

1 Introduction

Indigenous mothers and their babies, Australia 2001–2004 has been prepared by the Australian Institute of Health and Welfare's (AIHW) National Perinatal Statistics Unit (NPSU) in collaboration with the AIHW's Aboriginal and Torres Strait Islander Health and Welfare Unit (ATSIHWU). It has been funded by the Office for Aboriginal and Torres Strait Islander Health (OATSIH) of the Australian Government Department of Health and Ageing.

This report follows *Indigenous mothers and their babies, Australia 1994–1996* (Day et al. 1999). It provides national information on the pregnancy and childbirth of Indigenous mothers, and the characteristics and outcomes of their babies. It also presents trends data on Indigenous mothers and their babies over the period 1991–2004. The report is based mainly on data from the National Perinatal Data Collection (NPDC). Chapter 5 of this report contains information on the ascertainment and quality of Indigenous data in the NPDC.

The purpose of *Indigenous mothers and their babies, Australia 2001–2004* is to provide Australia with epidemiological information including statistics on the Indigenous women who gave birth to liveborn or stillborn babies in 2001–2004, and on their babies. Some data on non-Indigenous women who gave birth and their babies are presented for comparison. The report also examines the quality of Indigenous data in the NPDC and changes over time in various maternal demographic characteristics and maternal and perinatal outcomes.

This report will be helpful to researchers, academics, students, policy makers and health service planners, and those providing services in reproductive health. The information presented can be used in developing policies and health services for Indigenous mothers and their babies and can assist in evaluating the impact of those policies and health service initiatives.

Key maternal factors and perinatal outcomes

Women who identified as being Aboriginal or Torres Strait Islander represented 3.6% of women who gave birth in Australia in 2004 (Laws et al. 2006a). In general, Indigenous mothers have fewer interventions during labour and birth compared with non-Indigenous women. However, the maternal and perinatal outcomes of Indigenous mothers and their babies have consistently been shown to be poorer than those of non-Indigenous mothers. Some factors influencing these outcomes in Indigenous women who give birth include maternal age, remoteness, socioeconomic status, nutrition and smoking during pregnancy.

Indigenous mothers are, on average, 5 years younger than their non-Indigenous counterparts, and are more likely to give birth during their teenage years (Laws et al. 2006a; Powell & Dugdale 1999). In addition, Indigenous women generally have higher parity (number of previous births), are more often single, and have been shown to have poorer attendance for antenatal care (Panaretto et al. 2002).

Healthy babies are less likely to be born to Indigenous mothers who reside in remote areas, compared with women in city or regional areas (Graham et al. 2007). Approximately half of Indigenous mothers report smoking during their pregnancy and the proportion increases in more remote areas (Laws et al. 2006b). Maternal smoking during pregnancy has been shown to be associated with poor perinatal outcomes such as low birthweight, preterm birth and babies that are small for their gestational age (Chan et al. 2001).

Low birthweight, a key indicator of health status, is more common in babies born to Indigenous mothers, compared with babies born to non-Indigenous mothers (Panaretto et al. 2002; Powell & Dugdale 1999). Babies of Aboriginal mothers have been found more likely to be born preterm (Mohsin et al. 2003) and small for gestational age (DHS 2007). Reported fetal and neonatal death rates are higher in babies of Indigenous mothers compared with babies of non-Indigenous mothers (ABS & AIHW 2005).

The Perinatal National Minimum Data Set

A National Minimum Data Set (NMDS) is a core set of data elements agreed to by the Statistical Information Management Committee and endorsed by the National Health Information Management Principal Committee for mandatory collection and reporting at a national level. An NMDS depends on a national agreement to collect uniform data and to supply it as part of a national collection (HDSC 2006). Definitions of all data elements included in National Minimum Data Sets are included in the AIHW's online metadata registry, METeOR.

The Perinatal NMDS is a specification for data collected on all births in Australia in hospitals, birth centres and the community. Data are collected from perinatal administrative and clinical record systems and forwarded regularly to the relevant state or territory health authority. Data for the year ending 31 December are then provided annually to the NPSU for national collation.

The Perinatal NMDS was first specified in 1997. It includes data items relating to the mother, including demographic characteristics and factors relating to the pregnancy, labour and birth, and data items relating to the baby, including birth status, sex and birthweight. Indigenous status is included in the Perinatal NMDS. Current definitions are available in the *National health data dictionary* (NHDD), Version 13 (HDSC 2006) and on METeOR online at <<http://meteor.aihw.gov.au>>.

Key data sources

National Perinatal Data Collection

The national data on births are based on notifications to the perinatal data collection in each state and territory. Midwives and other staff, using information obtained from mothers and from hospital or other records, complete notification forms for each birth in each jurisdiction. Information is included in the NPDC for all live births and stillbirths of at least 400 grams birthweight or at least 20 weeks gestation.

Each state and territory collects more information than is specified on the Perinatal NMDS, and the NPSU requests some of these additional items. The information includes characteristics of the mother, such as previous pregnancies and smoking during pregnancy, and information about the baby, such as neonatal death.

The state and territory health authorities undertake data processing, analysis and publication of reports. Each state and territory provided data in an electronic format to the NPSU. Because of data editing and subsequent updates of state and territory databases, the numbers in this report may differ slightly from those in reports published by the states and territories.

Australian Bureau of Statistics

The Australian Bureau of Statistics (ABS) compiles statistics and publishes reports on registrations of live births and perinatal deaths from data made available by the Registrar of Births, Deaths and Marriages in each state and territory. These data are used to compile vital statistics, and are administrative data collections that are routinely reported on year of registration rather than year of birth or year of death.

Data quality

The data received from states and territories are checked for completeness, validity and logical errors. Changes are made as necessary in consultation with the state and territory perinatal data providers.

The Australian Capital Territory data include a high proportion of New South Wales residents who gave birth in the Australian Capital Territory (15.1% in 2001–2004). It is important to recognise that health services in the Australian Capital Territory provide high-level perinatal care for high-risk and multiple pregnancies to residents of the surrounding regions of New South Wales. This results in larger proportions of associated poorer perinatal outcomes in relation to the number of births in the Australian Capital Territory, therefore inflating percentages and rates for preterm births, low birthweight births and perinatal deaths. In relation to Indigenous mothers, the percentage of non-ACT residents who identified as Indigenous (2.6%) was double the rate for ACT residents who identified as Indigenous (1.3%) during the period 2001–2004.

Quality of Indigenous status data

All states and territories have a data item to record Indigenous status on their perinatal form, although there are some differences among the jurisdictions. According to the NHDD, Indigenous status is a measure of whether a person identifies as being of Aboriginal or Torres Strait Islander origin (NHDC 2003). This separately identifies mothers as those of Aboriginal and Torres Strait Islander origin, and non-Indigenous mothers. No information is collected about the father's or baby's Indigenous status.

All jurisdictions are working towards improving the ascertainment of Indigenous status in their perinatal collections. The AIHW's Aboriginal and Torres Strait Islander Health and Welfare Unit has conducted a project to assess the data quality and ascertainment of Indigenous data in Australia which is outlined in Chapter 5 of this report.

Data on Indigenous status for Tasmania from the NPDC are not presented in this report because of quality issues. There are large fluctuations from year to year in the number of Indigenous mothers reported. In addition, in the extract provided to the NPSU, the 'Not stated' category for Indigenous status was not able to be distinguished from the 'Neither Aboriginal nor Torres Strait Islander origin' category. In the Council of Obstetric and Paediatric Mortality and Morbidity (Tasmania) annual report for 2004, only 0.7% of mothers were reported as having a 'Not stated' Indigenous status, 97% were reported as being of neither Aboriginal nor Torres Strait Islander origin, and 2.4% as Aboriginal or Torres Strait Islander (DHHS 2006:42). For 2003, 44% of mothers had a 'Not stated' Indigenous status (DHHS 2005:47). The Department of Health and Human Services in Tasmania is actively pursuing improvements in the collection and provision of Indigenous status data and more complete data are expected for 2005 births.

Western Australian data for Indigenous status is drawn from two sources. Western Australia has supplied Indigenous status for 2001, 2002 and 2004 mainly from their hospital morbidity system in which Indigenous status is collected using the NHDD data element. If data are missing or the mother did not give birth in hospital, Indigenous status is taken from the Notification of Case Attended form, completed by the midwife. This differs from the data source for 2003, where Indigenous status data provided to the NPSU were collected via the Western Australian perinatal form in the categories of 'Caucasian', 'Aboriginal/Torres Strait Islander' and 'Other'.

There are a small number of Aboriginal and Torres Strait Islander mothers who give birth in the Australian Capital Territory, and the proportion fluctuates from year to year, making this jurisdiction less comparable to other jurisdictions. In 2004, 54 of the 73 Aboriginal or Torres Strait Islander women who gave birth in the Australian Capital Territory were ACT residents.

Structure of this report

This report is divided into six chapters:

Chapter 1 (Introduction) provides background information, describes the data sources and briefly discusses their overall limitations.

Chapter 2 (Summary data) contains summary information on the Indigenous population and Indigenous mothers and their babies. It also includes a comparison of the NPDC with birth registration data from the ABS.

Chapter 3 (Indigenous mothers) contains information on Indigenous women who gave birth in 2001–2004, including their demographic profile (e.g. maternal age), maternal characteristics (e.g. parity), and characteristics of the labour, birth and puerperium (e.g. onset of labour, method of birth).

Chapter 4 (Babies of Indigenous mothers) contains information on the characteristics and outcomes of babies born to Indigenous mothers including birth status, birthweight, gestational age, sex ratios and length of stay in hospital.

Chapter 5 (Data ascertainment and quality) contains information on the ascertainment and quality of Indigenous status data in the NPDC.

Chapter 6 (Trends) presents data on various characteristics of Indigenous mothers and their birth outcomes over the period 1991–2004. This chapter looks specifically at data on caesarean sections, maternal age, fetal deaths, birthweight and gestational age.

The Appendix consists of technical notes describing methods and calculations used in the report and explanatory notes regarding the data and terminology used. Tabulated data in this report are based on births in each state and territory in 2001–2004, meeting the criteria for inclusion in the NPDC. Each state and territory has developed its own form and/or electronic system for collecting perinatal data, often to maintain compatibility with its other data collections. Unless otherwise stated, the data in this report relate to the state or territory of occurrence of births in 2001–2004 rather than to the state or territory of usual residence of the mother. Data are presented for all states and territories except Tasmania. Although the perinatal collections are based on an NMDS, in some jurisdictions the data are collected in different categories. Where data are not available from all states and territories in the required format, this is indicated in the footnotes of tables or figures. For additional information on the presentation of data in this report see Appendix: Technical and explanatory notes.

2 Summary data

Summary

For 2001–2004, 35,264 women who identified as being Aboriginal or Torres Strait Islander were reported as giving birth to 35,682 babies in the National Perinatal Data Collection (NPDC) (Table 2.1). Babies born to Indigenous mothers represented 3.6% of all births in the period 2001–2004.

Live births to Indigenous mothers increased and fetal deaths decreased over the period 2001–2004. There was an average annual increase in liveborn babies born to Indigenous mothers of around 1%, and an annual average decrease in fetal deaths of around 5% (Table 2.2).

A comparison of the NPDC with the Australian Bureau of Statistics (ABS) birth registration data, which include paternal Indigenous status, showed that during the period 2001–2003, almost 5,700 more Indigenous births were identified in the ABS data collection than in the NPDC. When only live births to Indigenous mothers were considered, the NPDC contained 13% more live births (Table 2.3).

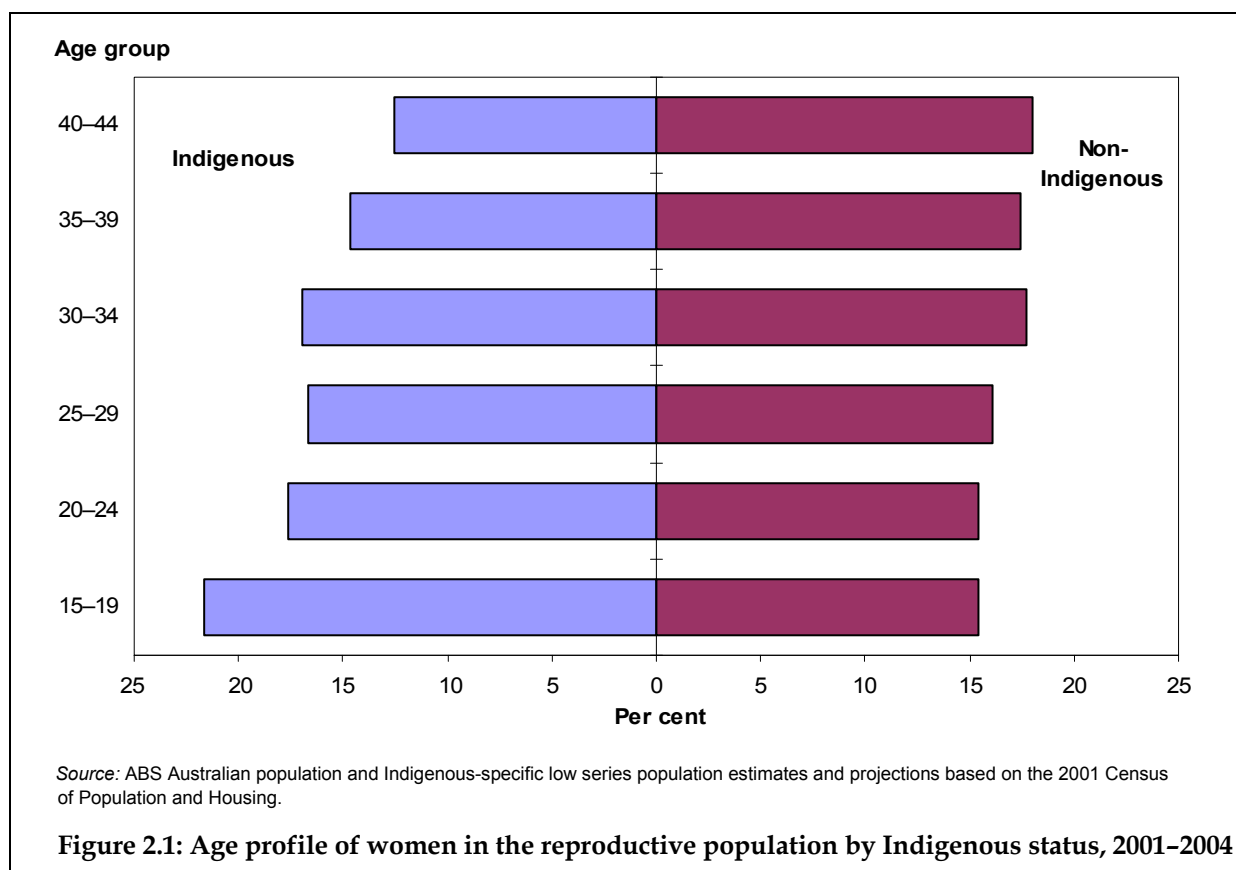
Age-standardised rate ratios for selected summary variables comparing Indigenous with non-Indigenous mothers and their babies showed that the proportion of Indigenous mothers who smoked during pregnancy was three times the proportion observed among non-Indigenous mothers. Compared with non-Indigenous mothers, Indigenous mothers had fewer instrumental vaginal deliveries in 2001–2004. The proportions of preterm birth and liveborn low birthweight babies of Indigenous mothers were twice the proportion in babies of non-Indigenous mothers (Table 2.4).

Indigenous population

The estimated resident Aboriginal or Torres Strait Islander population in Australia was 458,500 as of 30 June 2001, or 2.4% of the total Australian population (ABS 2004). The Indigenous population has been growing over time with an average annual growth rate of 2.0% over the period from 1996 to 2001. According to a 'low series projection', this population is expected to grow to 528,600 in 2009. This 'low series projection' does not reflect unexplained increases in the population and assumes that all changes in population over time are a result of natural increase (ABS 2004).

The age structure of the Indigenous population is considerably younger than the age structure of the Australian population. At 30 June 2001, the median age of the Indigenous population (20.5 years) was 16 years younger than the median age of the Australian population (36.1 years). There were 108,686 Indigenous women in the reproductive age group of 15–44 years in 2001, accounting for 47% of the total Indigenous female population (ABS 2004).

Of Indigenous women in the population of reproductive age in 2001–2004, the highest percentage were aged 15–19 years (22%), followed by 18% aged 20–24 years, 17% aged 25–29 and 30–34 years, and 15% aged 35–39 years. Only 13% were aged 40–44 years (Figure 2.1).



Non-Indigenous women in the reproductive population had an older age structure. The highest proportions of non-Indigenous women of reproductive age were 30–34 years and 40–44 years (both 18%), and the proportions in the other age groups ranged from 15% to 17%.

Indigenous women and births

In 2001–2004, 35,264 women who identified as being Aboriginal or Torres Strait Islander gave birth in Australia, resulting in 35,682 Indigenous births. Of these births, 35,258 were live births and 424 were fetal deaths (Table 2.1). There were 948,573 non-Indigenous mothers who gave birth in 2001–2004 resulting in 965,043 births. Of these, 958,472 were live births and 6,571 were fetal deaths. Indigenous mothers represented 3.5% of all women who gave birth in 2001–2004.

Queensland had the highest number of births to Indigenous mothers in 2001–2004 (11,170) followed by New South Wales (8,843), Western Australia (6,251) and the Northern Territory (5,665). The Australian Capital Territory had the least, with only 284 births. In percentage terms, the Northern Territory had the highest proportion of Indigenous women who gave birth during 2001–2004 (39%), followed by Western Australia (6%) and Queensland (6%) (Figure 2.2).

Indigenous data were not available for Tasmania over this period. In total there were 22,086 reported women who gave birth and 22,462 babies born in this state.

Table 2.1: Women who gave birth and births by Indigenous status and state and territory, 2001–2004

Indigenous status	NSW	Vic	Qld	WA	SA	ACT ^(a)	NT	Total
Indigenous mothers	8,734	1,633	11,041	6,164	1,793	277	5,622	35,264
Births to Indigenous mothers	8,843	1,655	11,170	6,251	1,814	284	5,665	35,682
Live births	8,752	1,627	11,049	6,167	1,784	277	5,602	35,258
Fetal deaths	91	28	121	84	30	7	63	424
Non-Indigenous mothers	329,386	246,418	185,723	92,116	67,800	18,357	8,773	948,573
Births to non-Indigenous mothers	334,893	250,850	188,960	93,681	69,000	18,763	8,896	965,043
Live births	332,848	248,842	187,736	93,052	68,541	18,613	8,840	958,472
Fetal deaths	2,045	2,008	1,224	629	459	150	56	6,571
All births^(b)	343,736	252,505	200,130	99,932	70,814	19,047	14,561	1,000,725

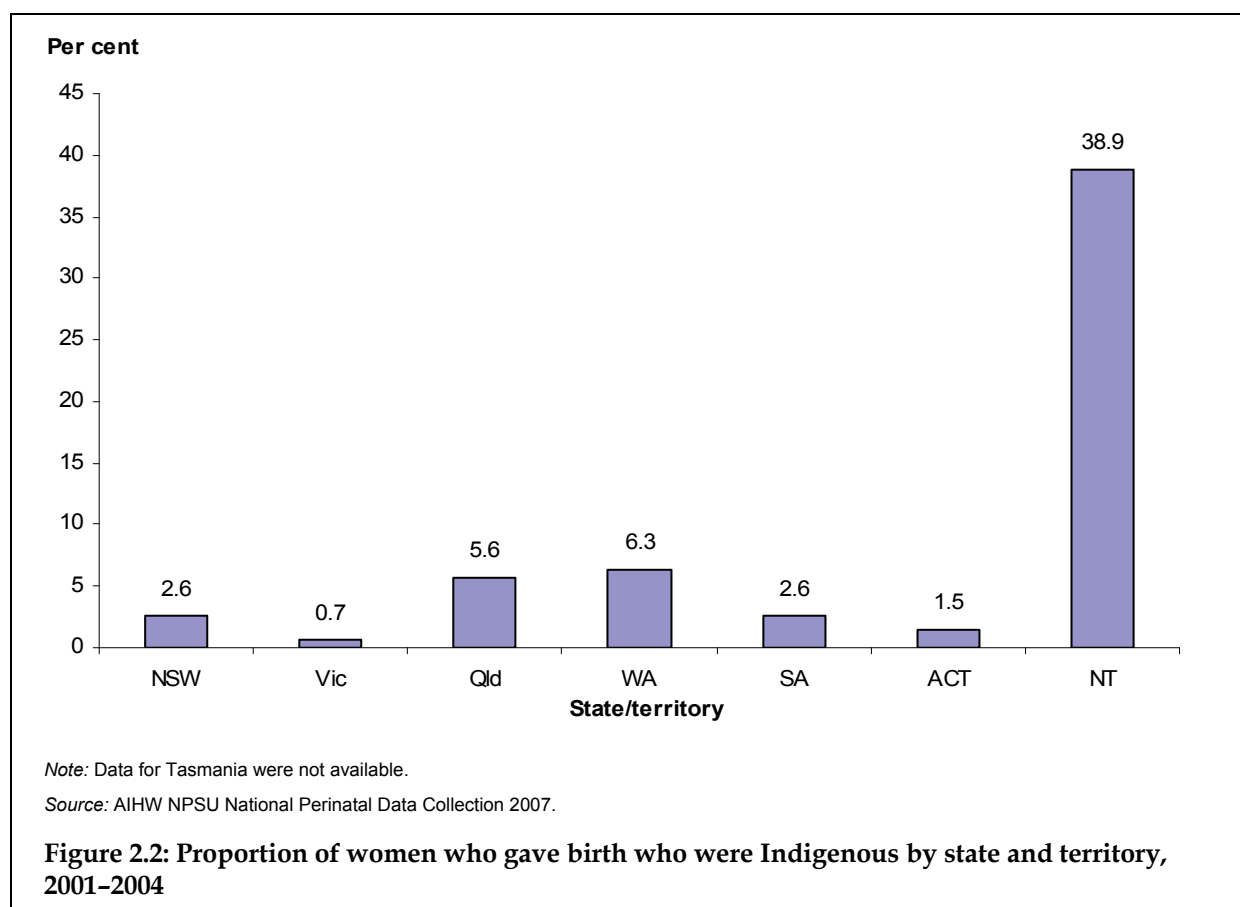
(a) Care must be taken when interpreting the 2001–2004 ACT numbers as they include non-ACT-resident Indigenous mothers who gave birth in the ACT (2.6%). This is double the percentage for ACT-resident Indigenous mothers (1.3%).

(b) Does not include births to mothers whose Indigenous status was unknown.

Notes

1. Data for Tasmania were not available.
2. Data for Victoria may differ slightly from those reported in Victorian Perinatal Data Collection Unit (PDCU) reports because of updates in the data.

Source: AIHW NPSU National Perinatal Data Collection 2007.



Live births to Indigenous mothers increased and fetal deaths decreased over the period 2001–2004 (Table 2.2). There were 8,675 live babies born to Indigenous mothers in 2001 and 8,905 in 2004, an average annual increase of around 1%. Despite a slight increase in Indigenous fetal deaths between 2002 and 2003, fetal deaths decreased by an annual average of around 5%, from 116 in 2001 to 99 in 2004.

Table 2.2: Births to Indigenous mothers by birth status and year, 2001–2004

Birth status	2001	2002	2003	2004	2001–2004	Average annual % change
Live births	8,675	8,827	8,851	8,905	35,258	0.9
Fetal deaths	116	102	107	99	424	–4.9
All births	8,791	8,929	8,958	9,004	35,682	0.8

Source: AIHW NPSU National Perinatal Data Collection 2007.

The National Perinatal Data Collection and the Australian Bureau of Statistics birth registration data: a comparison

Table 2.3 provides a comparison between the NPDC and the ABS birth registration data. During the period 2001–2003, the NPDC reported 26,353 live births to Indigenous mothers (Table 2.3). Almost 5,700 more Indigenous births were identified in the ABS data collection than in the NPDC over this same period (32,005 births).

One explanation for this difference is that ABS birth registrations provide information on the Indigenous status of both parents whereas the NPDC includes information on the mother only. However, when comparing the NPDC data with the ABS data where the mother or both parents were identified as Indigenous, differences are still evident. There were 22,975 births to Indigenous mothers in the ABS data collection, compared with 26,353 in the NPDC, a difference of 13%. Such differences in the two data collections may also reflect the different methods and timing of the data collections. The NPDC is an epidemiological dataset collected at birth for the purpose of monitoring pregnancy. The information is usually collected by midwives, who may or may not ask a direct question regarding Indigenous status, or may obtain Indigenous status information from antenatal or hospital records. In comparison, the birth registration data is a vital statistics collection that relies on reporting by the parents or guardians, with requirements for reporting specified by individual states and territories. The differences between the two data collections are partly due to delays in the registration of, or failure to register, some live births. However, delays in registration are likely to be balanced by the late registration of births from the previous year.

Data in Table 2.3 report over the period 2001–2003 as data were not available for births that occurred in 2004 but were registered in 2005. Therefore, presenting data from 2001 to 2003 allows for the inclusion of births that occurred late in 2003 and were registered in 2004 and also includes late registrations of births in earlier years.

Of the states and territories, Queensland had the highest number of births where either or both parents were Indigenous in 2001–2003 (9,317), followed by 8,579 Indigenous births in New South Wales. The Indigenous live birth rate per 1,000 live Australian births was highest in the Northern Territory during 2001–2003 (443 per 1,000 births). This was followed by Tasmania (70 per 1,000 births) and Queensland (66 per 1,000 births). The lowest Indigenous birth rate was observed in Victoria (10 per 1,000 births) (Table 2.3).

Table 2.3: Live births by Indigenous status and state and territory, 2001–2003

Indigenous status	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Number									
NPDC									
Indigenous mothers	6,439	1,194	8,278	4,661	1,301	n.a.	204	4,276	26,353
ABS									
Both parents Indigenous	1,706	285	2,919	1,974	501	106	54	1,995	9,540
Mother only Indigenous ^(a)	3,642	803	3,742	1,284	633	550	117	2,664	13,435
All Indigenous mothers	5,348	1,088	6,661	3,258	1,134	656	171	4,659	22,975
Father only Indigenous ^(b)	3,231	768	2,656	963	504	522	101	285	9,030
Total	8,579	1,856	9,317	4,221	1,638	1,178	272	4,944	32,005
Rate per 1,000 live births									
NPDC									
Indigenous mothers	25.1	6.4	55.8	63.1	24.6	n.a.	14.5	386.8	35.4
ABS									
Both parents Indigenous	7.0	1.6	20.8	27.8	9.7	6.2	3.9	178.9	13.0
Mother only Indigenous ^(a)	14.9	4.4	26.7	18.1	12.2	32.4	8.4	238.9	18.4
All Indigenous mothers	21.8	6.0	47.5	46.0	21.9	38.7	12.2	417.7	31.4
Father only Indigenous ^(b)	13.2	4.2	18.9	13.6	9.7	30.8	7.2	25.6	12.3
Total	35.0	10.2	66.4	59.5	31.6	69.5	19.5	443.3	43.7

(a) Includes paternity not acknowledged and Indigenous status of father not stated.

(b) Includes Indigenous status of mother not stated.

n.a. Data for Tasmania were not available in the NPDC.

Note: ABS and NPDC data both refer to year of birth, not year of registration.

Source: AIHW NPSU National Perinatal Data Collection 2007; ABS Births Database 2007.

Summary measures of perinatal health

Table 2.4 presents summary perinatal health information for Indigenous mothers and their babies derived from the NPDC for births in 2001–2004. It also includes age-standardised rate ratios for these summary variables, comparing Indigenous and non-Indigenous mothers and their babies. Data include measures of pregnancy-related interventions, maternal risk factors and birth outcomes.

Over half of Indigenous mothers smoked at some time during their pregnancy in 2001–2004 (Table 2.4). The age-standardised rate ratio indicates that the proportion of Indigenous mothers who smoked during pregnancy was three times the proportion observed among non-Indigenous mothers.

Compared with non-Indigenous mothers, Indigenous mothers had fewer instrumental vaginal deliveries in 2001–2004. Almost 5% of Indigenous mothers who gave birth had an instrumental vaginal delivery. The age-standardised rate ratio of 0.3 indicated that this proportion was 30% of the proportion observed among non-Indigenous mothers.

Thirteen percent of liveborn babies of Indigenous mothers were of low birthweight (i.e. less than 2,500 grams). The age-standardised rate ratio was 2.1, indicating that the proportion of

liveborn low birthweight babies of Indigenous mothers was more than double the proportion of liveborn low birthweight babies of non-Indigenous mothers. The age-standardised proportions of preterm birth and low Apgar scores at 5 minutes for live births were also higher for babies of Indigenous mothers (Table 2.4).

Table 2.4: Summary measures of perinatal health for Indigenous and non-Indigenous mothers and babies, 2001–2004

Variable	Description of measure	Indigenous value (per cent)	Indigenous/non-Indigenous age-standardised rate ratio ^(a)
Smoking	Percentage of women smoking at all during pregnancy ^(b)	50.9	3.0
Hospital sector	Percentage of women who gave birth in hospital who were in public hospitals	97.3	1.4
Multiple pregnancy	Multiple pregnancies per 1,000 mothers	11.7	0.9
Spontaneous onset of labour	Percentage of mothers who had a spontaneous onset of labour	69.7	1.1
Induction of labour	Percentage of mothers who had an induced onset of labour	19.0	0.8
Instrumental vaginal deliveries	Percentage of mothers who had an instrumental (forceps or vacuum extraction) delivery ^(c)	4.8	0.3
Caesarean section	Percentage of mothers who had a caesarean section ^(b)	22.4	0.9
Preterm birth	Percentage of births that were less than 37 weeks gestation	13.9	1.9
Low birthweight	Percentage of liveborn babies weighing less than 2,500 grams at birth	13.0	2.1
Apgar scores	Percentage of liveborn babies with an Apgar score of less than 7 at 5 minutes	2.5	1.7
Perinatal death rate	Perinatal deaths per 1,000 births ^(d)	17.9	1.8

(a) Standardised to the 2001–2004 population of women who gave birth.

(b) Excludes Victoria and Queensland.

(c) For multiple births, the method of birth of the firstborn baby was used.

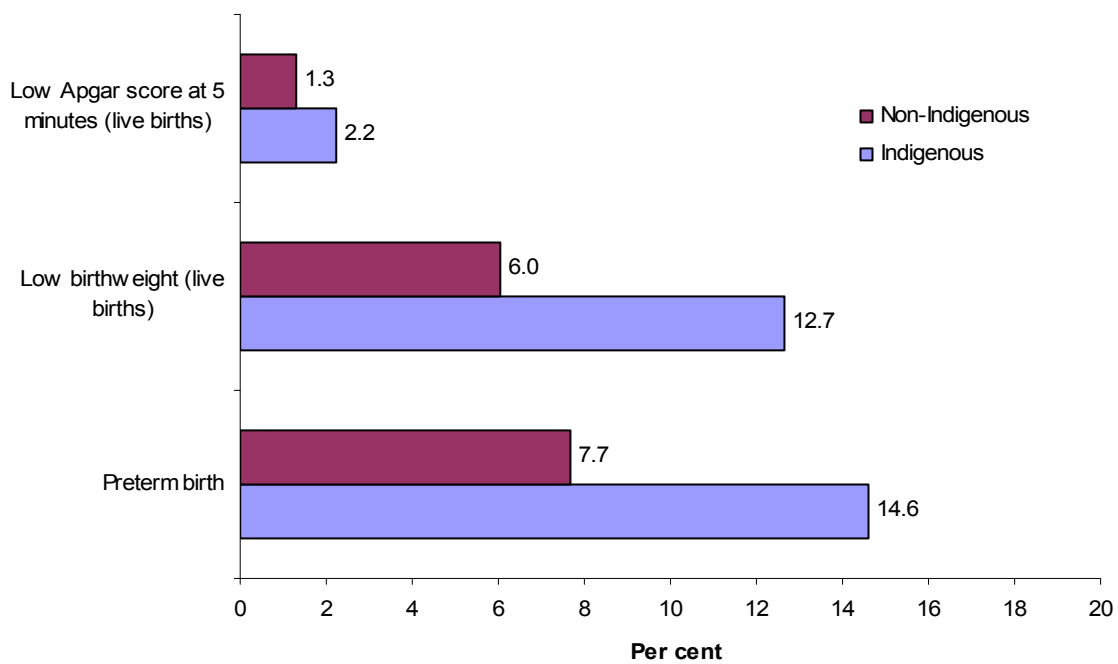
(d) Excludes neonatal deaths in the Northern Territory.

Note: Data for Tasmania were not available.

Source: AIHW NPSU National Perinatal Data Collection 2007.

Apgar scores

Apgar scores are clinical indicators of the baby's condition shortly after birth, based on assessment of the heart rate, breathing, colour, muscle tone and reflex irritability. Between 0 and 2 points are given for each of these five characteristics, and the total score is between 0 and 10. An Apgar score of less than 7 at 5 minutes after birth is considered to be an indicator of compromise for the baby.



Notes

1. Data for Tasmania were not available.
2. Standardised to the 2001–2004 population of women who gave birth.

Source: AIHW NPSU National Perinatal Data Collection 2007.

Figure 2.3: Age-standardised proportions for selected perinatal outcomes by maternal Indigenous status, 2001–2004

3 Indigenous mothers

Summary

During the period 2001–2004, Indigenous mothers were, on average, younger than non-Indigenous mothers, with mean ages of 24.8 years and 29.7 years respectively. Younger maternal age in Indigenous mothers was associated with residing in remote areas and socioeconomic disadvantage (Tables 3.2 and 3.3).

Almost one-third of Indigenous mothers were first-time mothers (30%), with over half of first-time Indigenous mothers aged less than 20 years (53%). Of Indigenous mothers who gave birth in 2001–2004, 16% had given birth to their fifth baby or more (Table 3.4). Of non-Indigenous mothers, 42% were having their first baby. The mean age of first-time Indigenous mothers was 20.6 years (Table 3.5) compared with 27.7 years for non-Indigenous mothers. Indigenous mothers living in regional and remote areas had more babies than those living in major cities (Table 3.6). Parity was also greater for Indigenous mothers residing in areas of greater socioeconomic disadvantage (Table 3.7).

In the five states and territories for which smoking status data were available, 51% of Indigenous mothers reported smoking during their pregnancy (Table 3.8). This was considerably higher than the crude smoking rate for non-Indigenous mothers (17%). The prevalence of smoking during pregnancy was lower in remote areas and higher in regional areas and was higher among mothers with increased socioeconomic disadvantage (Tables 3.9 and 3.10). For the three states and territories where smoking quantity data were available, of those who smoked during pregnancy, half (50%) smoked more than 10 cigarettes per day (Table 3.12). The quantity of cigarettes smoked among Indigenous mothers increased with maternal age (Table 3.13).

Indigenous mothers had fewer interventions at the onset of labour than non-Indigenous mothers, with 70% of Indigenous mothers having a spontaneous onset of labour compared with 57% of non-Indigenous mothers. Of Indigenous mothers, 19% had an induced onset of labour (Table 3.14) compared with 26% of non-Indigenous mothers. Indigenous mothers were also less likely to have instrumental vaginal deliveries (5%) and caesarean sections (22%) (Table 3.16) when compared with non-Indigenous mothers (11% and 28%, respectively). Among Indigenous mothers, spontaneous vaginal deliveries were less common in major cities and areas of greater socioeconomic advantage (Tables 3.17 and 3.18).

The majority of Indigenous women gave birth in hospital (98%) (Table 3.19). The median length of postnatal stay for these women was 3 days (Table 3.22). Of Indigenous women who gave birth in hospital, 3% were in private hospitals (Table 3.20). For non-Indigenous women, the median length of stay in hospital was 4 days and 32% gave birth in a private hospital.

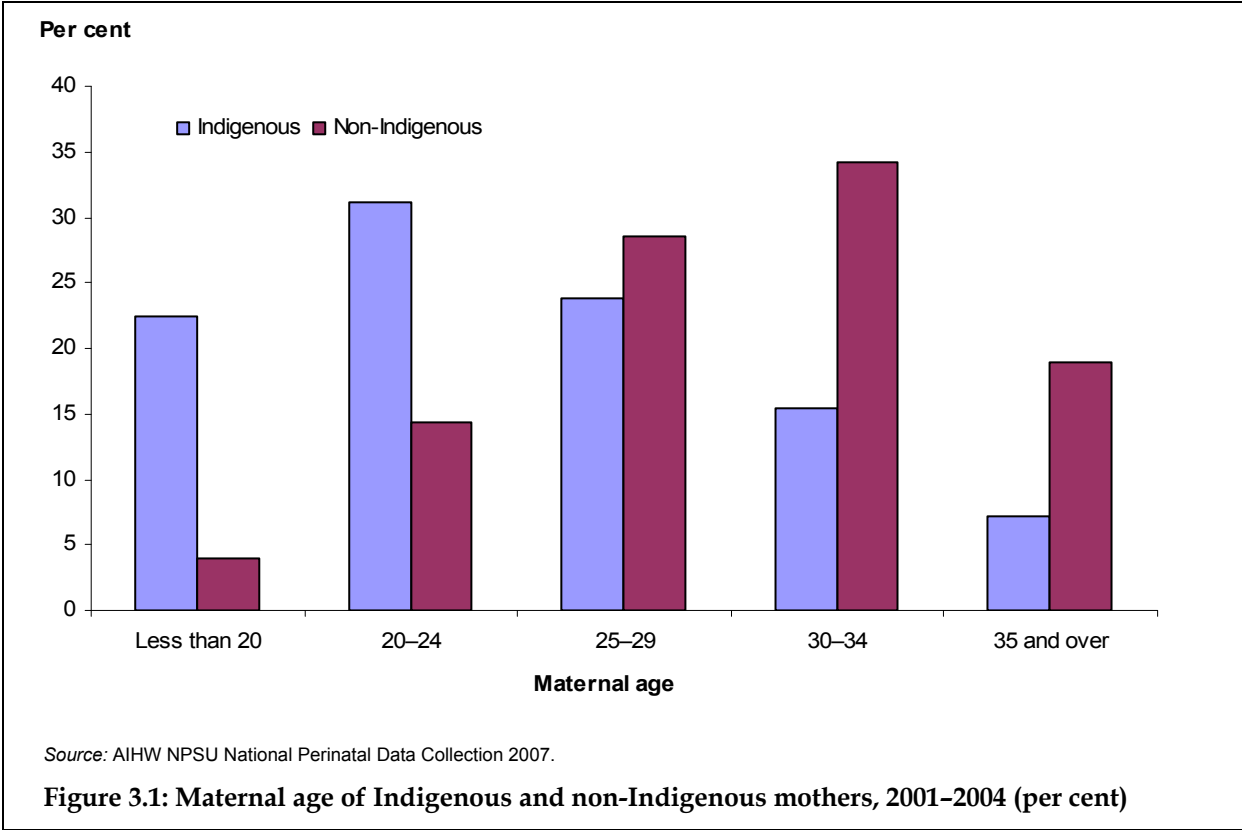
Demographics

Maternal age

Maternal age is an important risk factor for both obstetric and perinatal outcomes, with adverse outcomes more likely to occur in younger and older mothers. In 2001–2004, 35,264 Indigenous women gave birth (Table 3.1). The mean age over this period was 24.8 years, younger than the 29.7 years for non-Indigenous mothers.

The average age of Indigenous mothers varied among the states and territories in 2001–2004. Indigenous mothers in the Australian Capital Territory were considerably older than the national average, with a mean of 26.7 years. Indigenous mothers were younger on average in the Northern Territory (23.8 years) and Western Australia (24.4 years).

There were 7,924 Indigenous mothers aged less than 20 years (23%) in 2001–2004, compared with 4% of non-Indigenous mothers (Figure 3.1). Among the states and territories, the proportion of Indigenous mothers aged less than 20 years ranged from 15% in the Australian Capital Territory to 29% in the Northern Territory.



There were 2,541 Indigenous mothers aged 35 years and over, accounting for 7% of all Indigenous mothers. This proportion was 19% in non-Indigenous mothers. The proportion of Indigenous mothers aged 35 years and over ranged from 6% in the Northern Territory and Western Australia to 9% in the Australian Capital Territory.

The overall proportion of non-Indigenous mothers in the 20–24 year age group was lower than for Indigenous mothers (14% compared with 31%). In the remaining age groups, there

was a larger proportion of non-Indigenous than Indigenous mothers (29% aged 25–29 years and 34% aged 30–34 years).

Table 3.1: Indigenous mothers by maternal age and state and territory, 2001–2004

Age group (years)	NSW	Vic	Qld	WA	SA	ACT	NT	Total
Mean	25.0	25.1	25.1	24.4	24.7	26.7	23.8	24.8
Number								
Less than 20	1,868	360	2,161	1,467	391	41	1,636	7,924
20–24	2,716	475	3,409	1,973	566	69	1,751	10,959
25–29	2,033	373	2,810	1,463	459	69	1,195	8,402
30–34	1,437	291	1,801	873	244	72	706	5,424
35 and over	672	133	860	388	133	26	329	2,541
Not stated	8	1	—	—	—	—	5	14
Total	8,734	1,633	11,041	6,164	1,793	277	5,622	35,264
Per cent								
Less than 20	21.4	22.0	19.6	23.8	21.8	14.8	29.1	22.5
20–24	31.1	29.1	30.9	32.0	31.6	24.9	31.1	31.1
25–29	23.3	22.8	25.5	23.7	25.6	24.9	21.3	23.8
30–34	16.5	17.8	16.3	14.2	13.6	26.0	12.6	15.4
35 and over	7.7	8.1	7.8	6.3	7.4	9.4	5.9	7.2
Not stated	0.1	0.1	—	—	—	—	0.1	—
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes

1. Data for Tasmania were not available.
2. Data for Victoria may differ slightly from those reported in Victorian PDCU reports because of updates in the data.

Source: AIHW NPSU National Perinatal Data Collection 2007.

Remoteness area of mother’s usual residence

Data on the geographical location of the usual residence of the mother were mapped to levels of remoteness in the Australian Standard Geographical Classification (ASGC) remoteness structure. The area of usual residence of Indigenous mothers was quite evenly spread across remoteness categories (Table 3.2). Over one in four Indigenous mothers resided in outer regional areas (28%) in 2001–2004. There were 8,321 Indigenous mothers residing in major cities (24%), and one in five (21%) lived in very remote areas. Almost one-third of Indigenous mothers lived in either remote or very remote areas. There were 5,819 Indigenous mothers (17%) residing in inner regional areas in 2001–2004.

The average age of Indigenous mothers was lower in remote (24.2 years) and very remote (24.1 years) areas when compared with major cities (25.4 years), inner regional (25.0 years) and outer regional (24.7 years) areas. Of all mothers in remote areas, 26% were aged less than 20 years compared with 20% in major cities. In contrast, the proportion of older Indigenous mothers decreased with increased remoteness – 17% of Indigenous mothers in major cities were aged 30–34 years compared with 13% in very remote areas.

Table 3.2: Indigenous mothers by maternal age and remoteness area of usual residence, 2001–2004

Age group (years)	Major cities	Inner regional	Outer regional	Remote	Very remote	Total ^(a)
Mean	25.4	25.0	24.7	24.2	24.1	24.7
Number						
Less than 20	1,655	1,218	2,116	1,071	1,857	7,917
20–24	2,450	1,802	3,097	1,245	2,359	10,953
25–29	2,040	1,405	2,454	870	1,627	8,396
30–34	1,440	974	1,492	580	936	5,422
35 and over	736	417	635	280	470	2,538
Not stated	—	3	3	6	2	14
Total	8,321	5,819	9,797	4,052	7,251	35,240
Per cent						
Less than 20	19.9	20.9	21.6	26.4	25.6	22.5
20–24	29.4	31.0	31.6	30.7	32.5	31.1
25–29	24.5	24.1	25.0	21.5	22.4	23.8
30–34	17.3	16.7	15.2	14.3	12.9	15.4
35 and over	8.8	7.2	6.5	6.9	6.5	7.2
Not stated	—	0.1	—	0.1	—	—
Total	100.0	100.0	100.0	100.0	100.0	100.0

(a) Excludes mothers not usually resident in Australia and those whose area of usual residence was 'Not stated'.

Source: AIHW NPSU National Perinatal Data Collection 2007.

Socioeconomic status

Socioeconomic Indexes for Areas (SEIFA) provide a summary measure for the socioeconomic conditions within an area. The index of advantage/disadvantage was used.

More Indigenous women who gave birth were in the most disadvantaged quintile (38%) compared with other quintiles in 2001–2004, with the number of Indigenous mothers decreasing with increasing quintile of socioeconomic advantage (Table 3.3). There were only 1,160 Indigenous mothers (3%) in the least disadvantaged quintile.

Maternal age for Indigenous mothers increased with socioeconomic advantage. The average age of Indigenous mothers in the two most disadvantaged quintiles was 24.5 years, compared with 25.0 years in the third quintile, 25.5 years in the fourth quintile and 26.2 years in the fifth and least disadvantaged quintile.

Table 3.3: Indigenous mothers by maternal age and socioeconomic status, 2001–2004

Age group (years)	Quintile of socioeconomic disadvantage ^(a)						Total
	1st quintile (most disadvantaged)	2nd quintile	3rd quintile	4th quintile	5th quintile (least disadvantaged)	Not stated	
Mean	24.5	24.5	25.0	25.5	26.2	23.3	24.7
	Number						
Less than 20	3,138	2,278	1,371	739	213	185	7,924
20–24	4,233	3,043	2,085	1,122	284	192	10,959
25–29	3,062	2,333	1,641	963	278	125	8,402
30–34	1,909	1,450	1,062	684	253	66	5,424
35 and over	902	633	500	345	131	30	2,541
Not stated	6	4	3	—	1	—	14
Total	13,250	9,741	6,662	3,853	1,160	598	35,264
	Per cent						
Less than 20	23.7	23.4	20.6	19.2	18.4	30.9	22.5
20–24	31.9	31.2	31.3	29.1	24.5	32.1	31.1
25–29	23.1	24.0	24.6	25.0	24.0	20.9	23.8
30–34	14.4	14.9	15.9	17.8	21.8	11.0	15.4
35 and over	6.8	6.5	7.5	9.0	11.3	5.0	7.2
Not stated	—	—	—	—	0.1	—	—
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Socioeconomic status quintiles are determined by postcode of usual residence based on the Australian Bureau of Statistics SEIFA . The advantage/disadvantage index was used.

Source: AIHW NPSU National Perinatal Data Collection 2007.

Maternal characteristics and risk factors

Parity

Parity is the number of previous pregnancies that resulted in live births or stillbirths.

Primiparous women are those who have had no previous pregnancy resulting in a live birth or stillbirth and multiparous women are those who have had at least one previous pregnancy resulting in a live birth or stillbirth.

During the 2001–2004 period, there were 10,608 Indigenous mothers who gave birth to their first baby (30%), 8,455 (24%) who gave birth to their second baby, and 6,227 (18%) who gave birth for the third time (Table 3.4). Only 12% of Indigenous women gave birth to their fourth baby, but 16% gave birth for the fifth (or more) time. The figures for non-Indigenous women who gave birth were 42% having their first baby, 34% their second, 15% their third, 5% their fourth and only 3% gave birth for the fifth time or more.

Indigenous mothers in Western Australia were more likely than mothers in others states and territories to have a parity of three or more. In Western Australia, 13% of Indigenous mothers had given birth three times previously and 19% four or more times, compared with 12% and 16% respectively for Australia.

Table 3.4: Indigenous mothers by parity and state and territory, 2001–2004

Parity	NSW	Vic	Qld	WA	SA	ACT	NT	Total
Number								
None	2,725	585	3,155	1,720	568	106	1,749	10,608
One	2,142	436	2,558	1,379	437	76	1,427	8,455
Two	1,524	263	1,992	1,090	295	34	1,029	6,227
Three	974	164	1,362	794	217	26	646	4,183
Four or more	1,339	185	1,974	1,181	276	35	765	5,755
Not stated	30	—	—	—	—	—	6	36
Total	8,734	1,633	11,041	6,164	1,793	277	5,622	35,264
Per cent								
None	31.2	35.8	28.6	27.9	31.7	38.3	31.1	30.1
One	24.5	26.7	23.2	22.4	24.4	27.4	25.4	24.0
Two	17.4	16.1	18.0	17.7	16.5	12.3	18.3	17.7
Three	11.2	10.0	12.3	12.9	12.1	9.4	11.5	11.9
Four or more	15.3	11.3	17.9	19.2	15.4	12.6	13.6	16.3
Not stated	0.3	—	—	—	—	—	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes

1. Data for Tasmania were not available.
2. Data for Victoria may differ slightly from those reported in Victorian PDCU reports because of updates in the data.

Source: AIHW NPSU National Perinatal Data Collection 2007.

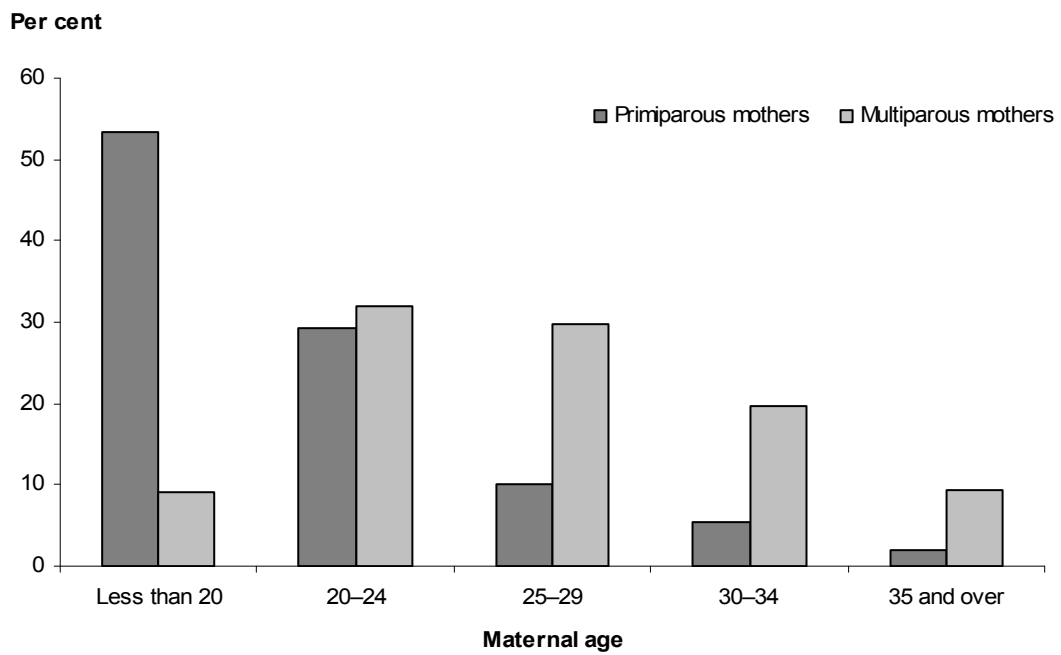
The average age of first-time Indigenous mothers was 20.6 years in 2001–2004 (Table 3.5). This was considerably younger than the average age of non-Indigenous first-time mothers (27.7 years). The average age of Indigenous mothers rose with higher parity. For each additional parity the average age increased approximately 2 to 3 years.

Table 3.5: Indigenous mothers by maternal age and parity, 2001–2004

Age group (years)	Parity						Total
	None	One	Two	Three	Four or more	Not stated	
Mean	20.6	23.5	25.8	27.7	30.7	30.6	24.7
	Number						
Less than 20	5,662	1,890	330	33	4	5	7,924
20–24	3,099	3,739	2,552	1,108	458	3	10,959
25–29	1,067	1,659	2,005	1,698	1,969	4	8,402
30–34	568	853	957	954	2,078	14	5,424
35 and over	207	312	380	387	1,245	10	2,541
Not stated	5	2	3	3	1	—	14
Total	10,608	8,455	6,227	4,183	5,755	36	35,264
	Per cent						
Less than 20	53.4	22.4	5.3	0.8	0.1	13.9	22.5
20–24	29.2	44.2	41.0	26.5	8.0	8.3	31.1
25–29	10.1	19.6	32.2	40.6	34.2	11.1	23.8
30–34	5.4	10.1	15.4	22.8	36.1	38.9	15.4
35 and over	2.0	3.7	6.1	9.3	21.6	27.8	7.2
Not stated	—	—	—	0.1	—	—	—
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: AIHW NPSU National Perinatal Data Collection 2007.

Over half of first-time Indigenous mothers were aged less than 20 years (53%) (Table 3.5; Figure 3.2). Nine percent of multiparous Indigenous mothers were also in this age group. The proportion of primiparous Indigenous mothers decreased with advancing age, to 5% for those aged 30–34 years and 2% for those aged 35 years and over. The proportion of multiparous Indigenous mothers peaked in the 20–24 year age group (32%) and then decreased slightly in the 25–29 year age group (30%), down to 9% in those aged 35 years and over.



Source: AIHW NPSU National Perinatal Data Collection 2007.

Figure 3.2: Primiparous and multiparous Indigenous mothers by maternal age, 2001-2004 (per cent)

Indigenous mothers living in regional and remote areas had a greater number of babies than Indigenous mothers living in major cities in 2001–2004 (Table 3.6). One-third of Indigenous mothers living in major cities were first-time mothers compared with 29% in outer regional and 27% in very remote areas. Indigenous mothers in outer regional, remote and very remote areas were more likely to have a parity of four or more (17% to 18%) compared with mothers who lived in major cities and inner regional areas (15%).

Table 3.6: Indigenous mothers by parity and remoteness area of usual residence, 2001–2004

Parity	Major cities	Inner regional	Outer regional	Remote	Very remote	Total ^(a)
	Number					
None	2,776	1,779	2,841	1,279	1,924	10,599
One	2,109	1,420	2,257	919	1,744	8,449
Two	1,318	1,044	1,779	709	1,372	6,222
Three	867	666	1,256	472	921	4,182
Four or more	1,244	898	1,657	669	1,284	5,752
Not stated	7	12	7	4	6	36
Total	8,321	5,819	9,797	4,052	7,251	35,240
	Per cent					
None	33.4	30.6	29.0	31.6	26.5	30.1
One	25.3	24.4	23.0	22.7	24.1	24.0
Two	15.8	17.9	18.2	17.5	18.9	17.7
Three	10.4	11.4	12.8	11.6	12.7	11.9
Four or more	15.0	15.4	16.9	16.5	17.7	16.3
Not stated	0.1	0.2	0.1	0.1	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

(a) Excludes mothers not usually resident in Australia and those whose area of usual residence was 'Not stated'.

Source: AIHW NPSU National Perinatal Data Collection 2007.

In 2001–2004, Indigenous mothers living in areas of greater disadvantage had more babies than those living in more advantaged areas (Table 3.7). Almost one fifth of Indigenous women who gave birth in the most disadvantaged quintile had a parity of four or more (18%), compared with 14% of Indigenous mothers in the least disadvantaged quintile. The proportion of Indigenous mothers having their second baby was evenly distributed across the areas of socioeconomic disadvantage (around 24%). The proportion of Indigenous mothers having their third baby was evenly distributed between the lowest four quintiles (around 18%), but the proportion dropped markedly in the least disadvantaged quintile (13%). In the least disadvantage quintile, 41% of Indigenous mothers had their first baby compared with 33% in the fourth quintile, 30% in the second and third quintiles, and 29% in the most disadvantaged quintile.

Table 3.7: Indigenous mothers by parity and socioeconomic status, 2001–2004

Parity	Quintile of socioeconomic disadvantage ^(a)					Not stated	Total
	1st quintile (most disadvantaged)	2nd quintile	3rd quintile	4th quintile	5th quintile (least disadvantaged)		
Number							
None	3,772	2,914	1,996	1,261	479	186	10,608
One	3,094	2,421	1,585	936	273	146	8,455
Two	2,373	1,740	1,187	666	155	106	6,227
Three	1,645	1,180	787	416	92	63	4,183
Four or more	2,352	1,473	1,104	570	160	96	5,755
Not stated	14	13	3	4	1	1	36
Total	13,250	9,741	6,662	3,853	1,160	598	35,264
Per cent							
None	28.5	29.9	30.0	32.7	41.3	31.1	30.1
One	23.4	24.9	23.8	24.3	23.5	24.4	24.0
Two	17.9	17.9	17.8	17.3	13.4	17.7	17.7
Three	12.4	12.1	11.8	10.8	7.9	10.5	11.9
Four or more	17.8	15.1	16.6	14.8	13.8	16.1	16.3
Not stated	0.1	0.1	—	0.1	0.1	0.2	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Socioeconomic status quintiles are determined by postcode of usual residence based on the Australian Bureau of statistics SEIFA. The advantage/disadvantage index was used.

Source: AIHW NPSU National Perinatal Data Collection 2007.

Smoking during pregnancy

Smoking is a risk factor for pregnancy complications, and is associated with poorer perinatal outcomes such as low birthweight, preterm birth, babies who are small for their gestational age and perinatal death (Laws et al. 2006b).

There is no national data element for the collection of data on smoking during pregnancy, but a program of national data development has been under way in 2006 and 2007. Data were available for five states and territories: New South Wales, Western Australia, South Australia, the Australian Capital Territory and the Northern Territory. In 2001–2004 over half of Indigenous women in the five states and territories reported smoking during pregnancy (51%) (Table 3.8). This was considerably higher than the crude rate of smoking among non-Indigenous mothers (17%).

The proportion of Indigenous women who smoked while pregnant ranged from 40% in the Northern Territory to 59% in South Australia. However, note that the smoking status for 18% of Indigenous mothers in the Northern Territory was not stated. Consequently, this may not be an accurate representation of the true proportion of Indigenous women in the Northern Territory who did smoke during their pregnancy. Of stated responses for the Northern Territory, 49% were recorded as reporting smoking during pregnancy.

When only stated responses are considered for all five states and territories, the percentage of Indigenous mothers recorded as smoking during pregnancy was 54%. For non-Indigenous mothers, the comparable percentage remained at 17%.

Table 3.8: Indigenous mothers by tobacco smoking status during pregnancy and state and territory, 2001–2004

Smoking status	NSW	WA	SA ^(a)	ACT	NT ^(b)	Total
Number						
Smoked	5,028	3,037	1,056	126	2,249	11,496
Did not smoke	3,697	3,127	649	150	2,370	9,993
Not stated	9	—	88	1	1,003	1,101
Total	8,734	6,164	1,793	277	5,622	22,590
Per cent						
Smoked ^(c)	57.6	49.3	58.9	45.5	40.0	50.9
Did not smoke	42.3	50.7	36.2	54.2	42.2	44.2
Not stated	0.1	—	4.9	0.4	17.8	4.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

(a) For South Australia, 'Smoked' includes women who quit before the first antenatal visit.

(b) For the Northern Territory, smoking status was recorded at the first antenatal visit.

(c) If the Not stated responses are proportioned out, the percentages of Indigenous mothers recorded as smoking were: 57.6% in New South Wales, 49.3% in Western Australia, 61.9% in South Australia, 45.7% in the Australian Capital Territory, 48.7% in the Northern Territory and 53.5% overall.

Note: Data on tobacco smoking during pregnancy were not available for Victoria, Queensland or Tasmania.

Source: AIHW NPSU National Perinatal Data Collection 2007.

The proportion of Indigenous women who smoked while pregnant in 2001–2004 was highest in regional areas and lowest in remote areas (Table 3.9). In inner regional and outer regional areas, 56% and 55% respectively of Indigenous mothers reported smoking, compared with 49% in remote areas and 45% in very remote areas. In major cities, 51% of Indigenous mothers smoked during their pregnancy.

Again, care needs to be taken when interpreting these data given the large proportion of women whose smoking status was not stated, particularly in very remote (12%) and remote (7%) areas. When only stated responses are considered, the percentages of smokers recorded in these regions are higher, at 52% and 51%, respectively.

Figure 3.3 presents proportions of Indigenous and non-Indigenous mothers reporting smoking during pregnancy by remoteness area. For non-Indigenous mothers, the lowest rate of smoking in pregnancy was reported among those living in major cities (14%) and the highest was among those living in outer regional areas (24%). In the other three remoteness categories, 23% of non-Indigenous women reported smoking during pregnancy.

Table 3.9: Indigenous mothers by tobacco smoking status during pregnancy and remoteness area of usual residence, 2001–2004

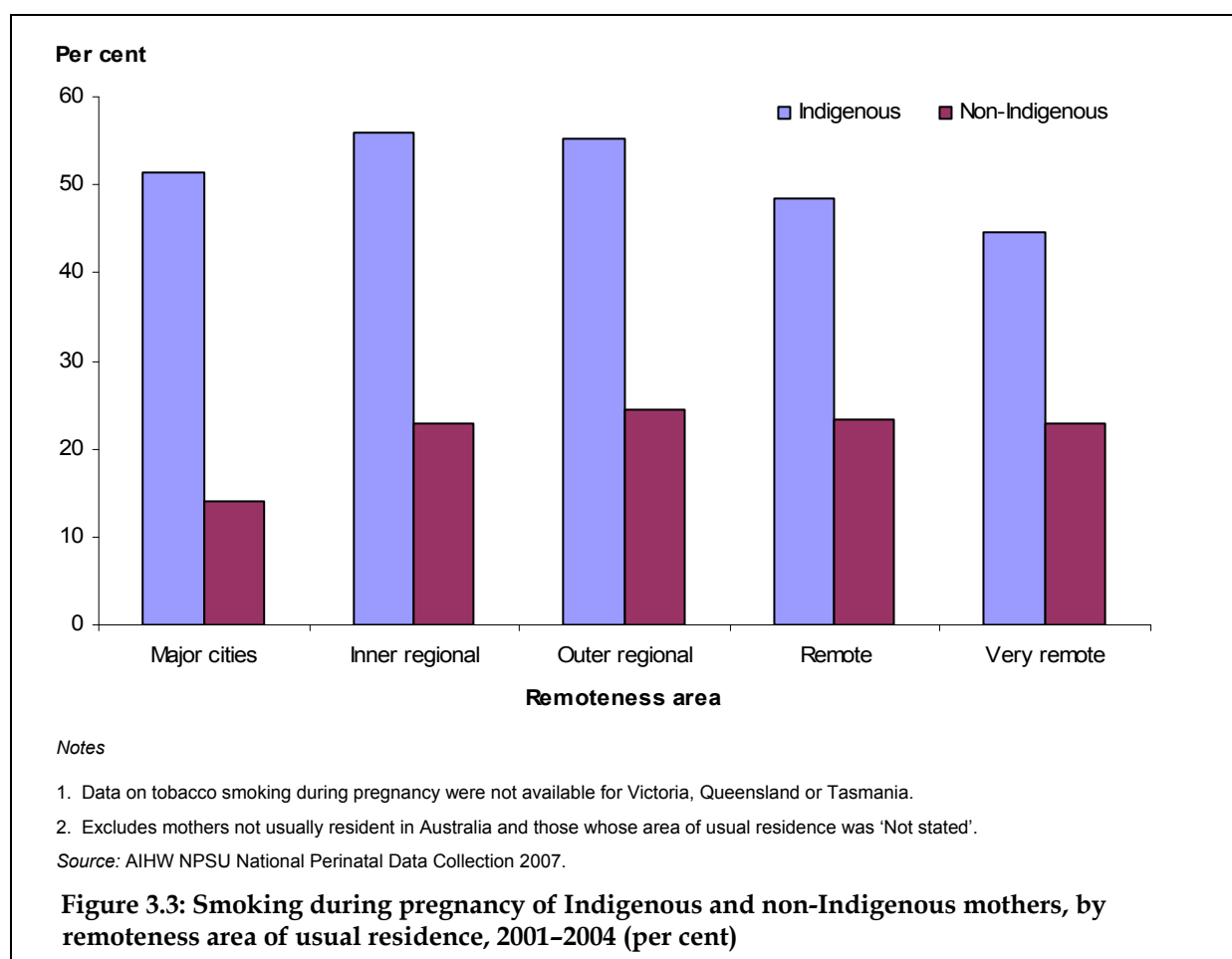
Smoking status	Major cities	Inner regional	Outer regional	Remote	Very remote	Total ^(a)
Number						
Smoked	3,011	1,965	2,639	1,459	2,411	11,485
Did not smoke	2,832	1,542	1,935	1,326	2,350	9,985
Not stated	23	7	196	220	651	1,097
Total^(b)	5,866	3,514	4,770	3,005	5,412	22,567
Per cent						
Smoked ^(c)	51.3	55.9	55.3	48.6	44.5	50.9
Did not smoke	48.3	43.9	40.6	44.1	43.4	44.2
Not stated	0.4	0.2	4.1	7.3	12.0	4.9
Total^(b)	100.0	100.0	100.0	100.0	100.0	100.0

(a) Excludes mothers not usually resident in Australia and those whose area of usual residence was 'Not stated'.

(b) Data on tobacco smoking during pregnancy were not available for Victoria, Queensland or Tasmania.

(c) If the 'Not stated' responses are proportioned out, the percentages of Indigenous mothers recorded as smoking were: 51.5% in Major cities, 56.0% in Inner regional areas, 57.7% in Outer regional areas, 52.4% in Remote areas, 50.6% in Very remote areas, and 53.5% overall.

Source: AIHW NPSU National Perinatal Data Collection 2007.



The proportion of Indigenous mothers who smoked during pregnancy in 2001–2004 generally increased with increased socioeconomic disadvantage (Table 3.10). The highest proportion of Indigenous mothers who smoked was in the most disadvantaged quintile (55%) and the lowest proportion was in the least disadvantaged quintile (43%). Interestingly, smoking rates for Indigenous mothers were higher in the third most disadvantaged quintile (54%), compared with rates in the second most disadvantaged quintile (47%). Forty-six percent of Indigenous mothers in the fourth quintile smoked during pregnancy.

Table 3.10: Indigenous mothers by tobacco smoking status during pregnancy and socioeconomic status, 2001–2004

Smoking status	Quintile of socioeconomic disadvantage ^(a)					Not stated	Total
	1st quintile (most disadvantaged)	2nd quintile	3rd quintile	4th quintile	5th quintile (least disadvantaged)		
	Number						
Smoked	4,825	2,825	1,927	1,368	380	171	11,496
Did not smoke	3,464	2,852	1,557	1,451	480	189	9,993
Not stated	488	292	100	127	20	74	1,101
Total^(b)	8,777	5,969	3,584	2,946	880	434	22,590
	Per cent						
Smoked	55.0	47.3	53.8	46.4	43.2	39.4	50.9
Did not smoke	39.5	47.8	43.4	49.3	54.5	43.5	44.2
Not stated	5.6	4.9	2.8	4.3	2.3	17.1	4.9
Total^(b)	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Socioeconomic status quintiles are determined by postcode of usual residence based on the Australian Bureau of statistics SEIFA. The advantage/disadvantage index was used.

(b) Data on tobacco smoking during pregnancy were not available for Victoria, Queensland or Tasmania.

Source: AIHW NPSU National Perinatal Data Collection 2007.

Smoking during pregnancy varied little across age groups for Indigenous mothers. The percentage of smokers reported ranged from 49% in those aged less than 20 years to 52% in those aged 20–24 years (Table 3.11).

Table 3.11 Indigenous mothers by tobacco smoking status during pregnancy and maternal age, 2001–2004

Smoking status	Age group (years)						Total
	Less than 20	20–24	25–29	30–34	35 and over	Not stated	
	Number						
Smoked	2,671	3,669	2,684	1,683	781	8	11,496
Did not smoke	2,399	3,044	2,316	1,526	704	4	9,993
Not stated	333	362	219	123	63	1	1,101
Total^(a)	5,403	7,075	5,219	3,332	1,548	13	22,590
	Per cent						
Smoked	49.4	51.9	51.4	50.5	50.5	61.5	50.9
Did not smoke	44.4	43.0	44.4	45.8	45.5	30.8	44.2
Not stated	6.2	5.1	4.2	3.7	4.1	7.7	4.9
Total^(a)	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Data on tobacco smoking during pregnancy were not available for Victoria, Queensland or Tasmania.

Source: AIHW NPSU National Perinatal Data Collection 2007.

Data on the average number of cigarettes smoked per day in the second half of pregnancy were available for New South Wales, South Australia and the Australian Capital Territory. Half of Indigenous mothers (50%) who reported smoking during their pregnancy reported smoking an average of more than 10 cigarettes per day (Table 3.12). Only 2% of Indigenous mothers who reported smoking at some time during their pregnancy said that they did not smoke any cigarettes during the second half of pregnancy. Around 43% reported smoking an average of 10 or less cigarettes per day.

Of Indigenous mothers who reported that they smoked during their pregnancy, New South Wales had the highest proportion who smoked an average of more than 10 cigarettes per day (54%), followed by the Australian Capital Territory (46%) and South Australia (33%). In South Australia, 6% of Indigenous mothers who smoked during pregnancy reported that they did not smoke during the second half of pregnancy compared with around 2% in New South Wales. In the Australian Capital Territory, none of the Indigenous mothers who smoked during pregnancy reported smoking during the second half of pregnancy.

Table 3.12: Indigenous mothers who smoked, by average number of cigarettes per day during the second half of pregnancy and state and territory, 2001–2004

Average no. cigarettes per day	NSW	SA	ACT	Total ^(a)
		Number		
None	81	66	—	147
10 or less	2,051	532	64	2,647
More than 10	2,730	344	58	3,132
Not stated	166	114	4	284
Total	5,028	1,056	126	6,210
		Per cent		
None	1.6	6.3	—	2.4
10 or less	40.8	50.4	50.8	42.6
More than 10	54.3	32.6	46.0	50.4
Not stated	3.3	10.8	3.2	4.6
Total	100.0	100.0	100.0	100.0

(a) Data on the average daily number of cigarettes smoked during the second half of pregnancy were available only for New South Wales, South Australia and the Australian Capital Territory.

Source: AIHW NPSU National Perinatal Data Collection 2007.

In 2001–2004, for those states and territories where smoking quantity data were available, the average daily number of cigarettes smoked increased with maternal age among Indigenous mothers. Almost two thirds of Indigenous mothers aged 35 years and over (64%) who smoked at some time during their pregnancy reported smoking an average of more than 10 cigarettes per day during the second half of pregnancy (Table 3.13). This compared with 42% of Indigenous mothers aged less than 20 years. Over half of Indigenous mothers aged less than 20 years (51%) who smoked during pregnancy reported smoking a daily average of 10 or less cigarettes per day in the second half of pregnancy. The proportion smoking 10 or less cigarettes per day gradually decreased with age to 29% in those aged 35 years and over.

Table 3.13: Indigenous mothers who smoked during the second half of pregnancy by average number of cigarettes per day and maternal age, 2001–2004

Average no. cigarettes per day	Age group (years)					Not stated	Total
	Less than 20	20–24	25–29	30–34	35 and over		
	Number						
None	46	45	30	20	6	—	147
10 or less	707	913	551	336	140	—	2,647
More than 10	576	910	797	537	308	4	3,132
Not stated	51	94	58	51	29	1	284
Total^(a)	1,380	1,962	1,436	944	483	5	6,210
	Per cent						
None	3.3	2.3	2.1	2.1	1.2	—	2.4
10 or less	51.2	46.5	38.4	35.6	29.0	—	42.6
More than 10	41.7	46.4	55.5	56.9	63.8	80.0	50.4
Not stated	3.7	4.8	4.0	5.4	6.0	20.0	4.6
Total^(a)	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Data on the average daily number of cigarettes smoked during the second half of pregnancy were available only in New South Wales, South Australia and the Australian Capital Territory.

Source: AIHW NPSU National Perinatal Data Collection 2007.

Labour and birth characteristics

Onset of labour

Onset of labour is defined as spontaneous, induced, or no labour. When examining the rates of spontaneous, induced and no labour among Indigenous mothers it becomes evident that, when compared with non-Indigenous mothers, Indigenous mothers have fewer interventions at the onset of labour (induction) and during labour (augmentation).

In 2001–2004, 70% of Indigenous mothers who gave birth had a spontaneous labour (Table 3.14). This proportion was higher than the proportion of spontaneous labour among non-Indigenous mothers (57%). Spontaneous births for Indigenous mothers were more common in the Northern Territory (72%) and Western Australia (71%) and less common in the Australian Capital Territory (63%) and South Australia (63%). Of Indigenous mothers, 23% had their labour augmented, and almost half had a spontaneous labour with no augmentation (46%).

Nineteen per cent of Indigenous mothers giving birth in Australia in 2001–2004 had an induced labour. Over one quarter of non-Indigenous mothers (26%) had an induced labour over the same period. For Indigenous mothers, induced labour was more common in the Australian Capital Territory (24%) and less common in the Northern Territory (17%).

Eleven per cent of Indigenous mothers had no labour in 2001–2004 compared with 16% of non-Indigenous mothers. The proportion of Indigenous mothers who did not have a labour varied across the states and territories from 10% in Victoria and Western Australia to 15% in South Australia.

Table 3.14: Indigenous mothers by onset of labour, type of augmentation or induction and state and territory, 2001–2004

Onset of labour/type of augmentation or induction	NSW	Vic	Qld	WA	SA	ACT	NT	Total
	Number							
Spontaneous	6,043	1,114	7,666	4,387	1,132	175	4,057	24,574
No augmentation	4,378	773	4,557	3,003	763	93	2,804	16,371
Medical only	391	70	453	324	87	23	284	1,632
Surgical only	985	209	2,379	816	231	40	743	5,403
Combined	283	62	275	241	51	19	200	1,131
Other/not stated	6	—	2	3	—	—	26	37
Induced	1,749	353	2,044	1,146	391	66	936	6,685
Medical	571	122	807	299	166	18	400	2,383
Surgical only	116	20	308	85	42	5	128	704
Combined	1,041	211	911	750	183	43	399	3,538
Other/not stated	21	—	18	12	—	—	9	60
No labour	940	166	1,331	631	270	36	629	4,003
Not stated	2	—	—	—	—	—	—	2
Total	8,734	1,633	11,041	6,164	1,793	277	5,622	35,264
	Per cent							
Spontaneous	69.2	68.2	69.4	71.2	63.1	63.2	72.2	69.7
No augmentation	50.1	47.3	41.3	48.7	42.6	33.6	49.9	46.4
Medical only	4.5	4.3	4.1	5.3	4.9	8.3	5.1	4.6
Surgical only	11.3	12.8	21.5	13.2	12.9	14.4	13.2	15.3
Combined	3.2	3.8	2.5	3.9	2.8	6.9	3.6	3.2
Other/not stated	0.1	—	—	—	—	—	0.5	0.1
Induced	20.0	21.6	18.5	18.6	21.8	23.8	16.6	19.0
Medical	6.5	7.5	7.3	4.9	9.3	6.5	7.1	6.8
Surgical only	1.3	1.2	2.8	1.4	2.3	1.8	2.3	2.0
Combined	11.9	12.9	8.3	12.2	10.2	15.5	7.1	10.0
Other/not stated	0.2	—	0.2	0.2	—	—	0.2	0.2
No labour	10.8	10.2	12.1	10.2	15.1	13.0	11.2	11.4
Not stated	—	—	—	—	—	—	—	—
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: Data for Tasmania were not available.

Source: AIHW NPSU National Perinatal Data Collection 2007.

Presentation at birth

Data are included in this section by mother; for multiple births, the presentation at birth of the firstborn baby is used.

In 2001–2004, the predominant presentation at birth was vertex, occurring in 95% of Indigenous women who gave birth (Table 3.15). The proportion of vertex presentations was the same for non-Indigenous mothers during the same period (95%). Breech presentations occurred in 4% of Indigenous women who gave birth. The proportion varied across the states and territories from 3% in Victoria to 5% in the Northern Territory and South Australia. Breech presentations occurred in 5% of non-Indigenous mothers. Face and brow presentations occurred in 0.3% and other presentations in 0.8% of Indigenous women who gave birth.

Table 3.15: Indigenous mothers by presentation of birth and state and territory, 2001–2004

Presentation	NSW	Vic	Qld	WA	SA	ACT	NT	Total
Number								
Vertex	8,293	1,558	10,490	5,856	1,679	265	5,285	33,426
Breech	344	47	437	255	82	10	259	1,434
Face and brow	22	6	17	23	6	—	15	89
Other	71	18	94	30	22	2	44	281
Not stated	4	4	3	—	4	—	19	34
Total	8,734	1,633	11,041	6,164	1,793	277	5,622	35,264
Per cent								
Vertex	95.0	95.4	95.0	95.0	93.6	95.7	94.0	94.8
Breech	3.9	2.9	4.0	4.1	4.6	3.6	4.6	4.1
Face and brow	0.3	0.4	0.2	0.4	0.3	—	0.3	0.3
Other	0.8	1.1	0.9	0.5	1.2	0.7	0.8	0.8
Not stated	—	0.2	—	—	0.2	—	0.3	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes

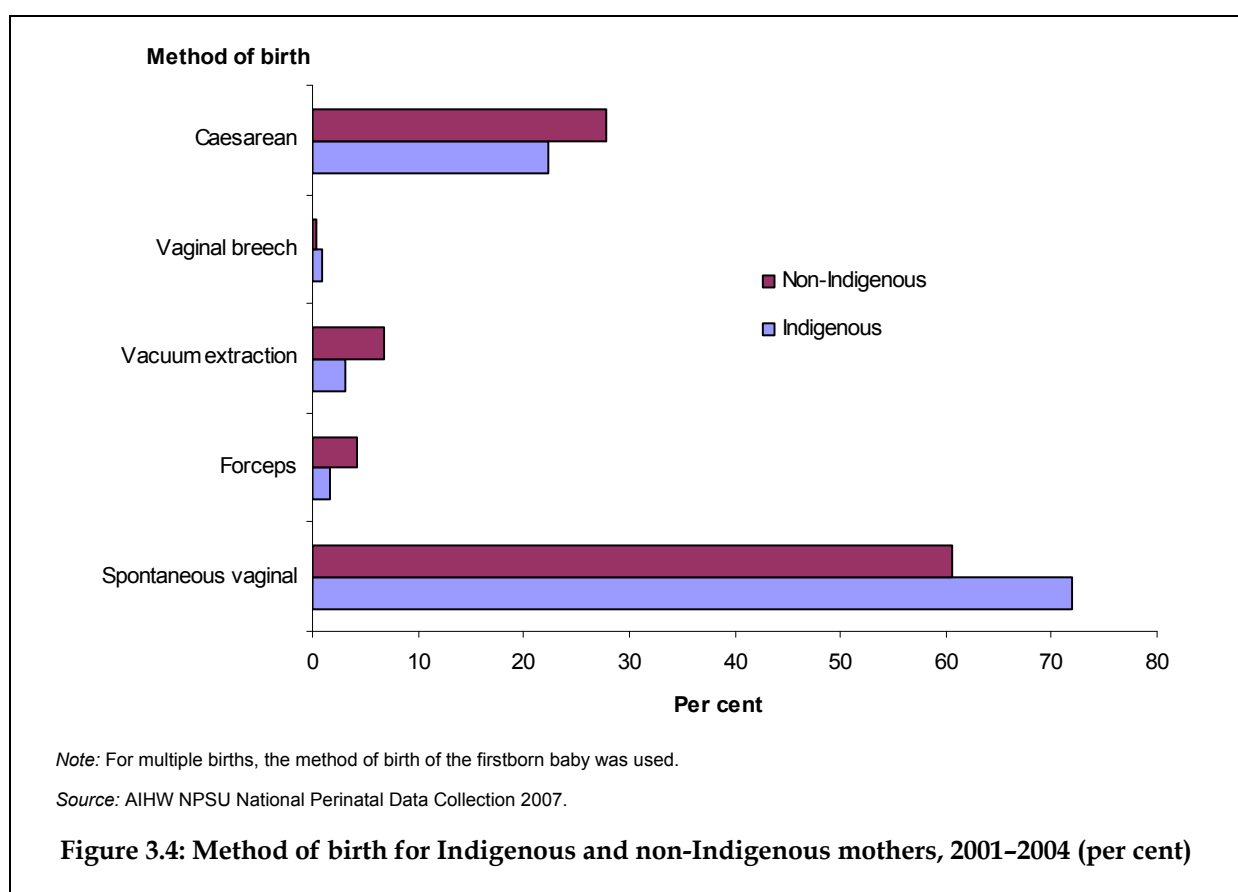
1. Data for Tasmania were not available.
2. For multiple births, the presentation of the firstborn baby was used.

Source: AIHW NPSU National Perinatal Data Collection 2007.

Method of birth

Data are presented in this section by mother; for multiple births, the method of birth of the firstborn baby is presented.

Of all Indigenous women who gave birth in 2001–2004, 72% had a spontaneous vaginal birth (Table 3.16). This was higher than the proportion of non-Indigenous mothers who had a spontaneous vaginal birth (61%). Compared with non-Indigenous mothers, Indigenous mothers were less likely to have forceps or vacuum extraction deliveries (11% compared with 5%) and more likely to have a vaginal breech birth (0.8% compared with 0.4%) (Figure 3.4). The caesarean section rate for Indigenous mothers (22%) was less than the rate for non-Indigenous mothers (28%).



There was some variation in the method of birth proportions among states and territories for Indigenous mothers in 2001–2004. Spontaneous vaginal births were most common in New South Wales, Queensland and Western Australia (all 73%) and least common in South Australia (64%). In contrast, caesarean sections were most common in South Australia (29%) and least common in New South Wales, Victoria and Western Australia (all 21%).

Table 3.16: Indigenous mothers by method of birth and state and territory, 2001–2004

Method of birth	NSW	Vic	Qld	WA	SA	ACT	NT	Total
Number								
Spontaneous vaginal	6,392	1,150	8,059	4,488	1,143	182	3,932	25,346
Forceps	164	59	119	95	44	13	87	581
Vacuum extraction	275	61	275	242	60	19	183	1,115
Vaginal breech	55	16	90	67	22	3	45	298
Caesarean section	1,848	346	2,491	1,272	524	60	1,367	7,908
Other	—	—	7	—	—	—	—	7
Not stated	—	1	—	—	—	—	8	9
Total	8,734	1,633	11,041	6,164	1,793	277	5,622	35,264
Per cent								
Spontaneous vaginal	73.2	70.4	73.0	72.8	63.7	65.7	69.9	71.9
Forceps	1.9	3.6	1.1	1.5	2.5	4.7	1.5	1.6
Vacuum extraction	3.1	3.7	2.5	3.9	3.3	6.9	3.3	3.2
Vaginal breech	0.6	1.0	0.8	1.1	1.2	1.1	0.8	0.8
Caesarean section	21.2	21.2	22.6	20.6	29.2	21.7	24.3	22.4
Other	—	—	0.1	—	—	—	—	—
Not stated	—	0.1	—	—	—	—	0.1	—
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes

1. Data for Tasmania were not available.
2. For multiple births, the method of birth of the firstborn baby was used.

Source: AIHW NPSU National Perinatal Data Collection 2007.

The method of birth for Indigenous mothers varied across remoteness areas within Australia. Spontaneous vaginal births were less common in major cities and remote areas (both 71%) when compared with regional and very remote areas; assisted vaginal births were more common in major cities (Table 3.17). Vacuum extraction was the method of birth for approximately 4% of Indigenous mothers who lived in major cities, compared to around 3% in remote and very remote areas.

The proportion of caesarean sections among Indigenous mothers did not vary greatly by remoteness area (between 22% and 23%).

Table 3.17: Indigenous mothers by method of birth and remoteness area of usual residence, 2001–2004

Method of birth	Major cities	Inner regional	Outer regional	Remote	Very remote	Total ^(a)
Number						
Spontaneous vaginal	5,865	4,197	7,152	2,890	5,223	25,327
Forceps	158	124	146	76	77	581
Vacuum extraction	346	173	287	103	205	1,114
Vaginal breech	46	51	91	38	72	298
Caesarean section	1,901	1,274	2,119	943	1,667	7,904
Other	4	—	2	—	1	7
Not stated	1	—	—	2	6	9
Total	8,321	5,819	9,797	4,052	7,251	35,240
Per cent						
Spontaneous vaginal	70.5	72.1	73.0	71.3	72.0	71.9
Forceps	1.9	2.1	1.5	1.9	1.1	1.6
Vacuum extraction	4.2	3.0	2.9	2.5	2.8	3.2
Vaginal breech	0.6	0.9	0.9	0.9	1.0	0.8
Caesarean section	22.8	21.9	21.6	23.3	23.0	22.4
Other	—	—	—	—	—	—
Not stated	—	—	—	—	0.1	—
Total	100.0	100.0	100.0	100.0	100.0	100.0

(a) Excludes mothers not usually resident in Australia and those whose area of usual residence was 'Not stated'.

Note: For multiple births, the method of birth of the firstborn baby was used.

Source: AIHW NPSU National Perinatal Data Collection 2007.

The method of birth for Indigenous mothers varied across areas of socioeconomic disadvantage within Australia, with Indigenous mothers in the least disadvantaged quintile more likely to have interventions during the birth than Indigenous mothers in more disadvantaged quintiles (Table 3.18).

Spontaneous vaginal births were less likely to occur in the least disadvantaged quintile (66%) when compared with other quintiles of disadvantage, which ranged from 71% in the second most disadvantaged quintile to 73% in the middle quintile and most disadvantaged quintile. Indigenous mothers in the least disadvantaged quintile were also more likely to have a birth requiring forceps (3%) or vacuum extraction (5%) and were less likely to have a vaginal breech birth (0.5%) when compared with Indigenous mothers in the other disadvantage quintiles. Indigenous mothers in the least disadvantaged quintile were more likely to have a caesarean section (25%) than Indigenous mothers in other quintiles, where proportions ranged between 22% and 23%.

Table 3.18: Indigenous mothers by method of birth and socioeconomic status, 2001–2004

Method of birth	Quintile of socioeconomic disadvantage ^(a)						Total
	1st quintile (most disadvantaged)	2nd quintile	3rd quintile	4th quintile	5th quintile (least disadvantaged)	Not stated	
	Number						
Spontaneous vaginal	9,623	6,919	4,842	2,766	769	427	25,346
Forceps	212	164	94	67	34	10	581
Vacuum extraction	364	320	201	150	62	18	1,115
Vaginal breech	117	81	58	30	6	6	298
Caesarean section	2,930	2,252	1,464	838	289	135	7,908
Other	2	3	1	1	—	—	7
Not stated	2	2	2	1	—	2	9
Total	13,250	9,741	6,662	3,853	1,160	598	35,264
	Per cent						
Spontaneous vaginal	72.6	71.0	72.7	71.8	66.3	71.4	71.9
Forceps	1.6	1.7	1.4	1.7	2.9	1.7	1.6
Vacuum extraction	2.7	3.3	3.0	3.9	5.3	3.0	3.2
Vaginal breech	0.9	0.8	0.9	0.8	0.5	1.0	0.8
Caesarean section	22.1	23.1	22.0	21.7	24.9	22.6	22.4
Other	—	—	—	—	—	—	—
Not stated	—	—	—	—	—	0.3	—
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Socioeconomic status quintiles are determined by postcode of usual residence based on the Australian Bureau of Statistics SEIFA. The advantage/disadvantage index was used.

Note: For multiple births, the method of birth of the first baby born was used.

Source: AIHW NPSU National Perinatal Data Collection 2007.

Place of birth

Most births in Australia occur in conventional hospital labour-ward settings or in birth centres. There were 34,461 Indigenous women who gave birth in hospital in 2001–2004 (98%) (Table 3.19). The proportion of Indigenous mothers giving birth in hospital ranged from 95% in the Northern Territory to 99% in Queensland. Indigenous women were less likely to give birth in birth centres (0.5%) compared with non-Indigenous women (2.2%). There were 35 Indigenous women (0.1%) who gave birth at home in 2001–2004 and 590 (1.7%) who gave birth in other settings. Almost half of the Indigenous women giving birth in other settings did so in the Northern Territory, with the majority of these births occurring in remote community health centres.

Table 3.19: Indigenous mothers by actual place of birth and state and territory, 2001–2004

Place of birth	NSW	Vic	Qld	WA	SA	ACT	NT	Total
Number								
Hospital	8,555	1,595	10,902	6,064	1,719	268	5,358	34,461
Birth centre	80	n.p.	21	8	54	<5	—	178
Home	4	<4	8	9	<4	—	11	35
Other	95	26	110	83	n.p.	n.p.	^(a) 253	590
Not stated	—	—	—	—	—	—	—	—
Total	8,734	1,633	11,041	6,164	1,793	277	5,622	35,264
Per cent								
Hospital	98.0	97.7	98.7	98.4	95.9	96.8	95.3	97.7
Birth centre	0.9	n.p.	0.2	0.1	3.0	n.p.	—	0.5
Home	—	n.p.	0.1	0.1	n.p.	—	0.2	0.1
Other	1.1	1.6	1.0	1.3	n.p.	n.p.	^(a) 4.5	1.7
Not stated	—	—	—	—	—	—	—	—
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) The majority of these births occurred in remote community health centres.

Notes

1. Data for Tasmania were not available.
 2. For multiple births, the place of birth of the firstborn baby was used.
- n.p. Data not published to maintain confidentiality of small numbers.

Source: AIHW NPSU National Perinatal Data Collection 2007.

Indigenous women who gave birth in hospital

Hospital sector

‘Hospital sector’ indicates whether a patient was admitted to a public or private hospital. Of Indigenous mothers who gave birth in hospital in 2001–2004, the proportion in private hospitals was approximately 3% (Table 3.20). This was substantially lower than the proportion of non-Indigenous mothers who gave birth in private hospitals (32%).

There was variation in the proportion of Indigenous women who gave birth in private hospitals among the states and territories; ranging from 1.1% in the Northern Territory to 11% in the Australian Capital Territory. Indigenous women who gave birth in private hospitals were older, with a mean age of 29.0 years compared with 24.6 years for Indigenous women who gave birth in public hospitals.

Table 3.20: Indigenous mothers who gave birth in hospital by hospital sector, 2001–2004

Hospital sector	NSW	Vic	Qld	WA	SA	ACT	NT	Total
Number								
Public	8,198	1,501	10,673	5,921	1,689	239	5,298	33,519
Private	357	94	229	143	30	29	60	942
Total	8,555	1,595	10,902	6,064	1,719	268	5,358	34,461
Per cent								
Public	95.8	94.1	97.9	97.6	98.3	89.2	98.9	97.3
Private	4.2	5.9	2.1	2.4	1.7	10.8	1.1	2.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: AIHW NPSU National Perinatal Data Collection 2007.

Indigenous women who gave birth in public hospitals in 2001–2004 had a higher proportion of spontaneous vaginal birth (72%) than those giving birth in private hospitals (50%) (Table 3.21). Instrumental vaginal births (i.e. forceps and vacuum extraction) were more common among Indigenous women who gave birth in private hospitals (12%) compared with those who gave birth in public hospitals (5%). Caesarean sections were also more common among Indigenous women giving birth in private hospitals (37%) than public hospitals (23%).

Table 3.21: Indigenous mothers who gave birth in hospital by method of birth and hospital sector, 2001–2004

Method of birth	Public	Private	Total
Number			
Spontaneous vaginal	24,103	472	24,575
Forceps	521	59	580
Vacuum extraction	1,058	57	1,115
Vaginal breech	266	5	271
Caesarean section	7,559	348	7,907
Other	7	—	7
Not stated	5	1	6
Total	33,519	942	34,461
Per cent			
Spontaneous vaginal	71.9	50.1	71.3
Forceps	1.6	6.3	1.7
Vacuum extraction	3.2	6.1	3.2
Vaginal breech	0.8	0.5	0.8
Caesarean section	22.6	36.9	22.9
Other	—	—	—
Not stated	—	—	—
Total	100.0	100.0	100.0

Note: For multiple births, the method of birth of the firstborn baby was used.

Source: AIHW NPSU National Perinatal Data Collection 2007.

Postnatal length of stay

The median length of stay in hospital for Indigenous women who gave birth in 2001–2004 was 3 days overall and for all age groups (Table 3.22). The median length of stay for non-Indigenous mothers who gave birth over this same period was 4 days.

Almost one-quarter of Indigenous mothers who gave birth in hospital had a length of stay of 2 days (23%) and one-fifth stayed for 3 days (21%). Older mothers were generally more likely to stay in hospital for longer periods after giving birth.

Table 3.22: Indigenous mothers who gave birth in hospital^(a) by postnatal length of stay and maternal age, 2001–2004

Length of stay	Age group (years)					Not stated	Total
	Less than 20	20–24	25–29	30–34	35 and over		
Median length of stay	3.0	3.0	3.0	3.0	3.0	4.5	3.0
	Number						
Less than 1 day	156	364	270	132	66	1	989
1 day	871	1,544	1,281	702	283	—	4,681
2 days	1,310	2,048	1,461	913	389	—	6,121
3 days	1,278	1,715	1,252	822	365	—	5,432
4 days	847	1,076	808	632	304	—	3,667
5 days	560	611	549	443	219	—	2,382
6 days	268	288	298	204	126	—	1,184
7–13 days	412	411	326	245	160	1	1,555
14–20 days	26	27	16	20	23	—	112
21–27 days	2	2	5	3	1	—	13
28 or more days	1	1	4	3	2	—	11
Not stated	68	115	84	61	31	5	364
Total	5,799	8,202	6,354	4,180	1,969	7	26,511
	Per cent						
Less than 1 day	2.7	4.4	4.2	3.2	3.4	14.3	3.7
1 day	15.0	18.8	20.2	16.8	14.4	—	17.7
2 days	22.6	25.0	23.0	21.8	19.8	—	23.1
3 days	22.0	20.9	19.7	19.7	18.5	—	20.5
4 days	14.6	13.1	12.7	15.1	15.4	—	13.8
5 days	9.7	7.4	8.6	10.6	11.1	—	9.0
6 days	4.6	3.5	4.7	4.9	6.4	—	4.5
7–13 days	7.1	5.0	5.1	5.9	8.1	14.3	5.9
14–20 days	0.4	0.3	0.3	0.5	1.2	—	0.4
21–27 days	—	—	0.1	0.1	0.1	—	—
28 or more days	—	—	0.1	0.1	0.1	—	—
Not stated	1.2	1.4	1.3	1.5	1.6	71.4	1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Only mothers who were discharged home are included.

Source: AIHW NPSU National Perinatal Data Collection 2007.