndrome (waist circumference of 80cm or more, plus two or more of the following: high triglycerides, high blood pressure, high blood sugar, and low high-density lipoprotein [HDL] cholesterol levels (Campbell et al. 2013).

In 2020, 1.2% of Aboriginal and Torres Strait Islander females who gave birth had chronic hypertension, 3.4% had pre-eclampsia and 3.2% had gestational hypertension (compared with 0.9%, 2.3% and 3.4%, respectively, of non-Indigenous females).

Between 2014 and 2020, the proportion of Aboriginal and Torres Strait Islander mothers with chronic hypertension ranged from 0.9% to 1.2%, with pre-eclampsia ranged from 2.7% to 3.4% and with gestational hypertension ranged from 2.9% to 3.9%.

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by hypertension type, from 2014.

### Figure 4: Proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by hypertension type from 2014 to 2020

Line graph by hypertension type by Indigenous status. Around 3% of Aboriginal and Torres Strait Islander mothers had pre-eclampsia.



In 2020 Aboriginal and Torres Strait Islander females who gave birth were more likely to be living with pre-existing hypertension if they lived in the most disadvantaged areas (1.3%), lived in *Remote* areas (1.9%), were aged 35-39 years (3.6%) and had a parity of 3 or 4 or more (both 1.8%).

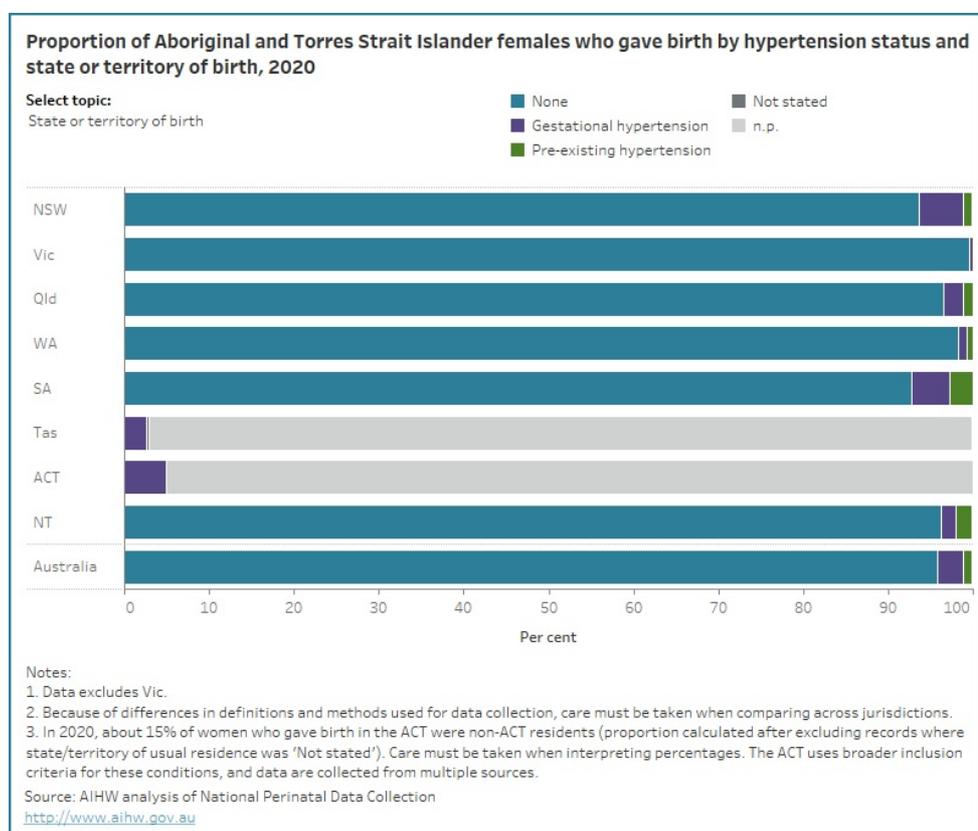
The proportion of Aboriginal and Torres Strait Islander mothers with gestational hypertension ranged from:

- 2.3% for those who lived the most disadvantaged areas to 3.2% in the second and third areas of disadvantage (3.2% for both quintile 2 and quintile 3)
- 1.8% for those who lived in *Very remote* areas to 4.0% of those who lived in *Inner regional* areas
- 2.5% for those aged 20-24 years to 6.0% aged 40 years and over
- 3.9% for first-time mothers to 2.0% for those with a parity of 2.

The data visualisation below presents data on the hypertension status of Aboriginal and Torres Strait Islander females who gave birth, by selected maternal characteristics for 2020.

**Figure 5: Proportion of Aboriginal and Torres Strait Islander female who gave birth by hypertension status and selected topic for 2020**

Bar chart for hypertension type by selected topics. The majority of Aboriginal and Torres Strait Islander mothers had no hypertension disorders



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## Labour and birth

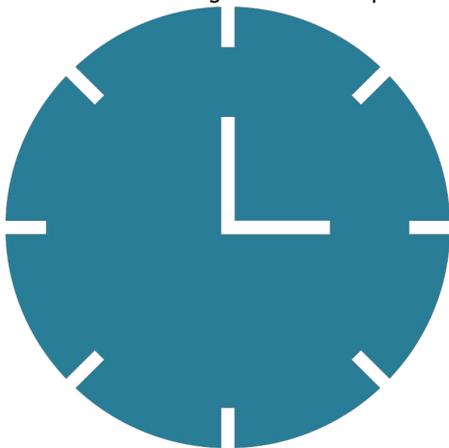


### Labour and birth

This section looks at key aspects of the labour and birthing process, including the place of birth, onset of labour, method of birth, analgesia administration, perineal status, and maternal antenatal and postnatal length of stay in hospital.



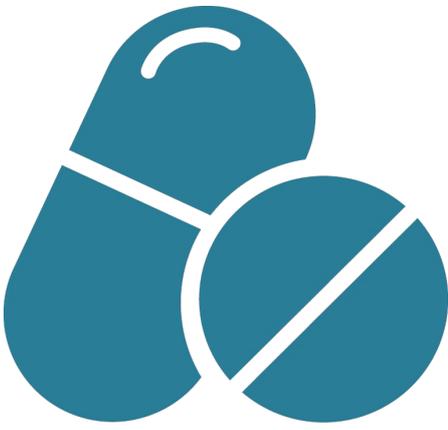
In 2020, 96% of Aboriginal and Torres Strait Islander mothers gave birth in hospital



In 2020, 36% of Aboriginal and Torres Strait Islander mothers had induced labour



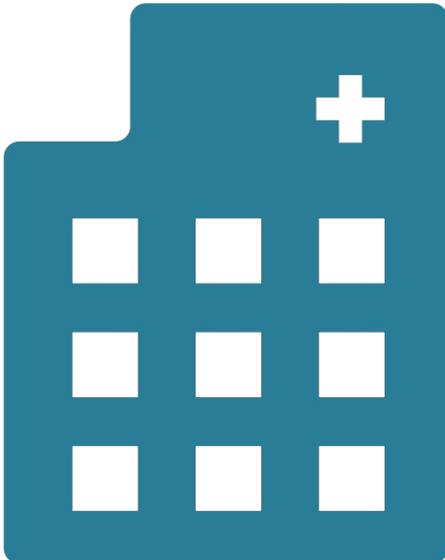
In 2020, 32% of Aboriginal and Torres Strait Islander mothers had a caesarean section birth



In 2020, 79% of Aboriginal and Torres Strait Islander mothers had analgesia administered



In 2020, 14 per 100 Aboriginal and Torres Strait Islander mothers had an episiotomy



In 2020, 85% of Aboriginal and Torres Strait Islander mothers had a postnatal stay of 3 days or less



## Labour and birth



### Place of birth

Place of birth refers to the setting that the birth event occurred in. In 2020, 96% of Aboriginal and Torres Strait Islander females gave birth in hospital, and of these 94% gave birth in a public hospital. Between 2005 and 2020 the proportion of Aboriginal and Torres Strait Islander mothers who gave birth in hospital has remained stable between 96% and 98%.

In 2020, a small proportion of Aboriginal and Torres Strait Islander mothers gave birth elsewhere; 2.2% (293) in birth centres, 0.1% (18) at home and 1.4% (186) in other settings (such as born before arrival at hospital).

In comparison, for non-Indigenous females who gave birth:

- 96% gave birth in hospitals
  - 74% of hospital births were in public hospitals
  - 3.0% gave birth in birth centres
  - 0.5% gave birth at home
  - 0.7% in other settings.
-

## Labour and birth

### Onset of labour

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

Induction of labour is performed for a number of reasons, and most inductions are performed for indications related to maternal or baby medical conditions or obstetric complications (Coates et al 2020; AIHW 2022). Whilst most women who have induced labour - and their babies - do well, induction of labour does increase the risk of infection and bleeding, and a less positive birth experience when compared to spontaneous labour (Coates et al 2020; Grivell et al 2012).

In 2020, 45% of Aboriginal and Torres Strait Islander females who gave birth had spontaneous labour, 36% had induced labour and 19% had no labour (compared with 41%, 36% and 24%, respectively, for non-Indigenous females).

Over time, the proportion of Aboriginal and Torres Strait Islander mothers who had spontaneous labour has decreased (from 68% in 2005 to 45% in 2020), with a corresponding increase in the proportion who had induced labour from a low of 20% in 2008 to 36% in 2020.

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by onset of labour, from 2005.

#### Figure 1: Proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by onset of labour from 2005 to 2020

Line graph of onset of labour and Indigenous status. Aboriginal and Torres Strait Islander mothers with induced labour increased.

In 2020, the Aboriginal and Torres Strait Islander females who gave birth and were more likely to have spontaneous labour were those who:

- lived in the most disadvantaged areas (46%, compared with 43% of those from the fourth area of disadvantage (quintile 4))
- lived in *Outer regional* areas (48%, compared with 44% from *Major cities*)
- were aged under 20 years (53%, compared with 26% of those aged 40 years and over)
- had a parity of 1 (47%, compared with 42% of those with a parity of 4 or more)
- had a non-instrumental vaginal birth (59%, compared with 49% of those who had an instrumental vaginal birth).

The data visualisation below presents data on onset of labour for Aboriginal and Torres Strait Islander females who gave birth, by selected maternal characteristics for 2020.

#### Figure 2: Proportion of Aboriginal and Torres Strait Islander females who gave birth by onset of labour and selected topic for 2020

Bar chart for the onset of labour by selected topics. 45% of Aboriginal and Torres Strait Islander mothers had spontaneous labour.

Aboriginal and Torres Strait Islander mothers who lived in some geographical locations were more likely to have induced labour. Explore the map below to view data on the number and proportion of Aboriginal and Torres Strait Islander mothers who had induced labour, by IREG and PHN for 2020 and SA3 for 2017-2020.

#### Figure 3: Proportion of Aboriginal and Torres Strait Islander females who gave birth and had induced labour by various geographies

Map of proportions of Aboriginal and Torres Strait Islander mothers who had induced labour across Australia grouped by various geographies.

Visualisation not available for printing

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AIHW (Australian Institute of Health and Welfare) (2022) *Australia's mothers and babies*, Cat. no. PER 101. Canberra: AIHW.

Coates D, Makris A, Catling C, Henry A, Scarf V, Watts N, Fox D, Thirukumar P, Wong V, Russell H and Homer C (2020) 'A systematic scoping review of clinical indications for induction of labour', *PLOS One*, 15(1): e0228196, doi:10.1371/journal.pone.0228196.

Grivell RM, Reilly AJ, Oakey H, Chan A and Dodd JM (2012) 'Maternal and neonatal outcomes following induction of labor: a cohort study', *ACTA Obstetrica et Gynecologica Scandinavica*, 91(2):198-203, doi:10.1111/j.1600-0412.2011.01298.x.

# Labour and birth



## Method of birth

Method of birth refers to how the baby was born, which may be vaginally - non-instrumental or with the assistance of forceps or vacuum (instrumental vaginal birth) - or by caesarean section.

Each method of birth is chosen by women and their healthcare providers to minimise complications and increase the likelihood of positive pregnancy outcomes (AIHW 2022). Non-instrumental vaginal births are associated with lower risk of maternal complications, such as infection and haemorrhage, when compared with instrumental vaginal and caesarean section birth (ACSQHC 2018; Victorian Department of Health 2017; RANZCOG 2020).

In 2020, 60% of Aboriginal and Torres Strait Islander females who gave birth had a non-instrumental vaginal birth, 2.6% had an instrumental birth assisted by forceps, 4.8% had an instrumental birth assisted by vacuum and 32% had a caesarean section birth (compared with 50%, 5.4%, 7.6% and 38% of non-Indigenous females).

Over time, the proportion of Aboriginal and Torres Strait Islander mothers who had a non-instrumental vaginal birth has decreased (from 71% in 2005 and 72% in 2006 to 60% in 2020), whilst there has been a corresponding increase in the proportion who had an instrumental vaginal birth assisted by forceps (from 1.4% in 2005 to 2.6% on 2020) or vacuum (3.9% to 4.8%) and caesarean section birth (from 24% in 2005 to 32% in 2020).

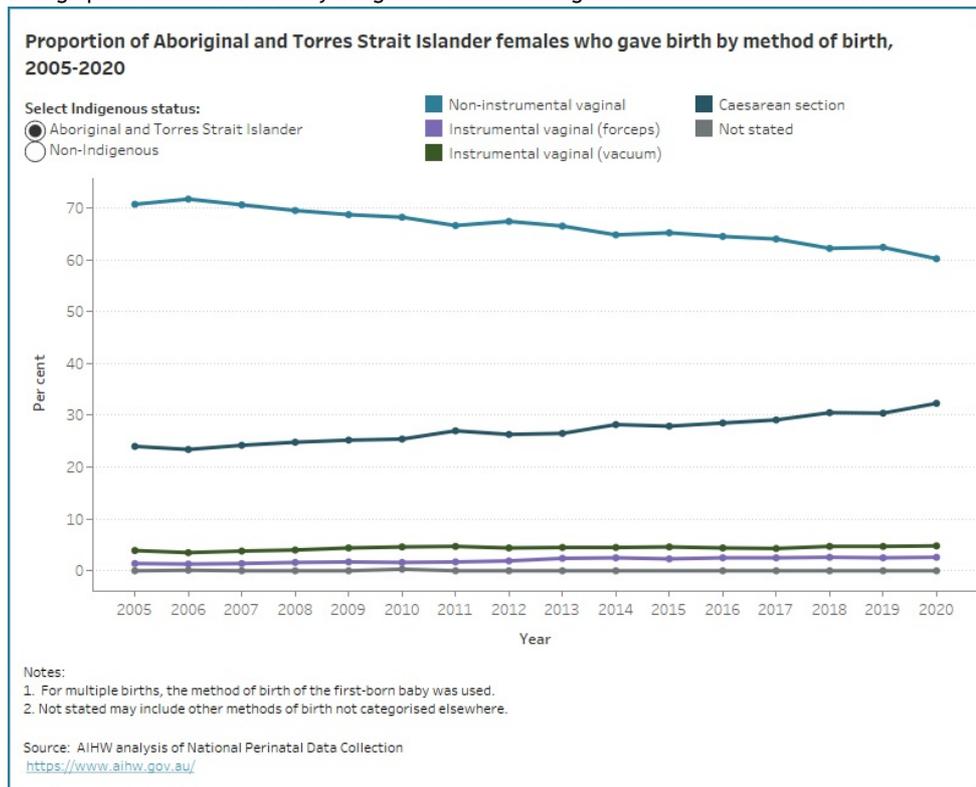
Having had a previous caesarean section can be associated with an increased risk of adverse outcomes for women and their babies during subsequent pregnancies, most often due to uterine scarring (Chauhan et al. 2003; Jamshed et al. 2022).

Many women who choose to give birth vaginally after having had a previous caesarean section are successful (RANZCOG 2022). In 2020, 18% of Aboriginal and Torres Strait Islander females who had previously given birth by caesarean section had a vaginal birth (compared with 14% of non-Indigenous females).

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by method of birth, from 2005.

**Figure 1: Proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth by method of birth from 2005 to 2020**

Line graph of method of birth by Indigenous status. Aboriginal and Torres Strait Islander mothers with caesarean section birth increased.



Greater proportions of Aboriginal and Torres Strait Islander mothers had a non-instrumental birth if they:

- were aged under 20 years or 20-24 years (both 63%, compared with 49% of those 40 years and over)
- had a parity of 4 or more (69%, compared with 51% of first-time mothers)
- had spontaneous labour (79%, compared with 69% for induced labour)
- gave birth in a public hospital (59%, compared with 51% for private hospitals).

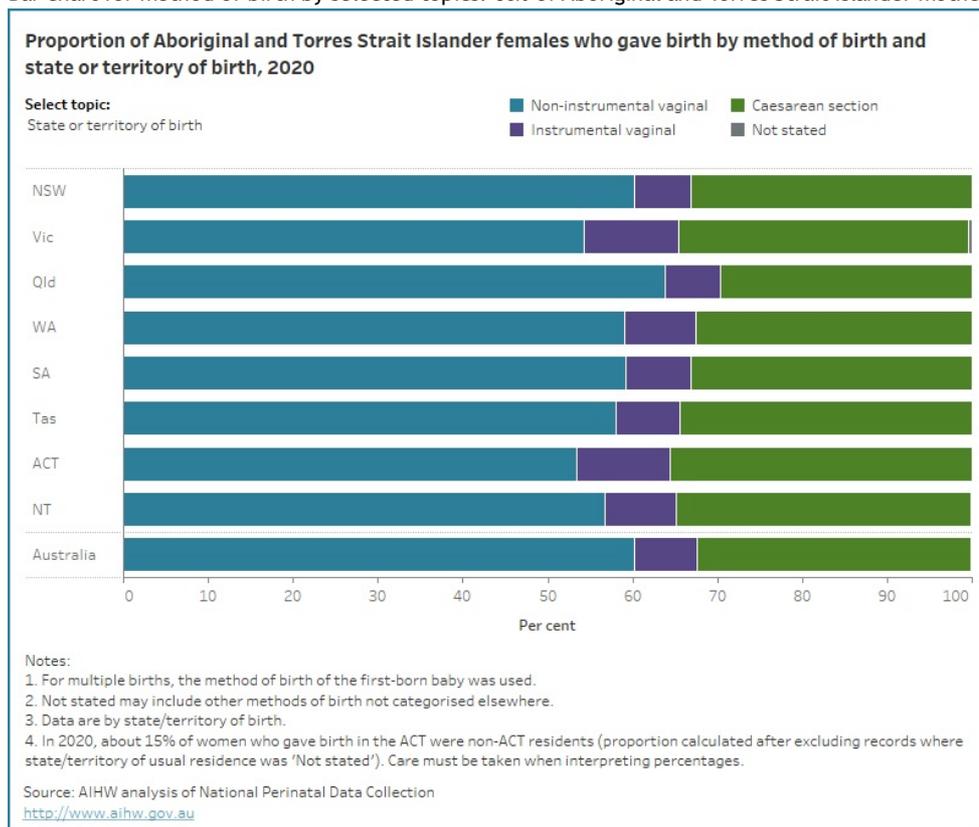
Instrumental vaginal birth was more common for Aboriginal and Torres Strait Islander mothers who lived in the least disadvantaged areas (12%), were aged under 20 years (13%), were first-time mothers (17%) or had induced labour (11%).

The proportion of Aboriginal and Torres Strait Islander mothers who had a caesarean section birth was higher for those who were aged 40 years and over (46%) or gave birth in a private hospital (38%).

The data visualisation below presents data on method of birth for Aboriginal and Torres Strait Islander females who gave birth, by selected maternal characteristics for 2020.

**Figure 2: Proportion of Aboriginal and Torres Strait Islander females who gave birth by method of birth and selected topic for 2020**

Bar chart for method of birth by selected topics. 60% of Aboriginal and Torres Strait Islander mothers had non-instrumental vaginal birth.



Aboriginal and Torres Strait Islander mothers who lived in some geographical locations were more likely to have a caesarean section birth. Explore the map below to view data on the number and proportion of Aboriginal and Torres Strait Islander mothers who had a caesarean section birth, by IREG and PHN for 2020 and SA3 for 2017-2020.

**Figure 3: Proportion of Aboriginal and Torres Strait Islander females who gave birth and had a caesarean section birth by various geographies**

Map of proportions of Aboriginal and Torres Strait Islander mothers who had a caesarean section birth across Australia grouped by various geographies.

Visualisation not available for printing

## References

ACSQHC (Australian Commission on Safety and Quality in Health Care) (2018) *The second Australian atlas of healthcare variation*, ACSQHC, accessed 18 October 2022.

AIHW (Australian Institute of Health and Welfare) (2022) *Australia's mothers and babies*, Cat. no. PER 101. Canberra: AIHW.

Chuhan SP, Martin JN Jr, Henrichs CE, Morrison JC and Magann EF (2003) 'Maternal and perinatal complications with uterine rupture in 142,075 patients who attempted vaginal birth after cesarean delivery: a review of the literature', *American Journal of Obstetrics Gynecology*, 189(2):408-417, doi:10.1067/s0002-9378(03)00675-6.

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RANZCOG (2022) *Birth after previous caesarean section*, RANZCOG, accessed 18 October 2022.

Victorian Department of Health (2017) *Caesarean section*, Victorian Department of Health, Victorian Government, accessed 18 October 2022.

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## Labour and birth



### Analgesia

Pain during labour and birth is affected by physiological and psychological factors, and the effectiveness of pain relief administered during labour is affected by maternal expectations of - and anxiety related to - pain (Schug et al. 2015). Choice of pain relief (whether pharmacological or non-pharmacological) is influenced by maternal health conditions, experiences during previous pregnancies, the health professionals involved in providing maternity care, and the setting of birth (Steel et al. 2015).

As analgesia is used to relieve pain during labour, data are limited to mothers who had labour, whether spontaneous or induced (note that some mothers who labour may go on to have a caesarean section and receive anaesthesia rather than analgesia). More than one type of analgesic can be administered.

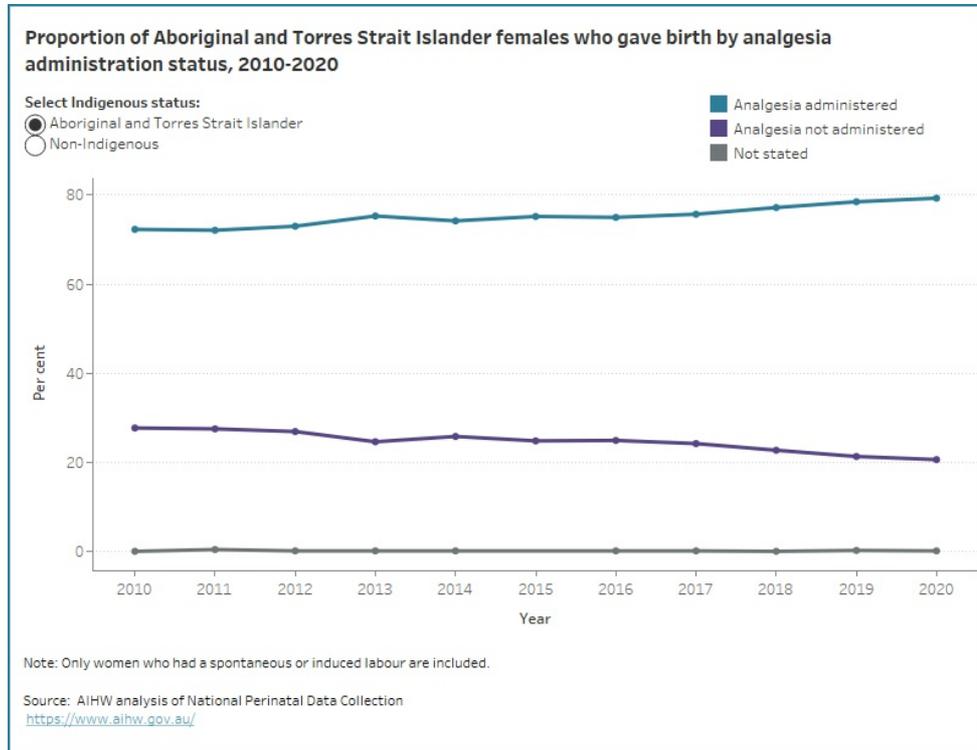
In 2020, 79% of Aboriginal and Torres Strait Islander females who gave birth and laboured had analgesia administered (which was the same as for non-Indigenous females). The proportion of Aboriginal and Torres Strait Islander mothers who laboured and had analgesia has increased over time (from 72% in 2010 to 77% in 2020).

Nitrous oxide was the most common type of analgesia used (61 per 100 Aboriginal and Torres Strait Islander females who laboured), followed by epidural or caudal analgesia (29 per 100) and systemic opioids (17 per 100) (compared with 52 per 100 non-Aboriginal and Torres Strait Islander females who laboured for nitrous oxide, 41 per 100 for epidural or caudal analgesia and 12 per 100 for systemic opioids).

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who laboured by analgesia administration status, from 2010.

**Figure 1: Proportion of Aboriginal and Torres Strait Islander females and non-Indigenous females who gave birth by analgesia administration status from 2010 to 2020**

Line graph of analgesia administration status and Indigenous status. Aboriginal and Torres Strait Islander mothers receiving analgesia increased.



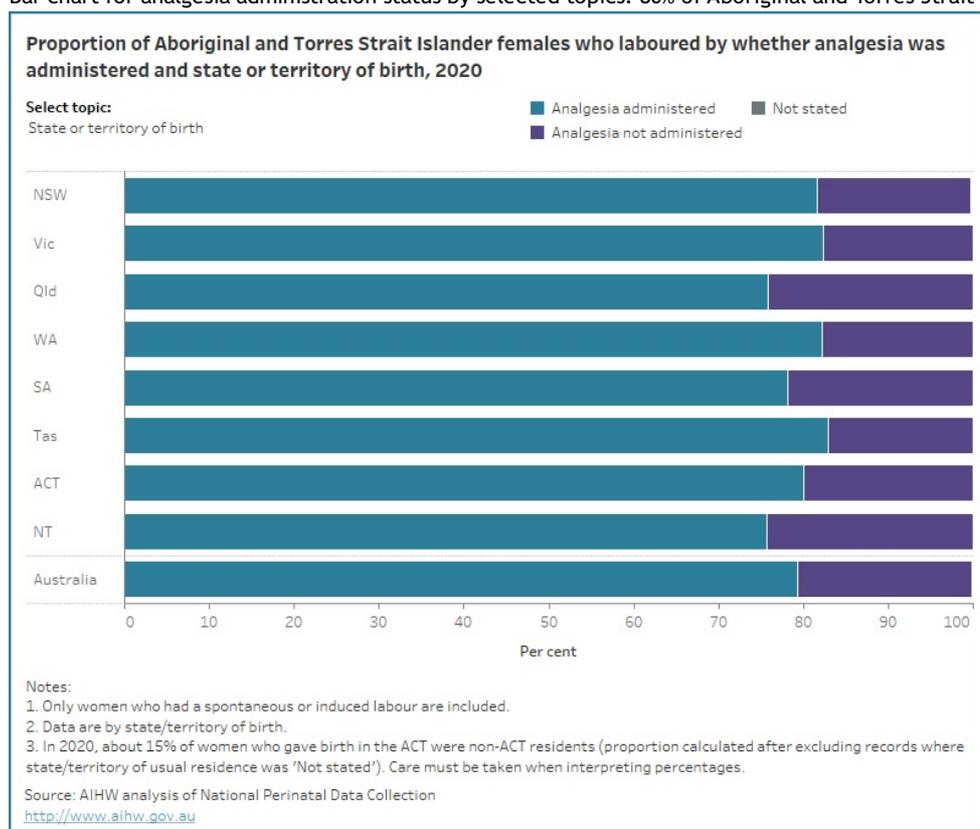
In 2020, greater proportions of Aboriginal and Torres Strait Islander females who gave birth were administered analgesia if they:

- lived in *Major cities* (81%, compared with 73% of *Very remote* areas)
- were aged under 20 years (87%, compared with 71% of those aged 35-39 years)
- were first-time mothers (90%, compared with 67% of those with a parity of 4 or more)
- had induced labour (88%, compared with 73% for spontaneous labour)
- had an instrumental vaginal birth (94%, compared with 77% of non-instrumental vaginal births).

The data visualisation below presents data on analgesia administration status for Aboriginal and Torres Strait Islander females who laboured, by selected maternal characteristics for 2020.

**Figure 2: Proportion of Aboriginal and Torres Strait Islander females who laboured by whether analgesia was administered and selected topic for 2020**

Bar chart for analgesia administration status by selected topics. 80% of Aboriginal and Torres Strait Islander mothers received analgesia.



## References

Schug SA, Palmer GM, Scott DA, Halliwell R, Trinca J (2015) *Acute Pain Management: Scientific Evidence (4th edition)* Melbourne: Acute Pain Management Scientific Evidence Working Group of the Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine.

Steel A, Adams J, Sibbritt D, Broom A, Gallois C and Frawley J (2015). 'Managing the pain of labour: factors associated with the use of labour pain management for pregnant Australian women', *Health Expectations* 18(5), doi:10.1111/hex.12155

## Labour and birth



### Perineal status

Perineal status refers to the state of the perineum after vaginal birth. Perineal status is categorised as intact, first degree laceration, second degree laceration, third or fourth degree laceration, episiotomy or other type of perineal laceration, rupture or tear. An episiotomy is an incision of the perineum and vagina to enlarge the vulval orifice to prevent perineal tears, particularly during instrumental vaginal birth (Homer and Wilson 2018).

Data are specific to women who gave birth vaginally and both an episiotomy and laceration can be recorded.

Many women who give birth vaginally experience perineal tears and recovery quickly (Homer and Wilson 2018). Third and fourth-degree tears, although uncommon, are severe and can have lifelong impacts - including pain, incontinence, and decreased quality of life - if not detected and repaired immediately after the birth (Homer and Wilson 2018).

In 2020, 34 per 100 Aboriginal and Torres Strait Islander females who gave birth vaginally had an intact perineum, 30 per 100 had a first degree tear, 19 per 100 had a second degree tear, 1.7 per 100 had third or fourth degree tear and 14 per 100 had an episiotomy (compared with 19 per 100, 22 per 100, 31 per 100, 2.9 per 100 and 26 per 100, respectively, for non-Indigenous females).

As perineal trauma is more common in primiparous women - and Aboriginal and Torres Strait Islander mothers have a higher parity than non-Indigenous women (for more information see [Parity](#)) - analysis of perineal status for Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth vaginally in 2020 is presented below:

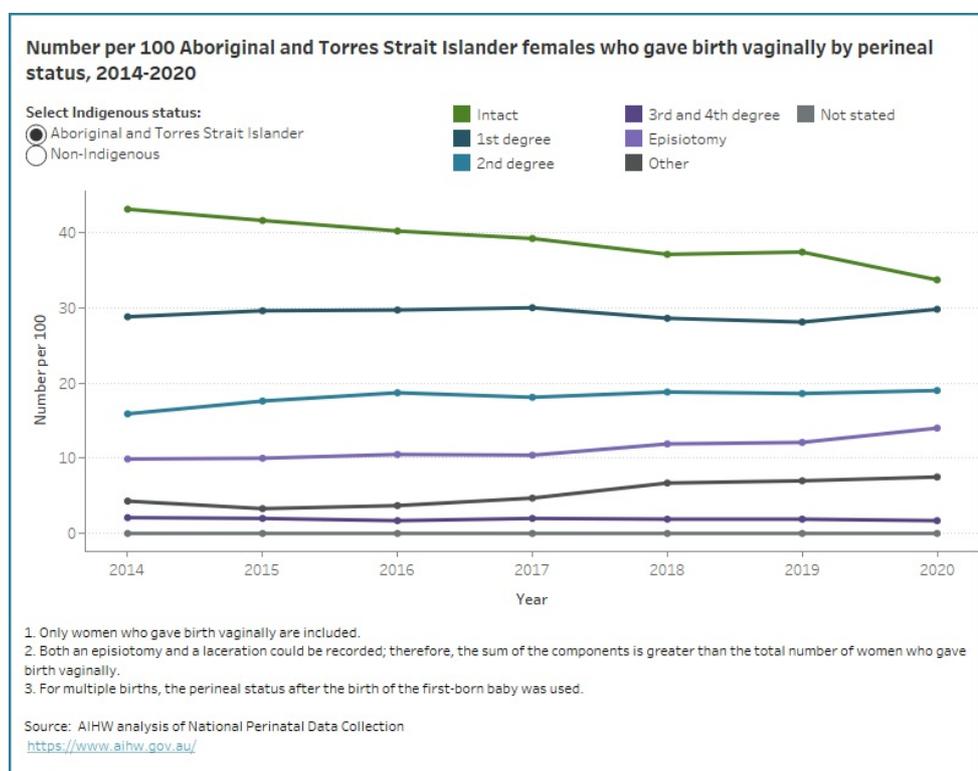
- 13 per 100 Aboriginal and Torres Strait Islander first-time mothers had an intact perineum, 24 per 100 had a first degree tear, 26 per 100 had a second degree tear, 3.6 per 100 had third or fourth degree tear and 33 per 100 had an episiotomy.
- 6.9 per 100 non-Indigenous first-time mothers had an intact perineum, 15 per 100 had a first degree tear, 31 per 100 had a second degree tear, 4.9 per 100 had third or fourth degree tear and 46 per 100 had an episiotomy.

Between 2014 and 2020, there has been a decrease in the rate of Aboriginal and Torres Strait Islander mothers with an intact perineum (from 43 per 100 in 2014 to 34 per 100 in 2020), and a corresponding increase in the rates having second degree tears (from 16 per 100 in 2014 to 19 per 100 in 2020) and episiotomy (from 9.9 per 100 in 2014 to 14 per 100 in 2020). The rates of third and fourth degree tears have remained relatively stable, ranging from 2.1 per 100 to 1.7 per 100.

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth vaginally by perineal status, from 2014.

### Figure 1: Number per 100 Aboriginal and Torres Strait Islander females and non-Indigenous females who gave birth vaginally by perineal status from 2014 to 2020

Line graph of perineal status by Indigenous status. Aboriginal and Torres Strait Islander mothers having an episiotomy increased.



In 2020, Aboriginal and Torres Strait Islander females who gave birth vaginally were more likely to have an intact perineum if they were aged 40 years and over (49 per 100, compared with 19 per 100 of those aged under 20 years), had a parity of 4 or more (63 per 100, compared to 13 per 100 of first-time mothers) or had a non-instrumental vaginal birth (37 per 100, compared with 8.9 per 100 for instrumental vaginal birth).

Rates of episiotomy were higher for Aboriginal and Torres Strait Islander mothers who:

- lived in the least disadvantaged areas (20 per 100, compared with 13 per 100 for the most disadvantaged areas)
- were aged under 20 years (25 per 100, compared with 6.5 per 100 of those aged 40 years and over)
- were first-time mothers (33 per 100, compared with 0.7 per 100 for those with a parity of 4 or more)
- had induced labour (17 per 100, compared with 12 per 100 for spontaneous labour)
- had an instrumental vaginal birth (72 per 100, compared with 6.9 per 100 for non-instrumental vaginal birth).

The highest rates of third and fourth degree tears were seen for Aboriginal and Torres Strait Islander mothers aged under 20 years (3.2 per 100), first-time mothers (3.6 per 100) and those who had an instrumental vaginal birth (5.7 per 100).

The data visualisation below presents data on perineal status for Aboriginal and Torres Strait Islander females who gave birth vaginally, by selected maternal characteristics for 2020.

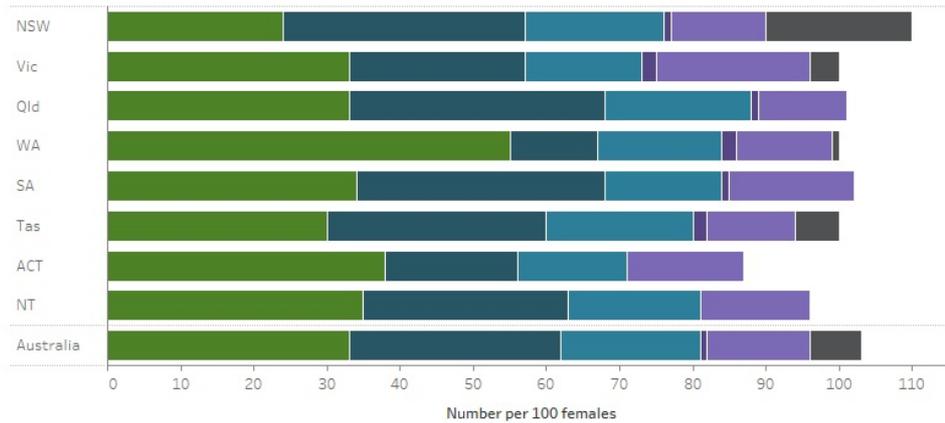
**Figure 2: Number per 100 Aboriginal and Torres Strait Islander females who gave birth vaginally by perineal status and selected characteristics for 2020**

Bar chart for perineal status by selected topics. 33 per 100 Aboriginal and Torres Strait Islander mothers had an intact perineum.

## Number per 100 Aboriginal and Torres Strait Islander females who gave birth vaginally by perineal status and state or territory of birth, 2020

Select topic:

State or territory of birth



### Notes:

1. Only women who gave birth vaginally are included.
2. Both an episiotomy and a laceration could be recorded; therefore, the sum of the components is greater than the total number of women who gave birth vaginally.
3. For multiple births, the perineal status after the birth of the first-born baby was used.
4. For NSW and WA, unspecified perineal tear and vulval or perineal haematoma are included in 'Other'.

Source: AIHW analysis of National Perinatal Data Collection

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

## References

Homer C and Wilson A (2018) Perineal tears: a literature review, Australian Commission on Safety and Quality in Health Care, Sydney.



## Labour and birth



### Maternal length of stay in hospital

On this page:

- [Antenatal length of stay](#)
- [Postnatal length of stay](#)

#### **Antenatal length of stay**

Antenatal length of stay refers to the number of days between admission to hospital and the birth event. Data on antenatal length of stay are based on mothers who gave birth in hospitals.

Aboriginal and Torres Strait Islander females who live in remote areas of Australia may have to relocate before giving birth (for more information on routine relocation see [Geography](#)). Generally, women who relocate and have low-risk pregnancies travel a few weeks before their due date and stay close to a birthing facility and those with high-risk pregnancies may be asked to travel much earlier in the pregnancy and stay in hospital (AIHW 2017; Barclay 2016).

Due to routine relocation practices, Aboriginal and Torres Strait Islander mothers who live in remote areas may spend weeks away from their family and community, therefore facing a lack of practical and emotional support as well as isolation and increased financial costs (AIHW 2017; Barclay 2016; Department of Health 2020).

In 2020, 56% of Aboriginal and Torres Strait Islander females who gave birth had an antenatal stay of less than 1 day and, 40% had an antenatal stay of 1-3 days, 1.8% had an antenatal stay of 4-6 days and 1.2% had an antenatal stay of 7 days or more (compared with 59%, 35%, 0.7% and 0.6%, respectively, of non-Indigenous females).

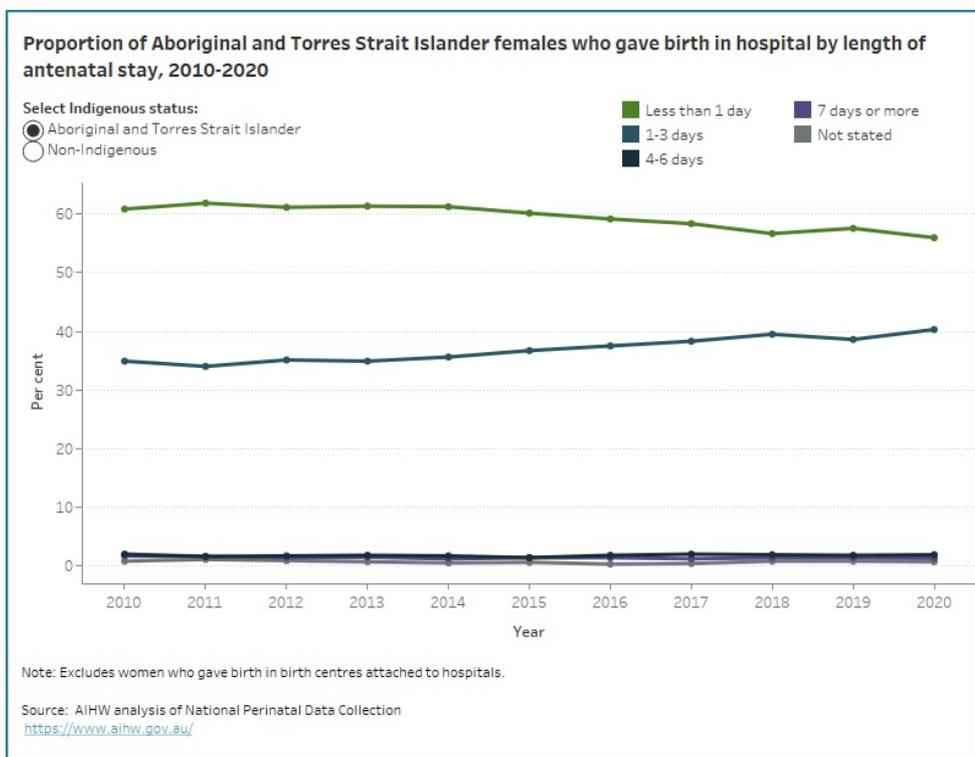
Whilst routine relocation may account for some of the longer antenatal lengths of stay for Aboriginal and Torres Strait Islander mothers, this difference may also be due to maternal factors associated with high-risk pregnancies, such as diabetes and obesity.

Between 2010 and 2020 the antenatal length of stay for Aboriginal and Torres Strait Islander mothers has been relatively stable, with 96% of antenatal stays being 3 days or less in both 2010 and 2020 and around 3% of antenatal stays being 4 days or more (3.5% in 2010, compared with 3.0% in 2020). The greatest changes in this period were for antenatal stays of less than 1 day (from 61% in 2010 to 56% in 2020) and 1-3 days (from 35% in 2010 to 40% in 2020).

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth in hospital by grouped antenatal length of stay, from 2010.

#### **Figure 1: Proportion of Aboriginal and Torres Strait Islander females and non-Indigenous females who gave birth in hospital by length of antenatal stay from 2010 to 2020**

Line graph of length of antenatal stay by Indigenous status. Most Aboriginal and Torres Strait Islander mothers had an antenatal stay of 3 days or less.



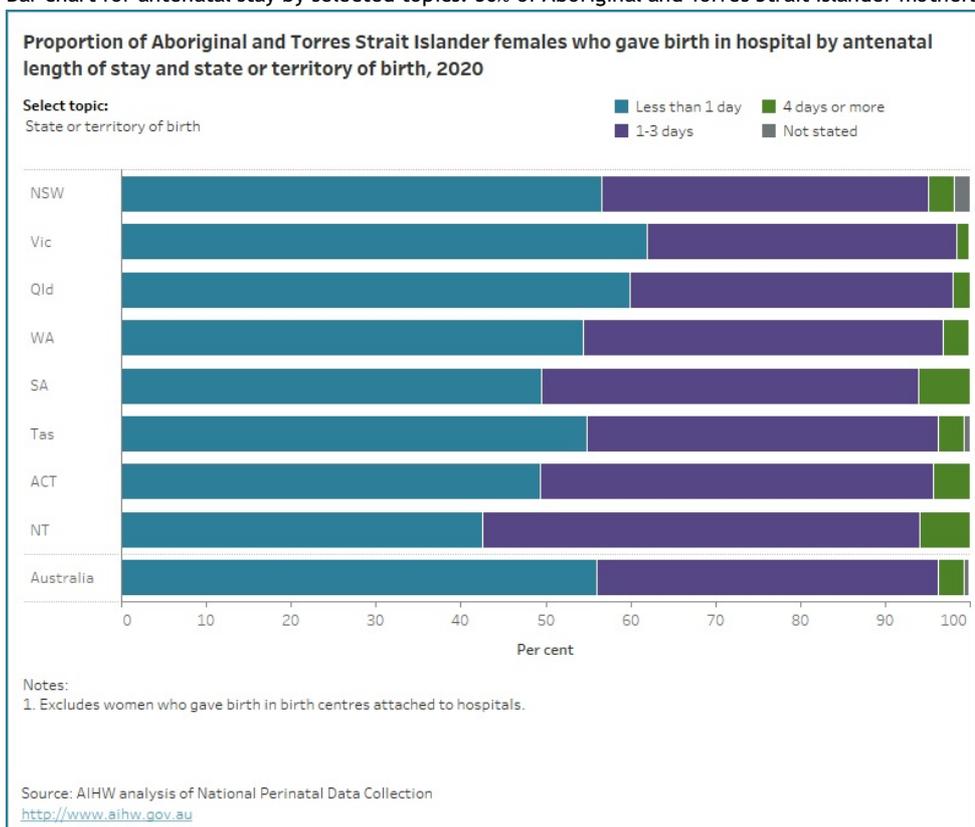
In 2020, Aboriginal and Torres Strait Islander mothers who were more likely to have an antenatal stay of 4 days or more were those who:

- lived in the most disadvantaged areas (3.6%, compared with between 2.2% and 2.6% for other socioeconomic areas)
- lived in *Very remote* areas (5.3%, compared with between 2.5% and 3.1% for other remoteness areas)
- were aged 40 years and over (8.0%, compared with between 2.4% and 5.1% for other maternal age groups)
- had no labour (6.1%, compared with 3.6% for induced and 1.2% for spontaneous labour)
- had a caesarean section birth (5.3%, compared with 1.5% for instrumental and 1.9% for non-instrumental vaginal birth).

The data visualisation below presents data on grouped antenatal length of stay for Aboriginal and Torres Strait Islander females who gave birth in hospital, by selected maternal characteristics for 2020.

**Figure 2: Proportion of Aboriginal and Torres Strait Islander females who gave birth in hospital by antenatal length of stay and selected topic from 2020**

Bar chart for antenatal stay by selected topics. 56% of Aboriginal and Torres Strait Islander mothers stayed for less than 1 day.



## Postnatal length of stay

Postnatal length of stay refers to the number of days between the birth event and date of discharge or transfer from the hospital where birth occurred, or death. Data on postnatal length of stay are based on mothers who gave birth in hospitals and were discharged to home and exclude data from Western Australia.

A mother's postnatal length of stay is related to maternal factors, such as recovery after birth particularly for caesarean section birth, management of obstetric and maternal health conditions, management of conditions related to the baby and health system factors such as resourcing pressures (Rayner et al. 2008; Blumenfeld et al. 2015).

The aims of postnatal care in hospital are to provide mothers and their partners and/or family with advice and support around physical recovery, breastfeeding, parenting skills and linking to supports in the community (Rayner et al. 2008).

In one study, Australian mothers - particularly first-time mothers - reported concerns related to confidence in caring for their baby and access to the support of health professionals if their postnatal stay in hospital was deemed to be too short (McLachlan et al. 2009). In a separate study, Aboriginal and Torres Strait Islander mothers reported disappointment in a lack of continuity of care through to the postnatal period (Sivertsen et al. 2020).

In 2020, 8.2% of Aboriginal and Torres Strait Islander females who gave birth had a postnatal stay of less than 1 day, 77% had a postnatal stay of 1-3 days, 13% had a postnatal stay of 4-6 days and 1.9% had a postnatal stay of 7 days or more (compared with 5.2%, 69%, 25% and 1.1% of non-Indigenous females).

Between 2010 and 2020 the postnatal length of stay for Aboriginal and Torres Strait Islander mothers has shortened, with an increase in postnatal stays of 3 days or less (from 75% in 2010 to 85% in 2020) and a decrease in postnatal stays of 4 days or more (from 25% in 2010 to 15% in 2020). There were changes during this period for postnatal stays of less than 1 day (from 5.6% in 2010 to 8.2% in 2020), 1-3 days (from 69% in 2010 to 77% in 2020), 4-6 days (from 21% to 13%) and 7 days or more (from 4.0% in 2010 to 1.9% in 2020).

The data visualisation below shows the proportion of Aboriginal and Torres Strait Islander and non-Indigenous females who gave birth in hospital and were discharged home by grouped postnatal length of stay, from 2010.

### Figure 3: Proportion of Aboriginal and Torres Strait Islander females and non-Indigenous females who gave birth in hospital by length of postnatal stay from 2010 to 2020

Line graph of length of postnatal stay by Indigenous status. Most Aboriginal and Torres Strait Islander mothers had a postnatal stay of 3 days or less.

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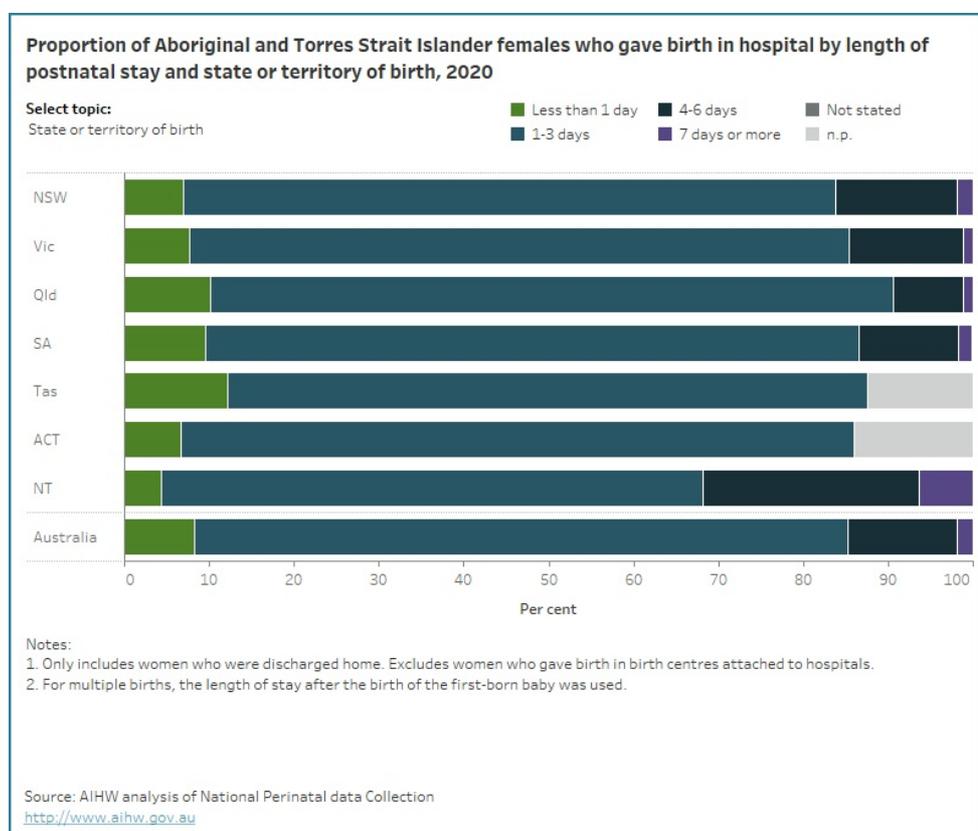
In 2020, Aboriginal and Torres Strait Islander females who gave birth were most likely to have a postnatal stay of 3 days or less if they:

- lived in the second area of socioeconomic disadvantage (87% for quintile 2, compared with between 79% for the least disadvantaged areas (quintile 5) and 85% for the most disadvantaged areas (quintile 1))
- lived in *Outer regional* areas (89%, compared with between 72% for *Very remote* areas and 87% for *Inner regional* areas)
- were aged 20-24 years or 25-29 years (both 87%, compared with 81% for those aged 40 years and over and 84% for those aged under 20 years)
- had a parity of 3 (89%, compared with 80% of first-time mothers and 88% of those with a parity of 1 and 2)
- had spontaneous labour (90%, compared with 86% for induced and 75% for no labour)
- had a non-instrumental vaginal birth (92%, compared with 81% for instrumental vaginal birth and 74% for caesarean section birth)
- gave birth in a public hospital (87%, compared with 50% of those who gave birth in a private hospital).

The data visualisation below presents data on grouped postnatal length of stay for Aboriginal and Torres Strait Islander females who gave birth in hospital and were discharged home, by selected maternal characteristics for 2020.

### Figure 4: Proportion of Aboriginal and Torres Strait Islander females who gave birth in hospital by postnatal length of stay and selected topic for 2020

Bar chart for postnatal stay by selected topics. 77% of Aboriginal and Torres Strait Islander mothers stayed for 1 to 3 days.



## References

### References

- AIHW (Australian Institute of Health and Welfare) (2017) *Spatial variation in Aboriginal and Torres Strait Islander women's access to 4 types of maternal health services*, Cat. no. IHW 187 Canberra: AIHW.
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## Outcomes for babies of Aboriginal and Torres Strait Islander mothers



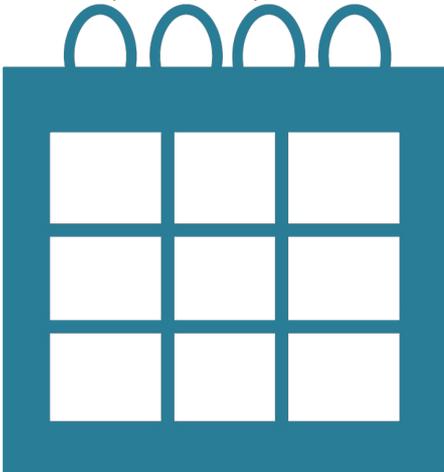
### Outcomes for babies of Aboriginal and Torres Strait Islander mothers

In 2020, 4.9% (14,605) of babies born in Australia were born to an Aboriginal and Torres Strait Islander mother (based on the Indigenous status of the mother), and 6.2% (18,228) of babies were Aboriginal and Torres Strait Islander (based on the Indigenous status of the baby - where one or both parents were Aboriginal and Torres Strait Islander). Babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies are different groups, which are not mutually exclusive.

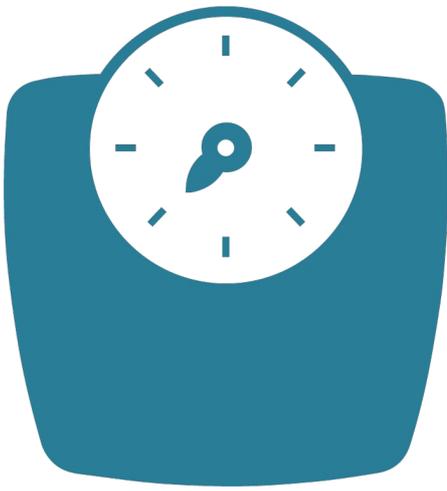
While the outcomes for babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies are very similar, there are some differences. This section of the report focuses on babies of Aboriginal and Torres Strait Islander mothers. A high-level summary of findings for Aboriginal and Torres Strait Islander babies will be reported in a separate section.



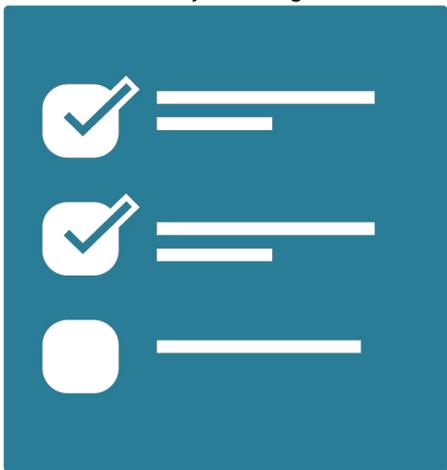
In 2020, 3.0% of babies of Aboriginal and Torres Strait Islander mothers were born as part of a multiple birth



In 2020, 86% of babies of Aboriginal and Torres Strait Islander mothers were born at term



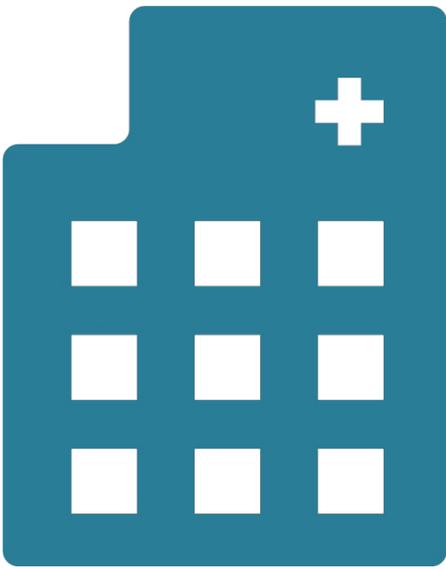
In 2020, 87% of liveborn babies of Aboriginal and Torres Strait Islander mothers had a healthy birthweight



In 2020, 73% of babies of Aboriginal and Torres Strait Islander mothers were a normal size for their gestational age



In 2020, 77 per 100 babies of Aboriginal and Torres Strait Islander mothers did not require active resuscitation



In 2020, 77% of babies of Aboriginal and Torres Strait Islander mothers had a hospital stay of 3 days or less

## Outcomes for babies of Aboriginal and Torres Strait Islander mothers



### Plurality

While considered higher risk, most multiple pregnancies have positive outcomes for mothers and babies. However, women who have multiple births, and their babies, are at increased risk of certain conditions, including preeclampsia, anaemia, gestational diabetes, post-partum haemorrhage, pre-term birth, low birthweight, twin-twin transfusion syndrome and developmental delay (Twins Research Australia 2019).

Families with multiple births may also experience financial stress, social isolation, and difficulties in accessing appropriate early parenting education (Twins Research Australia 2019). The socioeconomic implications of multiple births are important due to the disadvantage experienced by many Aboriginal and Torres Strait Islander mothers, however there may also be protective factors related to community and family connections.

In 2020, 97% (14,167) of babies of Aboriginal and Torres Strait Islander mothers were singletons, 2.9% (428) were twins and 0.1% (10) were other multiples (these proportions were the same or similar for babies of non-Indigenous mothers).

Over time, the proportion of babies of Aboriginal and Torres Strait Islander mothers who were part of a multiple birth (combined twins and other multiples) has remained relatively stable, ranging from 2.3% to 3.1%, between 2005 and 2020.

### References

Twins Research Australia (TRA) (2019) *Multiple perspectives: what support do multiple birth families need to live happy and healthy lives*, Melbourne: TRA, The University of Melbourne, accessed 19 October 2022.

# Outcomes for babies of Aboriginal and Torres Strait Islander mothers



## Gestational age

On this page:

- [Pre-term and term](#)
- [Post-term](#)

Gestational age is the duration of pregnancy in completed weeks. Gestational age is reported in 3 categories: pre-term (less than 37 weeks' gestation), term (37 to 41 weeks) and post-term (42 weeks and over).

Pre-term birth often occurs spontaneously, however pre-term birth can be related to maternal or obstetric conditions such as maternal diabetes, hypertension or infection and with risk factors such as maternal smoking (WHO 2012). Pre-term birth is linked to perinatal mortality, developmental delay and chronic disease in adulthood (WHO 2012). Whilst some causes of pre-term birth are unavoidable, there remain many modifiable risk factors for pre-term birth which can be addressed (WHO 2012).

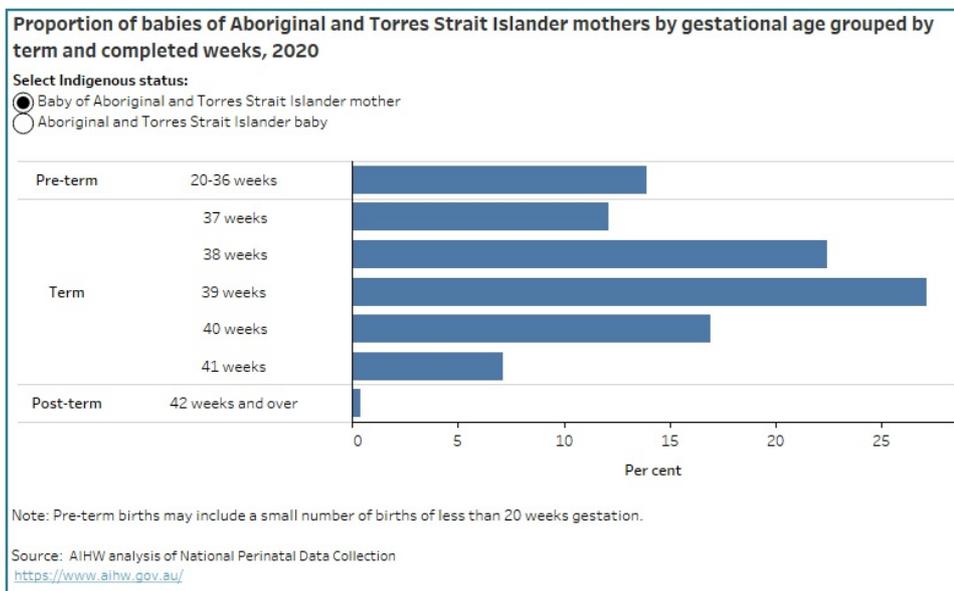
Services for Aboriginal and Torres Strait Islander mothers that are developed in partnership with the community are associated with increased antenatal care attendance for pregnant Aboriginal and Torres Strait Islander women, and antenatal care attendance is in turn associated with a decrease in pre-term birth (Kildea et al. 2019).

In 2020, 86% of babies of Aboriginal and Torres Strait Islander mothers were born at term, 14% were born pre-term and 0.4% were born post-term (compared with 92%, 8.1% and 0.4%, respectively, of babies of non-Indigenous mothers).

The data visualisation below presents data on the grouped gestational age of pre-term and post-term babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies, and the individual completed weeks for term babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies, for 2020.

**Figure 1: Proportion of babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies by gestational age (grouped by term and completed weeks) for 2020**

Bar chart showing gestational age of babies of Aboriginal and Torres Strait Islander mothers. 39 weeks was the most common gestational age.

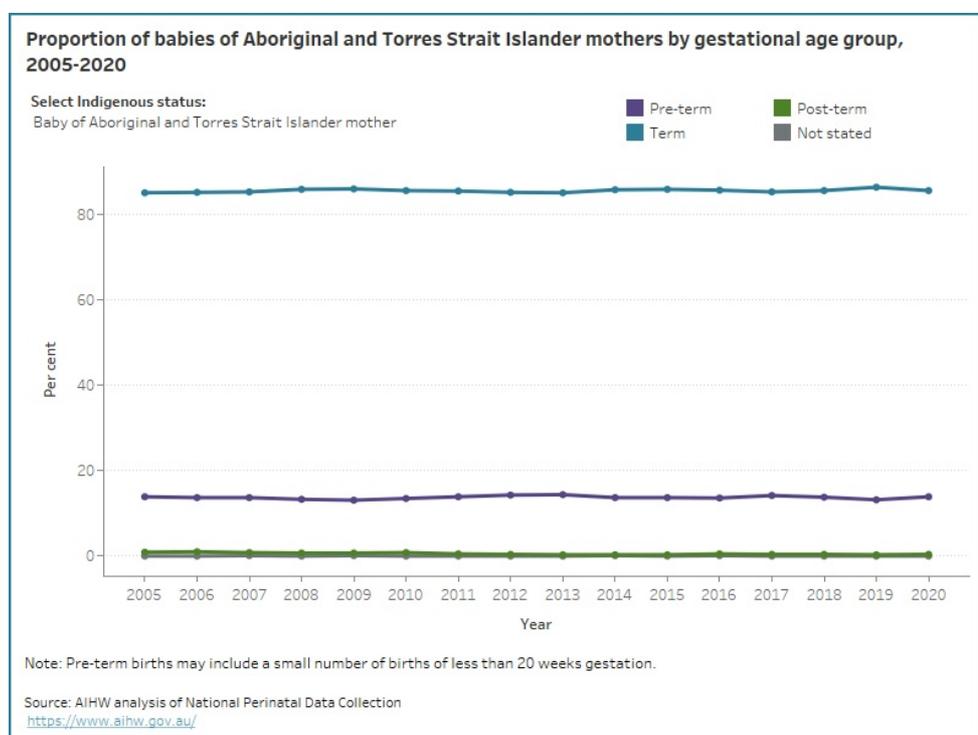


Over time, the proportion of babies of Aboriginal and Torres Strait Islander mothers by gestational age group has remained largely unchanged. Between 2005 and 2020, the proportion of those born pre-term ranged from 14% to 13%, those born at term ranged from 87% to 85% and those born post-term ranged from 0.3% to 1.0%.

The data visualisation below shows the proportion of babies of Aboriginal and Torres Strait Islander mothers and non-Indigenous mothers by gestational age group from 2005, and the proportion of Aboriginal and Torres Strait Islander babies and non-Indigenous babies by gestational age group from 2013.

**Figure 2: Proportion of babies of Aboriginal and Torres Strait Islander mothers, babies of non-Indigenous mothers, Aboriginal and Torres Strait Islander babies and non-Indigenous babies, by gestational age group from 2005 to 2020**

Line graph of gestational age group by Indigenous status. Most babies of Aboriginal and Torres Strait Islander mothers were born at term.



## Pre-term and term

In 2020, babies of Aboriginal and Torres Strait Islander mothers who were born at term were more likely to have a healthy or high birthweight (96% and 94%, respectively, compared with 33% of low birthweight babies).

Additionally, greater proportions of babies of Aboriginal and Torres Strait Islander mothers were born at term, if they were:

- born to mothers who lived in the least disadvantaged areas (90%, compared with 85% for the most disadvantaged areas)
- born to mothers who lived in *Major cities or Inner regional* areas (both 87%, compared with 83% for *Remote* areas and *Very remote* areas)
- born to mothers aged 20-24 years or 25-29 years (both 87%, compared with 79% for babies of mothers aged 40 years and over)
- born to mothers with a parity of 1 (89%, compared with 81% of those born to mothers with a parity of 4 or more)
- born to mothers who did not smoke (89%, compared with 83% of those born to mothers who smoked)

The data visualisation below presents data on pre-term and term babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies, by selected maternal and baby characteristics for 2020.

### Figure 3: Proportion of pre-term and term babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies by selected topic for 2020

Bar chart for pre-term and term gestational age by selected topics. 86% of babies of Aboriginal and Torres Strait Islander were born at term.

Visualisation not available for printing

Being born at term was more common in some geographical locations. Explore the map below to view data on the number and proportion of babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies who were born at term, by IREG and PHN for 2020 and SA3 for 2017-2020.

### Figure 4: Proportion of babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies born at term by various geographies

Map of proportions of babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies who were born at term across Australia grouped by various geographies.

Visualisation not available for printing

For related information see the Regional Insights for Indigenous Communities section on [Pre-term birth](#).

## Post-term

As only 53 babies of Aboriginal and Torres Strait Islander mothers were born post-term in 2020, analysis of post-term birth by other characteristics combines 4 years of data. Between 2017 and 2020 there were 204 post-term babies of Aboriginal and Torres Strait Islander mothers. These babies were more likely to be born to mothers who:

- lived in the most disadvantaged areas (42% (85))
- were aged 25-29 years (32% (66))
- were first-time mothers (51% (104))
- were a healthy weight (33% (67)) or overweight (33% (67)).

## References

Kildea S, Gao Y, Hickey S, Kruske S, Nelson C, Blackman R, Tracy S, Husrt C, Williamson D and Roe Y (2019). 'Reducing preterm birth amongst Aboriginal and Torres Strait Islander babies: A prospective cohort study, Brisbane, Australia', *EclinicalMedicine* 12, doi: 10.1016/j.eclinm.2019.06.001.

WHO (World Health Organization) (2012) *Born too soon: the global action report on preterm birth* Geneva: World health organisation, accessed 17 October 2022.

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## Outcomes for babies of Aboriginal and Torres Strait Islander mothers



### Birthweight

Birthweight is the first weight of the baby obtained after birth. Birthweight is reported in 3 categories: low birthweight (birthweight less than 2,500 grams), healthy birthweight (birthweight between 2,500 and 4,499 grams) and high birthweight (birthweight of 4,500 grams or more).

Babies with birthweights outside the healthy range are at greater risk of illness, poor development, perinatal death, and poorer health in adulthood. Babies with a low birthweight are more likely to experience illness or die in infancy, have poorer development of their mental functioning abilities, and have an increased risk of chronic diseases in adulthood (AIHW 2022a).

A high birthweight is associated with an increased risk of adverse maternal outcomes such as emergency caesarean section and postpartum haemorrhage, impairment and injury of the newborn, and hypertension, obesity, and type 2 diabetes in later life (AIHW 2022a).

According to a recent report, factors related to the mother that contribute to low birthweight for Aboriginal and Torres Strait Islander babies are maternal smoking, the mother being underweight pre-pregnancy, and the mother not having access to antenatal care in the first trimester (AIHW 2022b). Additional factors associated with low birthweight are maternal health conditions such as pre-existing and gestational hypertension and pre-existing diabetes (AIHW 2022b).

The National Agreement on Closing the Gap (the National Agreement) includes a target to increase the proportion of Aboriginal and Torres Strait Islander babies with a healthy birthweight to 91% by 2031 (Productivity Commission 2020). It is important to note that indicators under this target influence birthweight, and progress to increase healthy birthweight will influence all other targets under the National Agreement.

Aboriginal and Torres Strait Islander babies are more likely to have a healthy birthweight when they are born to mothers who have access to culturally safe antenatal care - early and regularly throughout their pregnancy - intrapartum care and postnatal care (AIHW 2022b; HCA 2019).

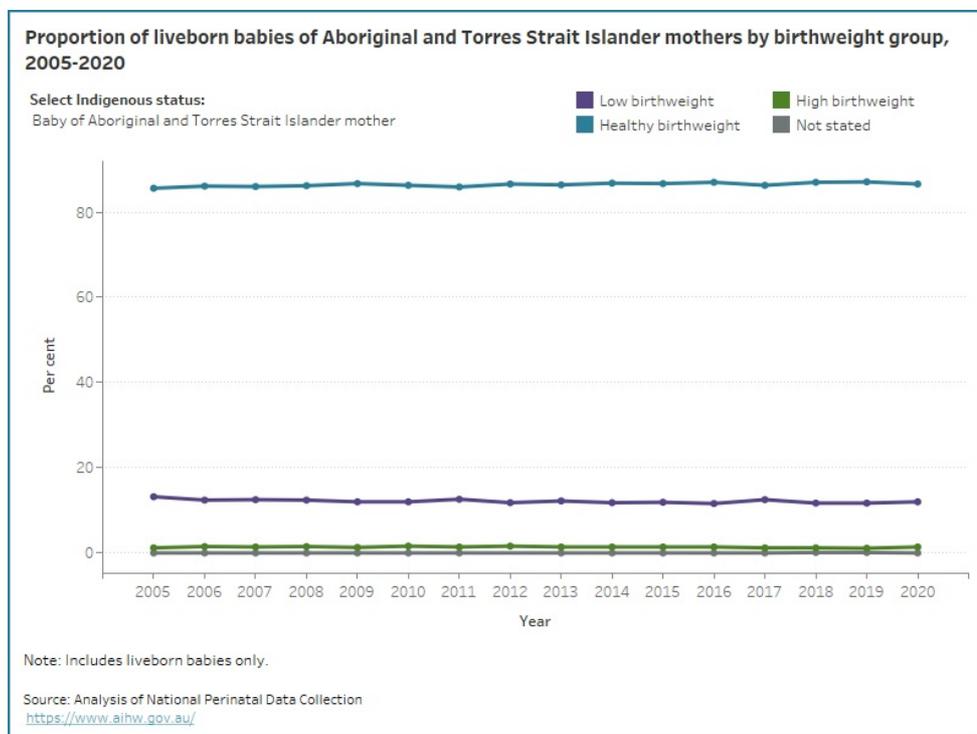
In 2020, 12% of liveborn babies of Aboriginal and Torres Strait Islander mothers were of low birthweight, 87% had a healthy birthweight and 1.4% were of high birthweight (compared with 6.2%, 93% and 1.2%, respectively, of babies of non-Indigenous mothers).

Over time, the proportion of babies of Aboriginal and Torres Strait Islander mothers by birthweight group has remained largely unchanged. Between 2005 and 2020, the proportion of those of low birthweight ranged from 12% to 13%, those born with a healthy birthweight ranged from 86% to 87% and those born with a high birthweight ranged from 1.1% to 1.6%.

The data visualisation below shows the proportion of liveborn babies of Aboriginal and Torres Strait Islander mothers and non-Indigenous mothers by birthweight group from 2005, and the proportion of liveborn Aboriginal and Torres Strait Islander babies and non-Indigenous babies by birthweight group from 2013.

### Figure 1: Proportion of babies of Aboriginal and Torres Strait Islander mothers, babies of non-Indigenous mothers, Aboriginal and Torres Strait Islander babies and non-Indigenous babies, by birthweight group from 2005 to 2020

Line graph of birthweight group by Indigenous status. Most liveborn babies of Aboriginal and Torres Strait Islander mothers had a healthy birthweight.



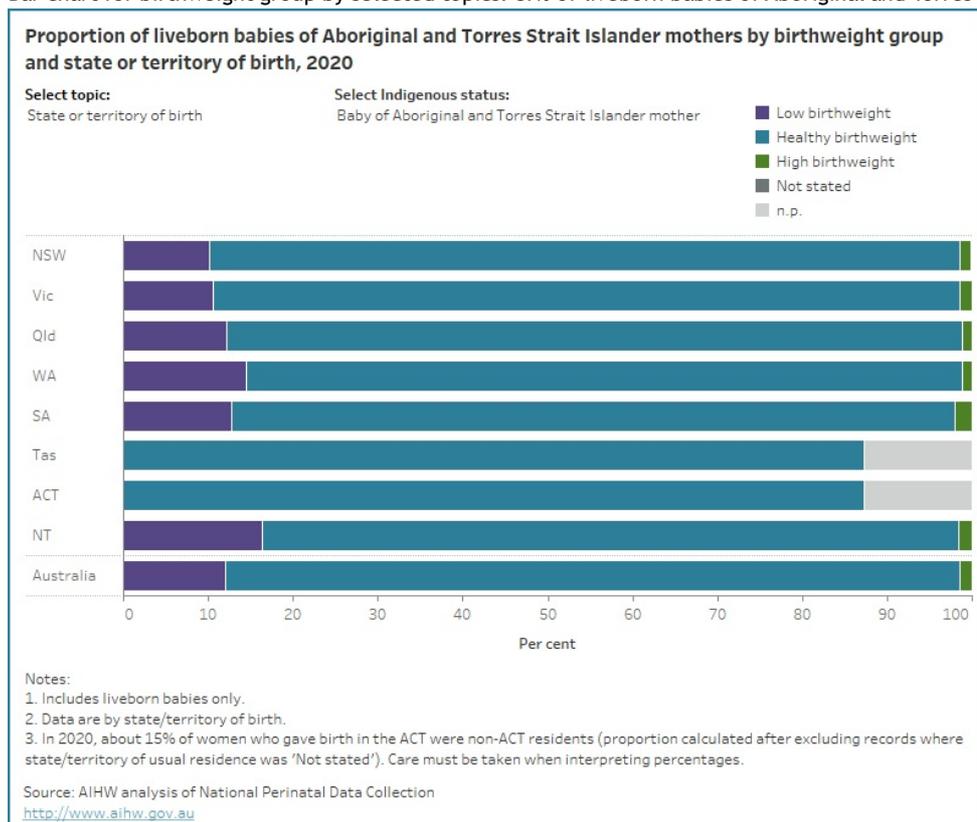
In 2020, liveborn babies who were born to Aboriginal and Torres Strait Islander mothers were more likely to have a healthy birthweight if they were born:

- at term (94%, compared with 37% of pre-term babies)
- to mothers who lived in the least disadvantaged areas (90%, compared with 86% for the most disadvantaged areas)
- to mothers who lived in *Inner regional* areas or *Major cities* (both 88%, compared with 83% for *Remote* or *Very remote* areas)
- to mothers aged 20-24 years or 25-29 years (both 87%, compared with 84% for those born to mothers aged under 20 years)
- to mothers with a parity of 1 (88%, compared with 84% of those whose mother had a parity of 4 or more)
- to mothers who did not smoke (90%, compared with 82% of those whose mother smoked).

The data visualisation below presents data on birthweight group for liveborn babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies, by selected maternal and baby characteristics for 2020.

**Figure 2: Proportion of liveborn babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies by birthweight group and selected topic for 2020**

Bar chart for birthweight group by selected topics. 87% of liveborn babies of Aboriginal and Torres Strait Islander had a healthy birthweight



Being born with a healthy birthweight was more common in some geographical locations. Explore the map below to view data on the number and proportion of liveborn babies of Aboriginal and Torres Strait Islander mothers and liveborn Aboriginal and Torres Strait Islander babies who were born with a healthy birthweight, by IREG and PHN for 2020 and SA3 for 2017-2020.

**Figure 3: Proportion of liveborn babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies with a healthy birthweight by various geographies**

Map of proportions of liveborn babies of Aboriginal and Torres Strait Islander mothers and liveborn Aboriginal and Torres Strait Islander babies who were born with a healthy birthweight across Australia grouped by various geographies.

Visualisation not available for printing

For related information see:

- the Regional Insights for Indigenous Communities section on [Birthweight](#).
- Aboriginal and Torres Strait Islander Health Performance Framework indicator [1.01 Birthweight](#).

## References

AIHW (Australian Institute of Health and Welfare) (2022a) *1.01 Birthweight*, Aboriginal and Torres Strait Islander Health Performance Framework website, accessed 17 October, 2022.

AIHW (2022b) *Aboriginal and Torres Strait Islander Health Performance Framework: Key factors contributing to low birthweight among Aboriginal and Torres Strait Islander babies*, Cat. no. IHPF 10 Canberra: AIHW.

HCA (Murawin Consulting and Human Capital Alliance) (2019) *Final Report of the 2016-18 Evaluation of the AMHS program*. Sydney: NSW Ministry of Health.

Productivity Commission (2020) *National Agreement on Closing the Gap* [website], accessed 20 March, 2023.

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## Outcomes for babies of Aboriginal and Torres Strait Islander mothers



### Birthweight adjusted 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 increase the risk of developing long-term health conditions later in life (AIHW 2022).

Adjusting birthweight for gestational age allows for differences in a baby's growth status and maturity to be considered when examining their health at birth (AIHW 2022).

Babies are defined as being small for gestational age if their birthweight is below the 10th percentile for their gestational age and sex, and babies are defined as large for gestational age if their birthweight is above the 90th percentile for their gestational age and sex, as determined by national percentiles. Data on birthweight adjusted for gestational age is limited to liveborn singleton babies (AIHW 2022).

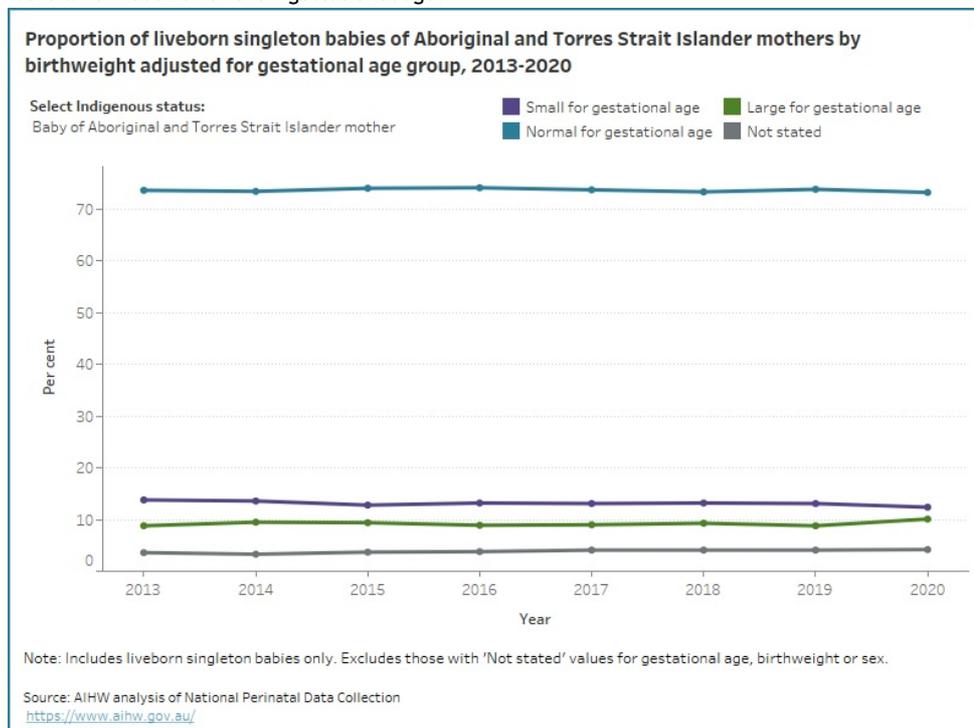
In 2020, 12% of babies of Aboriginal and Torres Strait Islander mothers were small for gestational age, 73% of were a normal size for gestational age and 10% were large for gestational age (compared with 8.7%, 78% and 9.3% of babies of non-Indigenous mothers).

Between 2013 and 2020, the proportion of babies of Aboriginal and Torres Strait Islander mothers who were by birthweight adjusted for gestational age group has remained largely unchanged, from 12% to 14% for small for gestational age, from 73% to 74% for normal size for gestational age and from 8.8% to 10% for large for gestational age.

The data visualisation below shows the proportion of liveborn singleton babies of Aboriginal and Torres Strait Islander mothers and non-Indigenous mothers by birthweight adjusted for gestational age group, and the proportion of liveborn singleton Aboriginal and Torres Strait Islander babies and non-Indigenous babies by birthweight adjusted for gestational age group from 2013.

**Figure 1: Proportion of babies of Aboriginal and Torres Strait Islander mothers, babies of non-Indigenous mothers, Aboriginal and Torres Strait Islander babies and non-Indigenous babies, by birthweight adjusted for gestational age group from 2013 to 2020**

Line graph of birthweight adjusted for gestational age by Indigenous status. Most babies of Aboriginal and Torres Strait Islander mothers were a normal size for their gestational age.



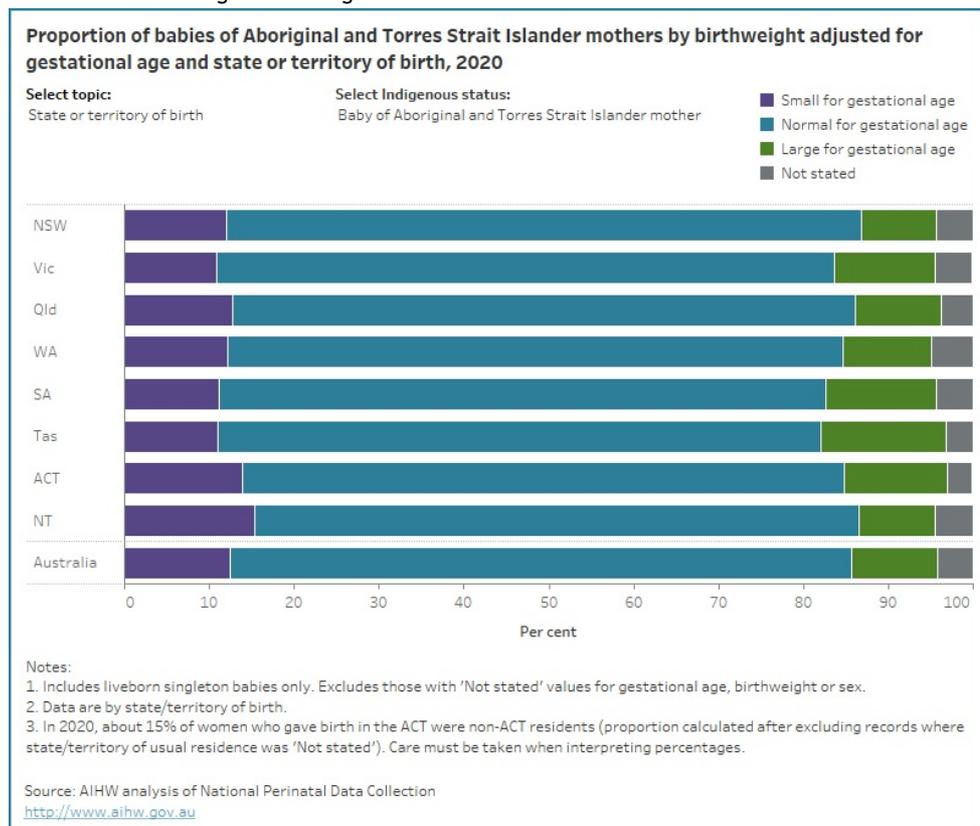
In 2020, babies who were born to Aboriginal and Torres Strait Islander mothers were more likely to be a normal size for gestational age if they were born to mothers who:

- lived in the least disadvantaged areas (75%, compared with 73% for the most disadvantaged areas)
- lived in *Inner regional* areas (75%, compared with 70% for *Very remote* areas)
- did not smoke (76%, compared with 71% of those whose mother smoked)

The data visualisation below presents data on birthweight adjusted for gestational age group for liveborn singleton babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies, by selected maternal and baby characteristics for 2020.

**Figure 2: Proportion of liveborn singleton babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies by birthweight adjusted for gestational age group and selected topic for 2020**

Bar chart for birthweight adjusted for gestational age by selected topics. 73% of babies of Aboriginal and Torres Strait Islander were a normal size for their gestational age.



## References

AIHW (Australian Institute of Health and Welfare) (2022) *Australia's mothers and babies*, Cat. no. PER 101. Canberra: AIHW.



## Outcomes for babies of Aboriginal and Torres Strait Islander mothers



### Active resuscitation method

Resuscitation is undertaken to establish independent breathing and heartbeat or to treat depressed respiratory effect and to correct metabolic disturbances. Active resuscitation methods range from less advanced methods like suction or oxygen therapy to more advanced methods, such as external cardiac massage and ventilation. Data are for liveborn babies only. More than one method of resuscitation can be recorded.

Some babies are more likely to require resuscitation such as babies of mothers with pre-existing or pregnancy-induced health conditions, babies born as part of a multiple birth, babies who are born pre- or post-term and babies born by instrumental vaginal or caesarean section birth (Victorian Newborn Resuscitation Project 2021).

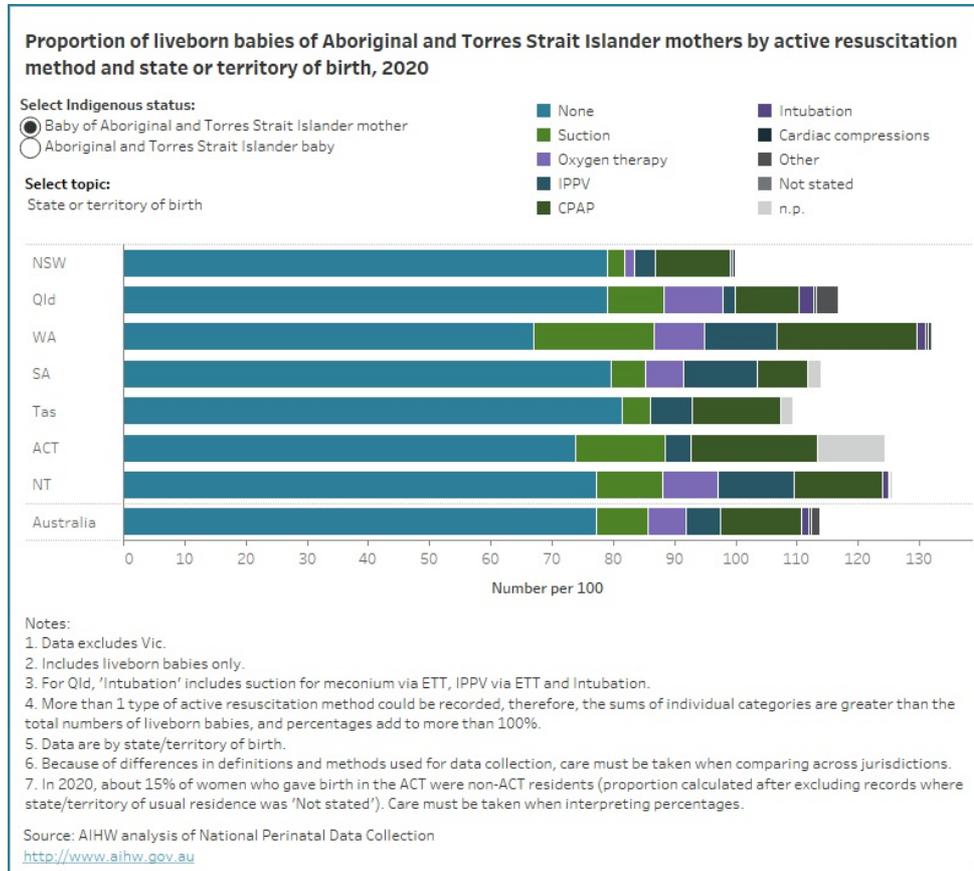
In 2020, most babies of Aboriginal and Torres Strait Islander mothers did not require active resuscitation (77 per 100 liveborn babies of Aboriginal and Torres Strait Islander mothers), compared with 80 per 100 liveborn babies of non-Indigenous mothers.

Of those babies of Aboriginal and Torres Strait Islander mothers who did require resuscitation, continuous positive airway pressure was the most common resuscitation method (13 per 100), followed by suction (8.5 per 100) and oxygen therapy (6.2 per 100) (compared with 9.8 per 100 liveborn babies of non-Indigenous mothers requiring continuous positive airway pressure, 7.1 per 100 requiring suction and 4.6 per 100 requiring oxygen therapy).

The data visualisation below presents data on active resuscitation method for liveborn babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies, by selected maternal and baby characteristics for 2020.

**Figure 1: Proportion of liveborn babies of Aboriginal and Torres Strait Islander mothers Aboriginal and Torres Strait Islander babies by active resuscitation method and selected topic for 2020**

Bar chart for active resuscitation method by selected topics. 77 per 100 babies of Aboriginal and Torres Strait Islander did not require resuscitation.



Amongst babies of Aboriginal and Torres Strait Islander mothers in 2020, those less likely to require resuscitation were those who:

- had a healthy birthweight (81 per 100 did not require resuscitation, compared with 70 per 100 with high birthweight and 54 per 100 with low birthweight)
- were born at term (82 per 100 did not require resuscitation, compared with 48 per 100 born pre-term)

- were a singleton (78 per 100 did not require resuscitation, compared with 44 per 100 babies born as part of a multiple birth)
- were born to mothers aged 20-24 years (79 per 100 did not require resuscitation, compared with 75 per 100 for babies of mothers aged under 20 years).

## References

Victorian Newborn Resuscitation Project (2021) *Risk factors*, neoResus website, accessed 18 October 2022

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## Outcomes for babies of Aboriginal and Torres Strait Islander mothers



### Baby length of stay in hospital

Babies' length of stay refers to the number of days between the date of birth and the date of discharge. Data on length of stay are based on liveborn babies who were born in hospital and were discharged home and excludes data from Western Australia.

In 2020, 7.1% of babies of Aboriginal and Torres Strait Islander mothers had a stay of less than 1 day, 70% had a stay of 1-3 days, 13% had a stay of 4-6 days and 9.1% had stay of 7 days or more (compared with 5.2%, 66%, 25% and 4.6%, respectively, of babies of non-Indigenous mothers).

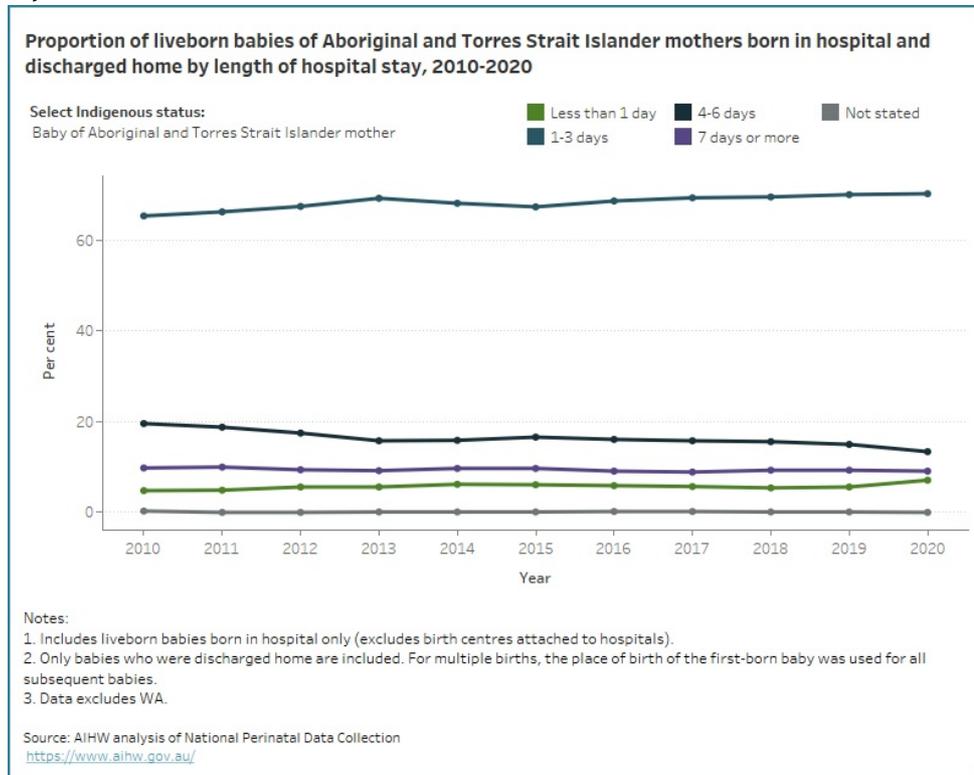
Between 2010 and 2020 the length of stay for babies of Aboriginal and Torres Strait Islander mothers has shortened, with an increase in hospital stays of 3 days or less (from 70% in 2010 to 77% in 2020) and a decrease in hospital stays of 4 days or more (from 29% in 2010 to 23% in 2020).

There were changes during this period for stays of less than 1 day (from 4.8% in 2010 to 7.1% in 2020), 1-3 days (from 65% in 2010 to 70% in 2020), 4-6 days (from 20% to 13%). Hospital stays of 7 days or more fluctuated, ranging from 10% to 8.9%.

The data visualisation below shows the proportion of liveborn babies of Aboriginal and Torres Strait Islander mothers and non-Indigenous mothers who were born in hospital and discharged home by grouped length of stay in hospital from 2010, and the proportion of liveborn Aboriginal and Torres Strait Islander babies and non-Indigenous babies who were born in hospital and discharged home by grouped length of stay in hospital from 2013.

**Figure 1: Proportion of babies of Aboriginal and Torres Strait Islander mothers, babies of non-Indigenous mothers, Aboriginal and Torres Strait Islander babies and non-Indigenous babies born in hospital and discharged home, by length of hospital stay from 2010 to 2020**

Line graph of length of baby stay in hospital by Indigenous status. Most babies of Aboriginal and Torres Strait Islander mothers had a stay of 3 days or less.



In 2020, babies of Aboriginal and Torres Strait Islander mothers were most likely to have a hospital stay of 3 days or less if they were born to mothers who:

- lived in the second area of socioeconomic disadvantage (80% for quintile 2, compared with between 72% for the least disadvantaged areas (quintile 1))
- lived in *Inner regional* areas (81%, compared with 63% for *Very remote* areas)
- were aged 20-24 years (81%, compared with 73% for those aged 35-39 years)
- had a parity of 1 or 3 (both 82%, compared with 72% of first-time mothers)

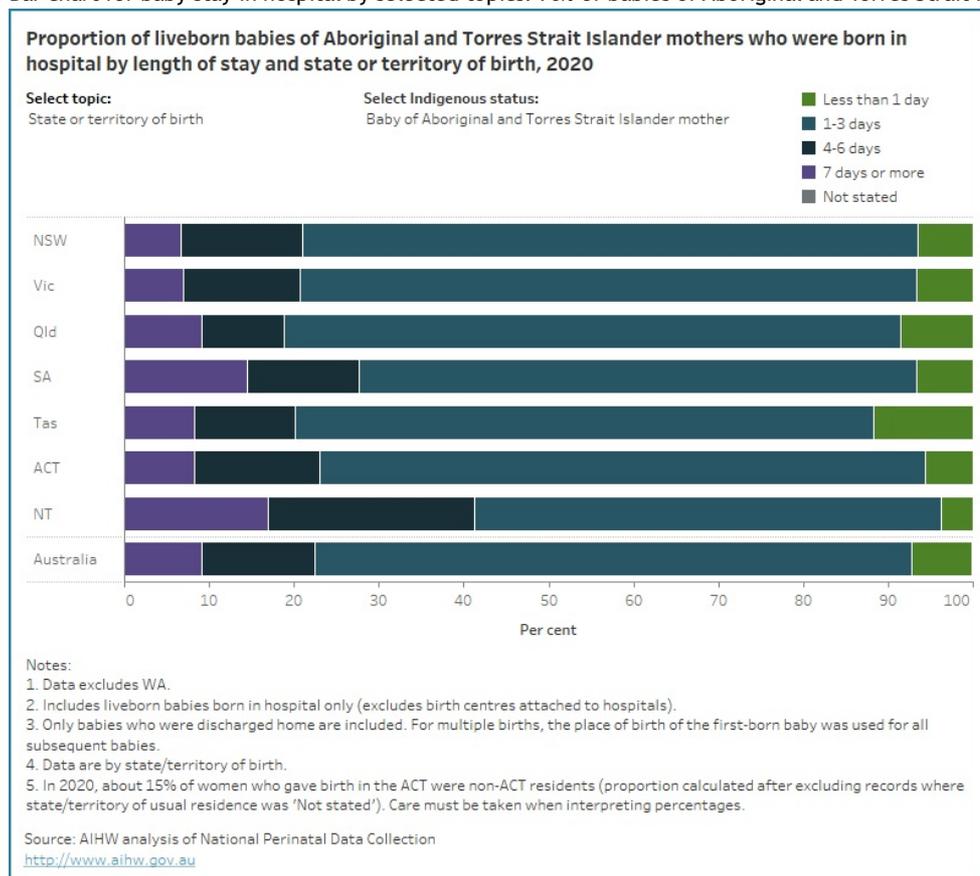
- had spontaneous labour (81%, compared with 67% for no labour)
- had a non-instrumental vaginal birth (84%, compared with 66% for caesarean section birth).

Babies who were born to Aboriginal and Torres Strait Islander mothers were more likely to have a hospital stay of 3 days or less if they were a singleton (79%, compared with 23% of those born as part of a multiple birth), born at term (83%, compared with 22% of those who were born pre-term), had a healthy birthweight (83%, compared with 27% of those born with a low birthweight) or were normal for gestational age (81%, compared with 69% of those who were small for gestational age).

The data visualisation below presents data on grouped length of stay in hospital for liveborn babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies who were born in hospital and discharged home, by selected maternal and baby characteristics for 2020.

**Figure 2: Proportion of liveborn babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies who were born in hospital and discharged home by length of stay and selected topic for 2020**

Bar chart for baby stay in hospital by selected topics. 70% of babies of Aboriginal and Torres Strait Islander mothers stayed for 1 to 3 days.



## Aboriginal and Torres Strait Islander babies summary



### Aboriginal and Torres Strait Islander babies summary

In 2020, 6.2% (18,228) of babies were Aboriginal and Torres Strait Islander (based on the Indigenous status of the baby - where either the mother or the father, or both parents, identified as Aboriginal and Torres Strait Islander), and of these, more than 1 in 4 (27%) Aboriginal and Torres Strait Islander babies were born to a non-Indigenous mother.

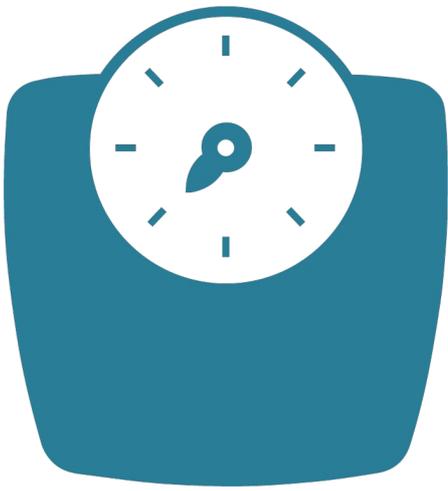
It is important to consider the outcomes for babies based on the Indigenous status of both the mother (babies of Aboriginal and Torres Strait Islander mothers) and the baby (Aboriginal and Torres Strait Islander babies), otherwise the birth outcomes of a substantial proportion of the Indigenous birth cohort would not be considered. While the outcomes for babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies are very similar, there are some differences.

The infographic below presents a high-level summary of findings for Aboriginal and Torres Strait Islander babies. Detailed data for Aboriginal and Torres Strait Islander babies are available as an option to select in the data visualisations in the [Outcomes for babies of Aboriginal and Torres Strait Islander mothers](#) chapters and in the [Aboriginal and Torres Strait Islander mothers and babies data tables](#).



3.1% of Indigenous babies were a part of a multiple birth





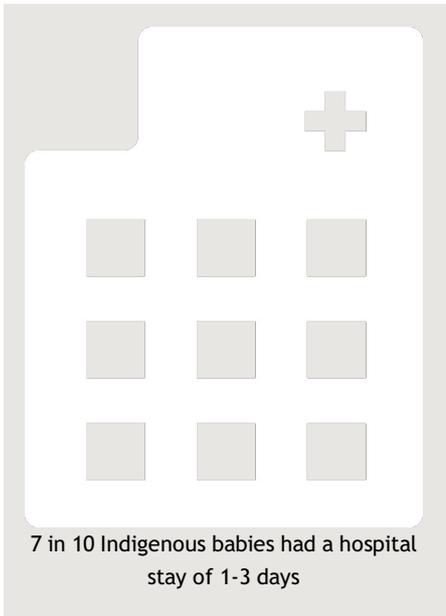
87% of Indigenous babies were of healthy birthweight



Just over 7 in 10 Indigenous babies were a normal size for gestational age



78 per 100 liveborn Indigenous babies did not require active resuscitation



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## Maternal and perinatal mortality

On this page:

[Maternal mortality](#)

[Perinatal mortality](#)

### Maternal mortality

Between 2006 and 2020, 186,777 Aboriginal and Torres Strait Islander females gave birth and there were 28 maternal deaths for Aboriginal and Torres Strait Islander females, with a maternal mortality ratio of 16.9 per 100,000 Aboriginal and Torres Strait Islander females giving birth (maternal mortality ratio calculation excludes WA between 2006 and 2017).

#### Box 1: Defining maternal death

Maternal death is the death of a woman while pregnant or within 42 days of the end of pregnancy, irrespective of the duration and outcome of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Of these maternal deaths, 16 were direct maternal deaths (resulting from obstetric complications of pregnancy or its management) and 12 were indirect maternal deaths (resulting from diseases or conditions that were not due to a direct obstetric cause but were aggravated by the physiologic effects of pregnancy).

Sepsis and thromboembolism were the most common causes of death for direct deaths (both 3) and cardiovascular conditions were the most common cause of death for indirect deaths (6).

Between 2006 to 2020, there were also 10 coincidental maternal deaths (deaths during pregnancy or the postpartum period that were unrelated to pregnancy) for Aboriginal and Torres Strait Islander females for example, due to motor vehicle trauma.

Table 1 shows the number of direct and indirect maternal deaths of Aboriginal and Torres Strait Islander females, by cause, pregnancy status and selected characteristics.

Table 1: Number of direct and indirect maternal deaths of Aboriginal and Torres Strait Islander females<sup>(a)</sup>, by cause, timing of death, maternal age group and parity, 2006-2020

	Direct deaths	Indirect deaths	Total deaths
<b>Cause of death</b>			
Cardiovascular	1	6	7
Non-obstetric haemorrhage	0	1	1
Suicide	1	1	2
Sepsis	3	3	6
Thromboembolism	3	0	3
Obstetric haemorrhage	2	0	2
Amniotic fluid embolism	1	0	1
Hypertensive disorders	2	0	2
Respiratory failure <sup>(b)</sup>	0	1	1
Substance use complications	1	0	1
Anaesthetic-related death <sup>(c)</sup>	2	0	2
<b>Total</b>	<b>16</b>	<b>12</b>	<b>28</b>
<b>Timing of death<sup>(d)</sup></b>			
Antepartum	2	6	8

Day of birth (day 0)	2	0	2
Postpartum	7	2	9
Not stated/supplied	3	3	6
<b>Total</b>	<b>14</b>	<b>11</b>	<b>25</b>
<b>Maternal age at death</b>			
Under 20	1	3	4
20-24	3	0	3
25-29	3	3	6
30-34	3	2	5
35-39	2	1	3
40 or over	1	0	1
Not stated/supplied	3	3	6
<b>Total</b>	<b>16</b>	<b>12</b>	<b>28</b>
<b>Parity<sup>(e)</sup></b>			
None	2	4	6
One	1	0	1
Two	3	3	6
Three	1	0	1
Four or more	5	1	6
Not stated/supplied	4	4	8
<b>Total</b>	<b>16</b>	<b>12</b>	<b>28</b>

a) Data on Indigenous status are not available for WA for 2006-2017.

b) Respiratory failure due to Asthma complicated by Pneumonia.

c) Anaesthetic-related deaths were not classified separately prior to 2012.

d) Data excludes maternal deaths where pregnancy status at time of death was 'termination of pregnancy' or 'miscarried'.

e) Parity refers to a woman's number of previous pregnancies resulting in live births or stillbirths, excluding the current pregnancy.

### Perinatal mortality

In 2020, there were 14,605 babies born to Aboriginal and Torres Strait Islander mothers and 249 perinatal deaths, with a perinatal mortality rate of 17 deaths per 1,000 births. Of these perinatal deaths, 174 (70%) were stillbirths and 75 (30%) were neonatal deaths, with a stillbirth rate of 12 deaths per 1,000 births and a neonatal mortality rate of 5.2 deaths per 1,000 live births.

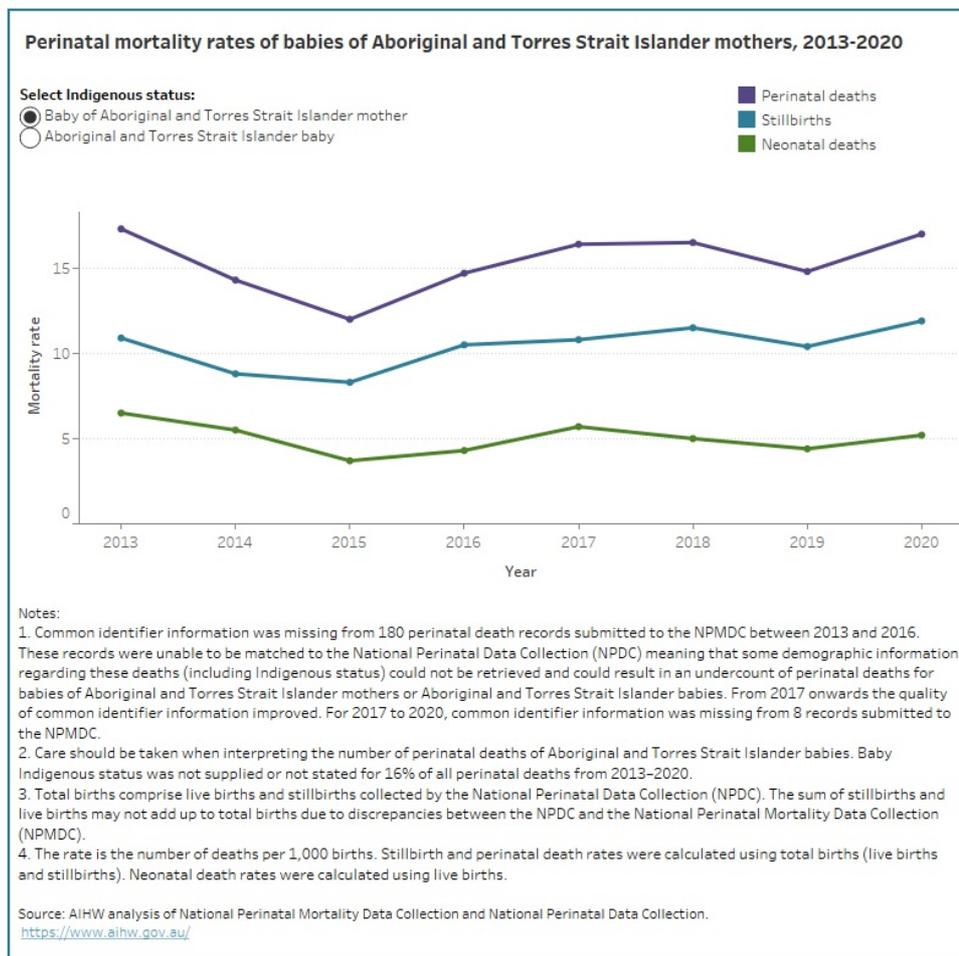
Between 2013 and 2020, there were 109,308 babies born to Aboriginal and Torres Strait Islander mothers and 1,682 perinatal deaths; 1,140 (68%) of these were stillbirths and 542 (32%) were neonatal deaths.

During this period, the perinatal mortality rate for babies of Aboriginal and Torres Strait Islander mothers fluctuated between 12 and 17 deaths per 1,000 births, as did the stillbirth and neonatal mortality rate (between 8.3 and 12 deaths per 1,000 births and between 3.7 and 6.5 deaths per 1,000 live births, respectively).

The data visualisation below presents data on perinatal mortality rates, stillbirth rates and neonatal mortality rates for babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies from 2013 to 2020.

### Figure 1: Perinatal mortality rates of babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies from 2013 to 2020

Line graph shows that perinatal mortality rates for babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies have fluctuated over time.



### Timing of death

Between 2013 and 2020, there were 1,438 perinatal deaths of babies of Aboriginal and Torres Strait Islander mothers where the timing of perinatal death was recorded. Of these:

- 50% (735) occurred as stillbirths prior to birth (antepartum period)
- 14% (208) occurred as stillbirths during the labour or birth (intrapartum period)
- 24% (355) were very early neonatal deaths (within the first 24 hours following birth)
- 6.5% (97) were early neonatal deaths (1-7 days following birth)
- 5.9% (88) were late neonatal deaths (8-28 days following birth).

The data visualisation below presents data on the timing of perinatal deaths, stillbirths and neonatal deaths for babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies for 2013 to 2020 combined.

**Figure 2: Proportion of babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies who died by timing of death for 2013 to 2020**

Bar chart showing the timing of perinatal death. 50% of perinatal deaths were antepartum stillbirths.

Visualisation not available for printing

### Cause of death

Between 2013 and 2020, the 3 most common causes of perinatal death (classified according to the Perinatal Society of Australia and New Zealand (PSANZ) Perinatal Mortality Classification System) were spontaneous pre-term labour or rupture of membranes (<37 weeks gestation) (21% (352)), congenital anomaly (19% (323)) and unexplained antepartum death (12% (199)).

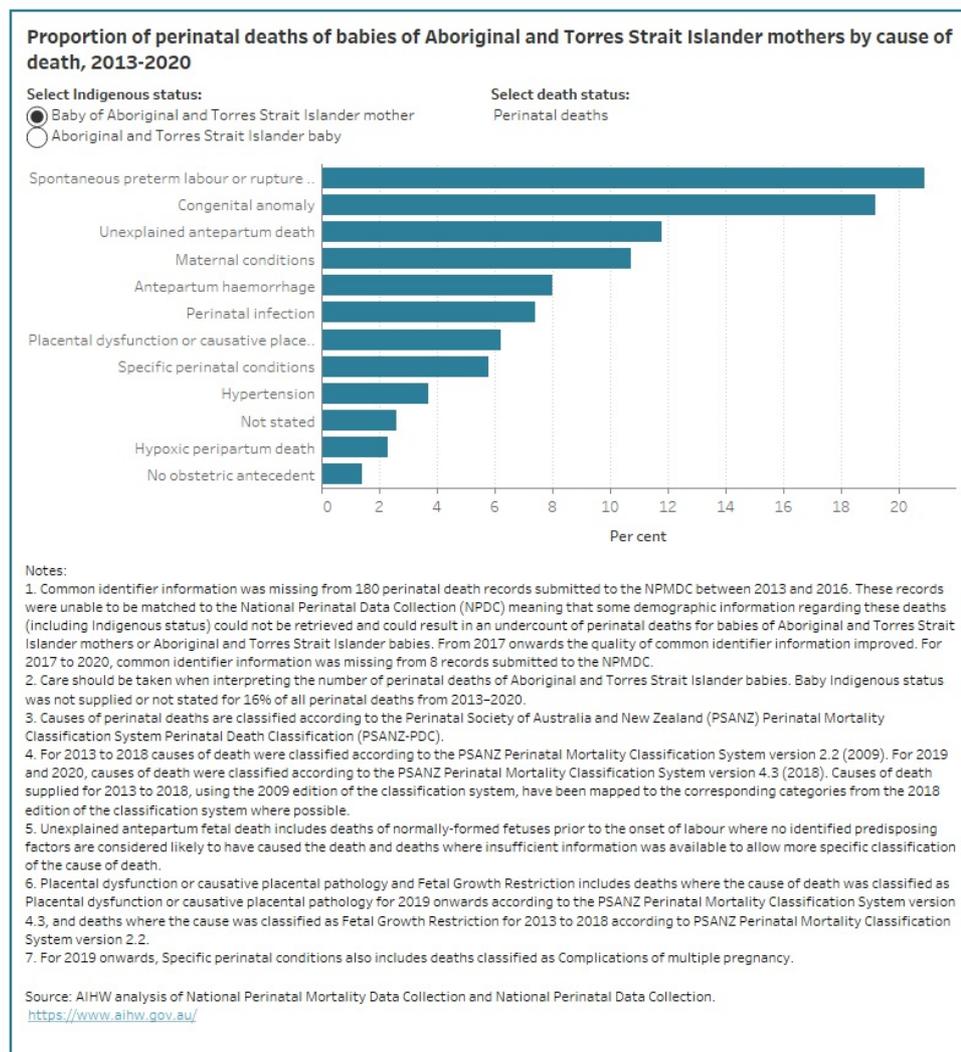
The most common causes of:

- stillbirths were congenital anomaly (18% (201)), unexplained antepartum death (18% (199)) and maternal conditions (14% (161))
- neonatal deaths were spontaneous pre-term labour or rupture of membranes (<37 weeks gestation) (38% (208)), congenital anomaly (23% (122)) and perinatal infection (7.7% (42)).

The data visualisation below presents data on the causes of perinatal deaths, stillbirths and neonatal deaths for babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies for 2013 to 2020 combined.

**Figure 3: Proportion of perinatal deaths of babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies by cause of death and selected death status for 2013 to 2020**

Bar chart showing the cause of perinatal death. Spontaneous preterm labour or rupture of membranes was the most common cause of perinatal death.



## Maternal and baby characteristics

Between 2013 and 2020, the perinatal mortality rate was higher for certain groups of babies born to Aboriginal and Torres Strait Islander mothers, including babies:

- of low birthweight (100 per 1,000 births, compared with 2.8 per 1,000 healthy birthweight babies)
- babies who had a gestational age of 20-22 weeks (997 per 1,000 births, compared with 3.3 per 1,000 of babies with a gestational age of 36 weeks and over)
- whose mothers had pre-existing diabetes (41 per 1,000 births, compared with 20 per 1,000 with a diabetes status of none or not stated and 6.4 per 1,000 with gestational diabetes)
- whose mothers were aged 40 years and over (26 per 1,000 births, compared with 13 per 1,000 whose mothers were aged 25-29 years)
- whose mothers were underweight (24 per 1,000 births) or obese (20 per 1,000) (compared with 18 per 1,000 whose mothers were normal weight or overweight)
- whose mothers lived in *Very remote* areas (23 per 1,000 births, compared with 13 per 1,000 babies whose mothers lived in *Inner regional* areas or *Major cities*).

Similarly, the stillbirth rate was higher for babies of Aboriginal and Torres Strait Islander mothers who were:

- of low birthweight (67 per 1,000 births, compared with 1.9 per 1,000 healthy birthweight babies)
- 20-22 weeks gestational age (676 per 1,000 births, compared with 2.2 per 1,000 babies with a gestational age of 36 weeks and over)
- born to mothers who had pre-existing diabetes (32 per 1,000 births, compared with 13 per 1,000 with a diabetes status of none or not stated and 4.2 per 1,000 with gestational diabetes)
- born to mothers aged 40 years and over (18 per 1,000 births, compared with 8.7 per 1,000 whose mothers were aged 25-29 years)
- born to mothers who lived in *Very remote* areas (14 per 1,000 births, compared with 8.8 per 1,000 babies whose mothers lived in *Inner regional* areas).

The neonatal mortality rate was highest for babies of Aboriginal and Torres Strait Islander mothers who were:

- of low birthweight (35 per 1,000 livebirths, compared with 0.9 per 1,000 healthy birthweight babies)
- 20-22 weeks gestational age (995 per 1,000 livebirths, compared with 1.1 per 1,000 babies with a gestational age of 36 weeks and over)
- born to mothers were underweight (10 per 1,000 livebirths, compared with 5.8 per 1,000 whose mothers were normal weight)

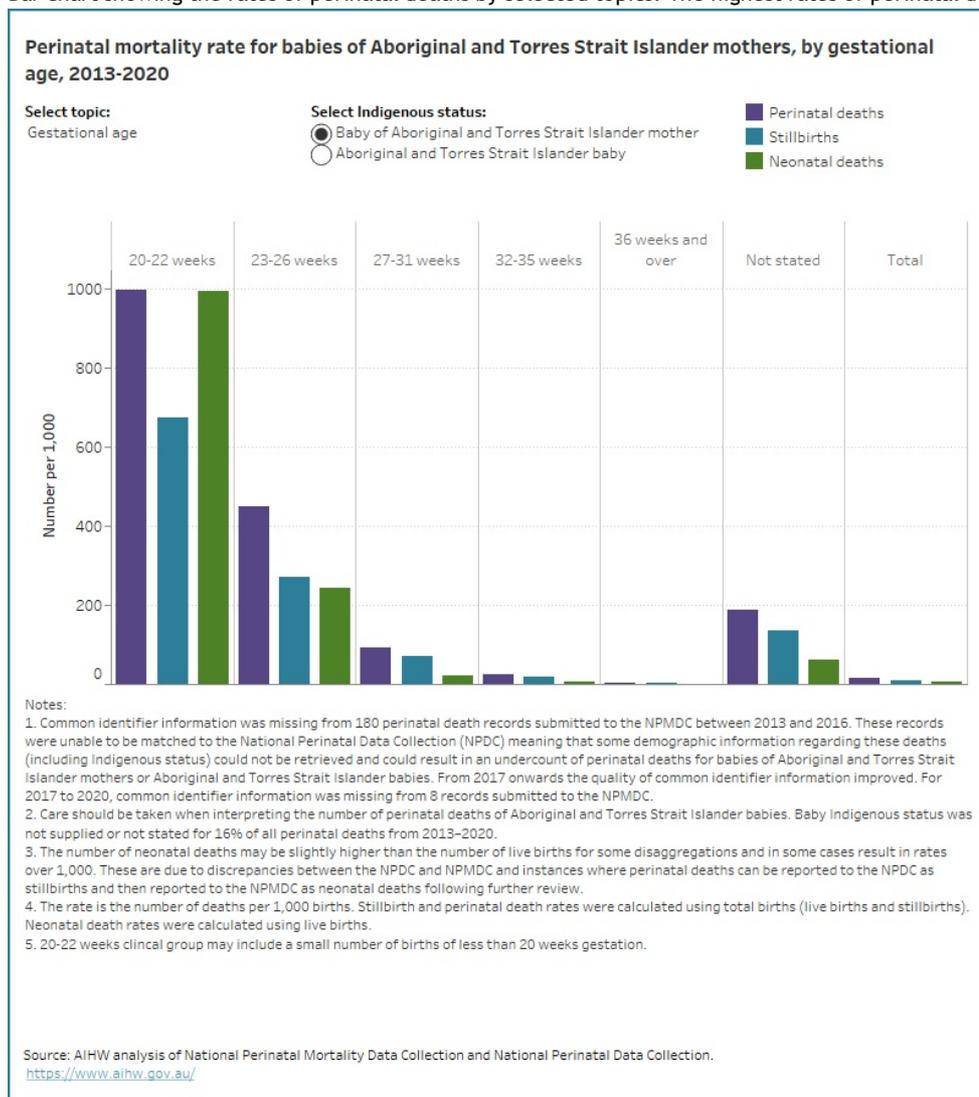
- born to mothers who lived in *Very remote* areas (8.9 per 1,000 livebirths, compared with 3.7 per 1,000 babies whose mothers lived in *Major cities*)
- born to mothers who had pre-existing diabetes (8.6 per 1,000 livebirths, compared with 6.6 per 1,000 with a diabetes status of none or not stated and 2.3 per 1,000 with gestational diabetes).

It is important to note that whilst the characteristics listed above are more commonly found in women with pregnancies resulting in stillbirth and neonatal death, it is not implied that they are the cause of perinatal deaths.

The data visualisation below presents data on perinatal deaths, stillbirths and neonatal deaths for selected maternal and baby characteristics, for babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies, for 2013 to 2020 combined.

**Figure 4: Perinatal mortality rate for babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies by selected topic for 2013 to 2020**

Bar chart showing the rates of perinatal deaths by selected topics. The highest rates of perinatal death occurred at 20-22 weeks gestation.



## Maternal and perinatal outcomes modelling

This report has shown that Aboriginal and Torres Strait Islander mothers have higher rates of smoking, obesity, and pre-existing diabetes, and lower rates of induced labour, caesarean section birth and episiotomy than non-Indigenous mothers.

In addition, babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies have higher rates of pre-term birth, low birthweight and being small for gestational age than babies of non-Indigenous mothers and non-Indigenous babies.

These findings were based on a comparison of proportions between groups for the characteristics of interest. However, this analysis does not consider the relationships between multiple characteristics and may not accurately reflect the importance of the characteristic on the outcome of interest.

Many of the topics covered in this report are complex and interrelated, and there are differences between the population of Aboriginal and Torres Strait Islander mothers and the population of non-Indigenous mothers. A multiple regression modelling approach was therefore used to look at the effect of Indigenous status on selected perinatal outcomes.

Multiple regression analyses can control for the effects of multiple characteristics at once and, as a result, can better estimate the influence of these characteristics on the outcome of interest.

The modelling was used to ascertain whether the risk of an outcome was higher, after accounting for the effect of possible confounding variables, for the populations of:

- Aboriginal and Torres Strait Islander females who gave birth compared with non-Indigenous females
- babies of Aboriginal and Torres Strait Islander mothers compared with babies of non-Indigenous mothers
- Aboriginal and Torres Strait Islander babies compared with non-Indigenous babies.

For most outcomes, the estimated relative difference (risk ratio) between Aboriginal and Torres Strait Islander mothers (or babies) and non-Indigenous mothers (or babies) was greatly reduced after adjusting for the confounding effect of the explanatory characteristics included in the models. Please note that there are many other potential confounding factors that are not included in the regression models, as these are not available from the National Perinatal Data Collection.

Some of the difference observed between Aboriginal and Torres Strait Islander and non-Indigenous mothers and babies can therefore be explained by differences in explanatory characteristics, such as maternal demographics and characteristics relating to the antenatal period, labour and birth, and birth outcomes. Addressing these differences would reduce the difference between the Aboriginal and Torres Strait Islander and non-Indigenous populations.

### Box 1: Interpreting results of perinatal outcome modelling

Variables that are included in a regression model to explain an outcome are called explanatory variables. By examining the relationships between multiple explanatory variables simultaneously and the outcome, regression modelling can assess the significance of each explanatory variable, while accounting for the effects of the other explanatory variables included in the model.

For this report, multiple log-binomial regression was used to produce adjusted risk ratios when an outcome was common (10% or more of both populations). A modified Poisson model was used to produce adjusted risk ratios when the outcome was rare (less than 10% of either or both populations).

A risk ratio is derived by comparing two groups for their risk of an event. It is calculated by dividing the risk of an outcome occurring for group 1 by the risk of an outcome occurring for group 2. If the risk ratio is:

- greater than 1.0 there is an increased risk of the outcome for the group of interest compared with the reference group
- less than 1.0 then there is a reduced risk of the outcome for the group of interest compared with the reference group
- equal to 1.0 then there is an identical risk for both groups.

This report presents both unadjusted risk ratios and adjusted risk ratios. The unadjusted risk ratios are based on the observed data, while the adjusted risk ratios are based on the model output (that is, the analysis of an outcome of interest for both populations, after adjusting for the confounding effect of factors included in the model).

Table 1 lists the explanatory variables included in the models. It is important to note that not all explanatory variables are relevant to all outcomes (see Table 2), and that explanatory variables were chosen based on their potential biological or social importance to the outcome and their availability in the data collection.

Table 1: Description of explanatory variables used in modelling

Explanatory variable	Description
Maternal Indigenous status	Indigenous status of the mother

Baby Indigenous status	Indigenous status of the baby
Maternal age	Grouped maternal age in completed years at delivery
Parity	Total number of previous pregnancies that resulted in a live or stillbirth
Remoteness area	Remoteness area of mother's usual residence
Socioeconomic status	SEIFA IRSD quintile of mother's usual residence
Duration of pregnancy at first antenatal visit	Grouped duration of pregnancy at first antenatal care visit
Number of antenatal visits	Grouped number of antenatal visits
Maternal smoking status	Maternal smoking status at any time during pregnancy
Maternal BMI	Grouped maternal body mass index
Maternal diabetes status	Maternal diabetes status of pre-existing diabetes, gestational diabetes or 'none or not stated diabetes'
Maternal hypertension status	Maternal hypertension status of pre-existing hypertension, gestational hypertension, or no hypertension
Hospital sector	Sector of the establishment where birth occurred
Onset of labour	The manner in which a labour started
Method for birth	How the baby was born
Gestational age	Duration of pregnancy in completed weeks
Birthweight	The first weight of the baby within an hour of birth
Birthweight adjusted for gestational age	Birthweight percentile for gestational age and sex as determined by national percentiles

Table 2: Outcome of interest and explanatory variables used in modelling

Outcome of interest	Explanatory variables
<b>Maternal risk factors</b>	
Smoked at any time during pregnancy	maternal Indigenous status, maternal age, parity, remoteness area and socioeconomic status
Pre-pregnancy obesity	maternal Indigenous status, maternal age, parity, remoteness area and socioeconomic status
Pre-existing diabetes	maternal Indigenous status, maternal age, parity, remoteness area and socioeconomic status
Gestational diabetes (for those don't have pre-existing diabetes)	maternal Indigenous status, maternal age, parity, remoteness area and socioeconomic status
Pre-existing hypertension	maternal Indigenous status, maternal age, parity, remoteness area and socioeconomic status
Gestational hypertension (for those don't have pre-existing hypertension)	maternal Indigenous status, maternal age, parity, remoteness area and socioeconomic status
<b>Birth outcomes</b>	

Induced labour	maternal Indigenous status, maternal age, parity, remoteness area, socioeconomic status, duration of pregnancy at first antenatal care visit, number of antenatal care visits, maternal smoking status, maternal BMI, maternal diabetes status, maternal hypertension status and hospital sector
Caesarean section birth	maternal Indigenous status, maternal age, parity, remoteness area, socioeconomic status, duration of pregnancy at first antenatal care visit, number of antenatal care visits, maternal smoking status, maternal BMI, maternal diabetes status, maternal hypertension status and hospital sector
No analgesia administered	maternal Indigenous status, maternal age, parity, remoteness area, socioeconomic status, duration of pregnancy at first antenatal care visit, number of antenatal care visits, maternal smoking status, maternal BMI, maternal diabetes status, maternal hypertension status and hospital sector
Had an episiotomy	maternal Indigenous status, maternal age, parity, remoteness area, socioeconomic status, duration of pregnancy at first antenatal care visit, number of antenatal care visits, maternal smoking status, maternal BMI, maternal diabetes status, maternal hypertension status and hospital sector
Maternal postnatal hospital stay <7 days	maternal Indigenous status, maternal age, parity, remoteness area, socioeconomic status, duration of pregnancy at first antenatal care visit, number of antenatal care visits, maternal smoking status, maternal BMI, maternal diabetes status, maternal hypertension status, hospital sector, onset of labour and method of birth
<b>Baby outcomes</b>	
Pre-term birth	maternal Indigenous status, baby Indigenous status, maternal age, parity, remoteness area, socioeconomic status, duration of pregnancy at first antenatal care visit, number of antenatal care visits, maternal smoking status, maternal BMI, maternal diabetes status, maternal hypertension status, hospital sector, onset of labour, method of birth and birthweight
Low birthweight	maternal Indigenous status, baby Indigenous status, maternal age, parity, remoteness area, socioeconomic status, duration of pregnancy at first antenatal care visit, number of antenatal care visits, maternal smoking status, maternal BMI, maternal diabetes status, maternal hypertension status, hospital sector, onset of labour, method of birth and gestational age
Small for gestational age	maternal Indigenous status, baby Indigenous status, maternal age, parity, remoteness area, socioeconomic status, duration of pregnancy at first antenatal care visit, number of antenatal care visits, maternal smoking status, maternal BMI, maternal diabetes status, maternal hypertension status, hospital sector, onset of labour and method of birth
Baby hospital stay greater than 7 days	maternal Indigenous status, baby Indigenous status, maternal age, parity, remoteness area, socioeconomic status, duration of pregnancy at first antenatal care visit, number of antenatal care visits, maternal smoking status, maternal BMI, maternal diabetes status, maternal hypertension status, hospital sector, onset of labour, method of birth, birthweight, gestational age and birthweight adjusted for gestational age

### Maternal risk factors for Aboriginal and Torres Strait Islander and non-Indigenous mothers

Modelling of maternal risk factors was undertaken to ascertain whether Aboriginal and Torres Strait Islander mothers were more likely than non-Indigenous mothers to have selected risk factors, after controlling for demographic and socioeconomic factors.

After adjusting for the confounding effect of factors included in the model, in comparison to non-Indigenous mothers, Aboriginal and Torres Strait Islander mothers were:

- 2.4 times as likely to smoke at any time during pregnancy
- 1.1 times as likely to be obese
- 2.0 times as likely to have pre-existing diabetes
- 1.2 times as likely to have gestational diabetes
- 1.6 times as likely to have pre-existing hypertension.

Both groups had a similar risk of gestational hypertension (Table 3).

Table 3: Unadjusted (crude) and adjusted risk ratios for select antenatal period outcomes, comparing Aboriginal and Torres Strait Islander females to non-Indigenous females who gave birth, 2017-2020

Outcome	Unadjusted risk ratio	Adjusted risk ratio <sup>(a)</sup>
Smoked at any time during pregnancy <sup>(b)</sup>	*5.61 (5.55-5.67)	*2.35 (2.32-2.39)
Pre-pregnancy obesity	*1.53 (1.01-1.51)	*1.14 (1.12-1.16)
Pre-existing diabetes <sup>(c)</sup>	*2.59 (2.45-2.75)	*2.03 (1.89-2.17)

Gestational diabetes <sup>(c)</sup> (excludes those with pre-existing diabetes)	*1.02 (0.99-1.04)	*1.16 (1.13-1.19)
Pre-existing hypertension <sup>(c)</sup>	*1.53 (1.40-1.66)	*1.64 (1.49-1.81)
Gestational hypertension <sup>(c)</sup> (excludes those with pre-existing hypertension)	0.99 (0.95-1.04)	1.06 (1.01-1.12)

a) Adjusted for explanatory variables listed at Table 2.

b) Mother's tobacco smoking status during pregnancy is self-reported.

c) Data excludes Vic.

\* p = <0.0001

### Birth outcomes for Aboriginal and Torres Strait Islander and non-Indigenous mothers

The purpose of modelling birth outcomes was to investigate whether Aboriginal and Torres Strait Islander mothers were more likely than non-Indigenous mothers to have selected birth outcomes, after controlling for demographic, socioeconomic, health care and known risk factors.

After adjusting for the confounding effect of factors included in the model, in comparison to non-Indigenous mothers, Aboriginal and Torres Strait Islander mothers were:

- 0.9 times as likely to have an episiotomy or
- 0.9 times as likely to have no analgesia administered
- 1.6 times as likely to have a postnatal stay in hospital of 7 days or more.

The risk of induced labour and caesarean section birth was similar for both groups (Table 4).

Table 4: Unadjusted (crude) and adjusted risk ratios for select labour and birth outcomes, comparing Aboriginal and Torres Strait Islander females to non-Indigenous females who gave birth, 2017-2020

Outcome	Unadjusted risk ratio	Adjusted risk ratio <sup>(a)</sup>
Induced labour <sup>(b)</sup>	0.98 (0.97-0.99)	0.99 (0.97-1.00)
Caesarean section birth <sup>(c)</sup>	*0.85 (0.84-0.86)	*1.02(1.01-1.02)
No analgesia administered <sup>(d)</sup>	*1.04 (1.02-1.06)	*0.89 (0.87-0.91)
Had an episiotomy <sup>(e)</sup>	*0.49 (0.48-0.51)	*0.87 (0.85-0.90)
Maternal postnatal hospital stay <7 days <sup>(f)</sup>	*1.78 (1.67-1.89)	*1.56 (1.44-1.70)

a) Adjusted for explanatory variables listed at Table 2.

b) 'Induced' may include cases where induction of labour was attempted but labour did not result.

c) For multiple births, the method of birth of the first-born baby was used.

d) Only women who had a spontaneous or induced labour are included.

e) Only women who gave birth vaginally are included.

f) Only includes women who were discharged home. Excludes women who gave birth in birth centres attached to hospitals. For multiple births, the length of stay after the birth of the first-born baby was used.

\* p = <0.0001

### Baby outcomes

Modelling was undertaken to explore whether babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies were more likely than babies of non-Indigenous mothers and non-Indigenous babies to have an outcome after controlling for demographic, socioeconomic, health care, obstetric and known risk factors.

### Babies of Aboriginal and Torres Strait Islander and non-Indigenous mothers

After adjusting for the confounding effect of factors included in the model, in comparison to babies of non-Indigenous mothers, babies of Aboriginal and Torres Strait Islander mothers were:

- 1.1 times as likely to be low birthweight

- 1.3 times as likely to be small for gestational age
- 1.2 times as likely to have a hospital stay of 7 days or more.

The risk of pre-term birth was similar for both groups (Table 5).

Table 5: Unadjusted (crude) and adjusted risk ratios for select baby outcomes, comparing babies of Aboriginal and Torres Strait Islander mothers to babies of non-Indigenous mothers, 2017-2020

Outcome	Unadjusted risk ratio	Adjusted risk ratio <sup>(a)</sup>
Pre-term birth	*1.65 (1.62-1.69)	1.04 (1.01-1.06)
Low birthweight <sup>(b)</sup>	*1.88 (1.83-1.92)	*1.12 (1.01-1.15)
Small for gestational age <sup>(c)</sup>	*1.47 (1.44-1.51)	*1.25 (1.22-1.28)
Baby hospital stay greater than 7 days <sup>(d)</sup>	*1.90 (1.84-1.96)	*1.18 (1.13-1.22)

a) Adjusted for explanatory variables listed at Table 2

b) Includes liveborn babies only.

c) Includes liveborn singleton babies only.

d) Includes liveborn babies born in hospital and discharged home.

\* = p <0.0001

### Aboriginal and Torres Strait Islander and non-Indigenous babies

After adjusting for the confounding effect of factors included in the model, in comparison to non-Indigenous babies, Aboriginal and Torres Strait Islander babies were:

- 1.1 times as likely to have a low birthweight
- 1.2 times as likely as non-Indigenous babies to be small for gestational age
- 1.2 times as likely to have a hospital stay of 7 days or more.

The risk of pre-term birth was similar for both groups (Table 6).

Table 6: Unadjusted (crude) and adjusted risk ratios for select baby outcomes, comparing Aboriginal and Torres Strait Islander babies to non-Indigenous babies, 2017-2020

Outcome	Unadjusted risk ratio	Adjusted risk ratio <sup>(a)</sup>
Pre-term birth	*1.58 (1.55-1.61)	1.03 (1.01-1.06)
Low birthweight <sup>(b)</sup>	*1.77 (1.73-1.81)	*1.11 (1.08-1.14)
Small for gestational age <sup>(c)</sup>	*1.41 (1.38-1.44)	*1.20 (1.17-1.23)
Baby hospital stay greater than 7 days <sup>(d)</sup>	*1.80 (1.75-1.86)	*1.17 (1.13-1.21)

a) Adjusted for explanatory variables listed at Table 2

b) Includes liveborn babies only.

c) Includes liveborn singleton babies only.

d) Includes liveborn babies born in hospital and discharged home.

\* = p <0.0001

### Summary

Aboriginal and Torres Strait Islander mothers had a higher risk of smoking during pregnancy, obesity, pre-existing diabetes and a postnatal hospital stay of 7 days or more, when compared with non-Indigenous mothers, for both unadjusted and adjusted risk ratios.

However, when comparing the relative difference between Aboriginal and Torres Strait Islander and non-Indigenous mothers, this difference was reduced after adjusting for confounding factors. This suggests that a large component of the difference in risks between the two groups is associated with the differences in the explanatory variables entered into the model.

Interestingly, some outcomes for Aboriginal and Torres Strait Islander mothers showed a slightly increased relative difference in risk when comparing unadjusted and adjusted risk ratios, including gestational diabetes and pre-existing hypertension. This was also seen for the labour and birth interventions of caesarean section birth - which showed a similar reduction in the difference in risks for both Aboriginal

and Torres Strait Islander and non-Indigenous mothers after adjusting for confounding - and episiotomy.

The pattern seen for both babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies was the same, although risk ratios differed slightly. Both babies of Aboriginal and Torres Strait Islander mothers and Aboriginal and Torres Strait Islander babies had a higher risk of pre-term birth, being of low birthweight, being small for gestational age and having a hospital stay of 7 days or more, when compared with babies of non-Indigenous mothers and non-Indigenous babies.

However, after controlling for the effect of explanatory variables included in the model, the adjusted differences (risk ratios), of these outcomes are reduced for both groups. These findings indicate that the differences in perinatal outcomes between babies of Aboriginal and Torres Strait Islander mothers and babies of non-Indigenous mothers, and Aboriginal and Torres Strait Islander babies and non-Indigenous babies, are largely associated with the explanatory variables entered into the model.

Where the estimated relative difference remains high for an Aboriginal or Torres Strait Islander mother or baby after adjusting for potential confounding, this is potentially due to limitations in data availability - such as alcohol consumption during pregnancy, which is available but has not been collected long enough to include in the modelling - rather than a reflection of intrinsic risk in the population.

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## Technical notes

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## Technical notes

### National Perinatal Data Collection

The National Perinatal Data Collection (NPDC) began in 1991 and is a national population-based cross-sectional collection of data on pregnancy and childbirth. The NPDC collects national information on the pregnancy and childbirth of mothers, and the characteristics and outcomes of their babies. A standard de-identified extract is provided from states and territories to the Australian Institute of Health and Welfare (AIHW) on an annual basis to form the NPDC.

Detailed information on completeness, accuracy and other aspects of data quality for the NPDC is in the [data quality statement](#).

A standardised extract of electronic data from each state and territory collection is provided to the Australian Institute of Health and Welfare (AIHW) annually. Records received from states and territories are anonymous: that is, they do not include any names or addresses, but do include a unique set of identification numbers so that the source record can be identified. Data are checked for completeness, validity and logical errors before inclusion in the national collection.

### National Maternal Mortality Data Collection

The National Maternal Mortality Data Collection (NMMDC) is a population-based cross-sectional collection of data on the deaths of women reported to have died while pregnant or within 42 days of the end of pregnancy. Data are provided by the states and territories.

Due to its health and privacy legislation, only limited summary data on maternal deaths from 2006-2020 were supplied by Western Australia. As these data provided are already aggregated, rather than provided by case, they cannot be included in the NMMDC but are included in analysis where possible.

Detailed information on completeness, accuracy and other aspects of data quality for the NMMDC is in the [data quality statement](#).

### National Perinatal Mortality Data Collection

The National Perinatal Mortality Data Collection (NPMDC) is a population-based cross-sectional collection of data regarding the deaths of babies in hospitals and in the community, and includes all neonatal deaths and stillbirths of a baby at least 20 weeks' gestation or at least 400 grams birthweight, during pregnancy, birth or within 28 days of birth.

The NPMDC commenced with the 2013 birth cohort and builds on information collected in the NPDC. Common identifier fields in the NPDC and NPMDC allow demographic information regarding perinatal death records in the NPMDC to be retrieved from the NPDC for reporting.

There are 33 voluntary data items collected in the NPMDC which are supplied by state and territory health authorities using a standard de-identified extract to the AIHW on an annual basis. Data specifications supplied to jurisdictions for collection are included in the related data tables.

Detailed information on completeness, accuracy, and other aspects of data quality for the NPMDC is in the [data quality statement](#).

For definitions related to the data sources see [Glossary](#).

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## Technical notes

Some topics in this report may exclude data for selected states and territories for reasons including:

- changes in definitions or data collection methods in a state and territory that mean the data item is not comparable over time (trend analyses only)
- data are not currently collected by a state and territory, or are not collected in a format that is comparable with the specifications for the NPDC, NPMDC or the NMMDC
- data are not currently supplied by a state and territory for the NPDC, NPMDC or NMMDC. Data items that are not part of the Perinatal NMDS are not mandatory for provision to the NPDC, and there are currently no Perinatal NMDS items in the NPMDC.

NPDC, NPMDC and NMMDC exclusions are noted in footnotes under data visualisations, and are also available in the accompanying data tables. These exclusions apply to both the numerator and denominator for rate calculations, and the data presented are not representative of the jurisdictions excluded.

Detailed information on completeness for all NPDC data items used in the web report and data visualisations is available in the [National Perinatal Data Collection data availability resource](#) interactive data visualisation tool. Note that this includes jurisdictions that provided data only.

### Quality of data for reporting Indigenous status

Indigenous status is a measure of whether a person identifies as being of Aboriginal and/or Torres Strait Islander origin. Indigenous status of the mother has been a mandatory data item for the Perinatal NMDS since its inception in 1997. Indigenous status of the baby was also added to the NMDS for collection for the first time in the 2012-13 reference year (from 1 July 2012).

This item, when used in conjunction with the mother's Indigenous status, is a better baseline measure of health for all Indigenous children. However, the outcomes of babies of Indigenous mothers remain a key data resource for assessing antenatal care in pregnancy and other interventions before or during pregnancy, aimed at improving the health of mothers and babies.

Unless otherwise stated, data for babies are based on the Indigenous status of the mother.

Table 1 shows the relationship between Indigenous status of the mother and Indigenous status of the baby in 2020. Most babies (97%) had the same Indigenous status as their mother while only a small proportion had a different Indigenous status recorded (2.0%). However, of the 18,228 babies reported as Indigenous in the NPDC in 2020 (6.2% of all babies), one-quarter (27%) were born to non-Indigenous mothers.

Table 1: Births, by Indigenous status of the baby and mother, 2020

Indigenous status of the mother	Indigenous baby	Non-Indigenous baby	Not stated baby	Total
<b>Indigenous mother</b>	13,315 (4.5%)	1,145 (0.4%)	145 (0.0%)	<b>14,605</b> <b>(4.9%)</b>
<b>Non-Indigenous mother</b>	4,905 (1.7%)	272,432 (92.0%)	2,934 (1.0%)	<b>280,271</b> <b>(94.7%)</b>
<b>Not stated mother</b>	8 (0.0%)	856 (0.3%)	236 (0.1%)	<b>1,100</b> <b>(0.4%)</b>
<b>Total</b>	<b>18,228</b> <b>(6.2%)</b>	<b>274,433</b> <b>(92.7%)</b>	<b>3,315</b> <b>(1.1%)</b>	<b>295,976</b> <b>(100.0%)</b>

## Technical notes

### Maternal mortality ratio

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

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

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

(a) For a defined place and time.

### Perinatal mortality rates

#### Calculation of stillbirth rate

The stillbirth rate is calculated as the proportion of births in a specified population which are stillbirths. This proportion is expressed in relation to all births.

$\text{Stillbirth rate} = \text{Number of stillbirths} \times 1,000 / \text{Total number of births}$

#### Calculation of neonatal mortality rate

The neonatal mortality rate is calculated as the proportion of births in a specified population which are live born and subsequently die within 28 days of birth (neonatal deaths). This proportion is expressed in relation to all live births.

$\text{Neonatal mortality rate} = \text{Number of neonatal deaths} \times 1,000 / \text{Number of live births}$

#### Calculation of perinatal mortality rate

The perinatal mortality rate is calculated as the proportion of births in a specified population which are stillbirths or neonatal deaths (perinatal deaths). This proportion is expressed in relation to all births.

$\text{Perinatal mortality rate} = \text{Number of perinatal deaths} \times 1,000 / \text{Total number of births}$

### Geography

Geographic data are based on the usual residence of the mother. Between 2016 to 2020, the usual residence of the mother is based on Statistical Area Level 2 (SA2) of the Australian Bureau of Statistics Australian Statistical Geography Standard Edition 2016 for all states and territories.

### Indigenous region

Indigenous Regions (IREG) were developed by the Australian Bureau of Statistics (ABS) as part of the 2016 Australian Statistical Geography Standard (ASGS). IREGs are large geographic areas which are based on the former Aboriginal and Torres Strait Islander Commission boundaries, and cover the whole of Australia without gaps or overlaps i.e. they do not cross state and territory borders. It is important to note that IREG structure does not account for the diverse Aboriginal and Torres Strait Islander communities and language groups within the geographic area (ABS 2018a).

Perinatal data at Statistical Area Level 2 (SA2) were linked to 2016 IREGS using Australian Bureau of Statistics correspondence files.

### Primary Health Network

Primary Health Networks (PHNs) have been established by the Department of Health to increase the efficiency and effectiveness of medical services and improve the coordination of care for patients.

Perinatal data at Statistical Area Level 2 (SA2) were linked to 2017 PHNs using Australian Bureau of Statistics correspondence files.

The relevant proportion for each PHN was then calculated, and categories were developed based on the median, interquartile ranges and 10th and 90th percentiles for the proportions at the PHN level. The categories were then adjusted to account for natural breaks in the distribution of the data and for easier interpretation (for example, a range with a maximum of 52.1% of mothers receiving antenatal care in the first trimester would be revised to a maximum of 50%). PHNs were allocated to categories based on unrounded proportions.

### Remoteness

This report uses the Australian Statistical Geography Standard Remoteness Structure, which groups geographic areas into six classes of Remoteness Area based on their relative access to services using the Accessibility/Remoteness Index of Australia.

The six classes are: *Major cities, Inner regional, Outer regional, Remote, Very remote* and *Migratory*, see the *Australian Statistical Geography Standard (ASGS): Volume 5 - Remoteness Structure, July 2016* (ABS 2018b).

Remoteness data used in this report are derived by applying this classification to the mother's usual area of residence in the NPDC. Remoteness area was calculated where geographic area of usual residence was provided.

### **Socioeconomic status**

The Socio-Economic Indexes for Areas (SEIFA) are measures of socioeconomic status (SES) that summarise a range of socioeconomic variables associated with disadvantage. Socioeconomic disadvantage is typically associated with low income, high unemployment and low levels of education.

The SEIFA index used in this report is the 2016 SEIFA Index of Relative Socioeconomic Disadvantage (IRSD) developed by the Australian Bureau of Statistics for use at Statistical Area Level 2.

Since the IRSD summarises only variables that indicate disadvantage, a low score indicates that an area has many low-income families, many people with little training and many people working in unskilled occupations; hence, this area may be considered disadvantaged relative to other areas. A high score implies that the area has few families with low incomes and few people with little or no training and working in unskilled occupations. These areas with high index scores may be considered less disadvantaged relative to other areas. It is important to understand that a high score reflects a relative lack of disadvantage rather than advantage and that the IRSD relates to the average disadvantage of all people living in a geographic area. It cannot be presumed to apply to all individuals living within the area.

Population-based Australian cut-offs for SEIFA quintiles have been used in this report. This method ranks the SEIFA scores for a particular geography (for example, Statistical Area Level 2) from lowest to highest, and the geographical areas are divided into 5 groups, such that approximately 20% of the population are in each group.

The most disadvantaged group is referred to as the *Lowest socioeconomic status (SES) areas* and the least disadvantaged group is referred to as the *Highest SES areas*.

See the *Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia, 2016* (ABS 2018c) for further information on SEIFA.

### **Statistical Area Level 3**

Statistical Areas Level 3 (SA3) are geographical areas built from whole Statistical Areas Level 2 (SA2) and are designed for the output of regional data. SA3s create a standard framework for the analysis of ABS data at the regional level through clustering groups of SA2s that have similar regional characteristics. Whole SA3s aggregate to form Statistical Areas Level 4 (SA4). There are 358 spatial SA3 regions covering the whole of Australia without gaps or overlaps (ABS 2018d).

Perinatal data at Statistical Area Level 2 (SA2) were linked to Statistical Area Level 3 (SA3) using Australian Bureau of Statistics correspondence files.

### **Confidentiality**

To maintain privacy and confidentiality of individuals, cells in the data tables are suppressed if there is a risk of disclosure of an attribute of an individual that was not already known. A cell in a table is considered identifiable if, as well as being able to identify the entity, other details are also revealed. It is AIHW policy that these cells need to be confidentialised, unless the attribute that would be disclosed is deemed to be non-sensitive in the context of the data being published.

### **Small numbers**

Numbers of less than 5 have not been published (n.p.), in line with guidelines for protecting the privacy of individuals. Exceptions to this are small numbers in 'Other' and 'Not stated' categories. Consequential suppression of numbers has also been applied where required to prevent back-calculation of small numbers. However, all suppressed numbers have been included in the totals.

Per cents based on denominators of less than 100 have also been suppressed (n.p.) for reliability reasons.

### **Australian national birthweight percentiles by gestational age**

Birthweight percentiles were calculated from data on all liveborn singleton babies born in Australia between 2004 and 2013 with a gestational age of 20-44 weeks.

Records with indeterminate sex were excluded from analysis. Records with missing or not stated data for sex, birthweight or gestational age were also excluded. Birthweight outliers were calculated and excluded using a method based on Tukey's box and whisker plots.

Gestational age is reported in completed weeks of gestation, calculated from the first day of the last menstrual period (LMP) or estimated by prenatal and/or postnatal assessment if the LMP date was missing. Birthweight is reported to the nearest 5 grams.

Small for gestational age is defined as babies with birthweight below the 10th percentile according to the national birthweight percentiles for 2004 to 2013.

## References

ABS (Australian Bureau of Statistics) (2018a), Australian Statistical Geography Standard (ASGS): Volume 2 - Indigenous Structure, July 2016. ABS cat. no. 1270.0.55.002. Canberra: ABS.

ABS (Australian Bureau of Statistics) (2018b), Australian Statistical Geography Standard (ASGS): Volume 5 - Remoteness Structure, July 2016. ABS cat. no. 1270.0.55.005. Canberra: ABS.

ABS (2018c), Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia, 2016. ABS cat. no. 2033.0.55.001. Canberra: ABS.

ABS (2018d), Australian Statistical Geography Standard (ASGS): Volume 1 - Main structure and Greater Capital City Statistical Areas, July 2016. ABS cat. no. 1270.0.55.001. Canberra: ABS.

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## Notes

### Acknowledgements

The AIHW acknowledges Aboriginal and Torres Strait Islander people as the traditional custodians of this land. We pay our respects to Elders, past, present and emerging.

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# Data

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## Related material

### Related topics

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