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The National Perinatal Statistics Unit (NPSU) is a collaborating unit of the Australian Institute of Health and Welfare (AIHW). It aims to provide information and statistics in reproductive and perinatal health. The AIHW National Perinatal Statistics Unit, which was established in 1979, is part of the University of New South Wales (UNSW) and is located at Sydney Children's Hospital (SCH), Randwick Hospitals Campus.

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Australian Institute of Health and Welfare

Board Chair

Hon. Peter Collins, AM, QC

Director

Penny Allbon

Any enquiries about or comments on this publication should be directed to:

AIHW National Perinatal Statistics Unit

Level 2, McNevin Dickson Building

Randwick Hospitals Campus

Randwick NSW 2031

Phone: (02) 9382 1014

Email: npdc@unsw.edu.au

Website: <www.npsu.unsw.edu.au>

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Abbreviations

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
ART	assisted reproductive technology
ASCCSS	Australian Standard Classification of Countries for Social Statistics
ASGC	Australian Standard Geographical Classification
g	gram
IPPR	intermittent positive pressure respiration
LMP	first day of the last menstrual period
METeOR	metadata online registry
NHDD	National Health Data Dictionary
NHISSC	National Health Information Standards and Statistics Committee
NICU	neonatal intensive care unit
NMDS	National Minimum Data Set
NPDC	National Perinatal Data Collection
NPDDC	National Perinatal Data Development Committee
NPSU	AIHW National Perinatal Statistics Unit
NSW	New South Wales
NT	Northern Territory
PSANZ-PDC	Perinatal Society of Australia and New Zealand Perinatal Death Classification
Qld	Queensland
SA	South Australia
SACC	Standard Australian Classification of Countries
SCN	special care nursery
Tas	Tasmania
UNSW	University of New South Wales
Vic	Victoria
WA	Western Australia
WHO	World Health Organization
n.a.	not available
n.p.	not published
..	not applicable

Summary

More births

Australia's mothers and babies 2008 is the eighteenth annual report on pregnancy and childbirth in Australia providing national information on women who gave birth and the characteristics and outcomes of their babies. In 2008, 292,156 women gave birth to 296,925 babies in Australia. This included 294,737 live births and 2,188 fetal deaths. The increase in births continued, with 2,720 more births (0.9%) than reported in 2007. However, the 'baby boom' peak appears to have passed; the rate of women aged 15–44 years giving birth in the population decreased slightly between 2007 and 2008. Data on the use of assisted reproductive technology (ART) showed that 3.2% of women who gave birth received ART treatment.

Antenatal factors

For jurisdictions where data on number of antenatal visits were available, 98.3% of women who gave birth had at least one antenatal visit, with 92.0% having five or more visits. Women who had no antenatal care accounted for only 0.3%. The proportion of women who smoked while pregnant was 16.2%. The average age of mothers who smoked was 27.0 years compared with 30.2 years for non-smokers.

Indigenous mothers

Of women who gave birth during 2008, 3.8% identified as Aboriginal or Torres Strait Islander. The average age of Indigenous mothers was 25.1 years, compared with 30.1 years for non-Indigenous mothers. Over half of the Aboriginal and Torres Strait Islander mothers reported smoking during pregnancy (50.9%), compared with 14.4% of non-Indigenous women who gave birth.

Labour and delivery

Of women who laboured, 74.6% had analgesia administered. The most common type of analgesia for labour was nitrous oxide (50.3%). The most common method of administration of anaesthesia for instrumental deliveries was epidural or caudal anaesthesia (50.7%), and for caesarean sections, spinal anaesthesia (61.3%). This is the second year that the rate of caesarean section has not significantly increased with a 0.2% rise from 30.9% in 2007 to 31.1% in 2008. The caesarean section rate for first-time mothers was 32.0% in 2008. Around 83.2% of those who had previously had a caesarean section had a further caesarean section in 2008.

Baby outcomes

Of babies born in 2008, 6.1% of live births were of low birthweight (less than 2,500 grams). This rate of low birthweight was the lowest in the decade 1999–2008. The perinatal death rate was 10.2 per 1,000 births in 2008, which comprised fetal and neonatal death rates of 7.4 per 1,000 births and 2.8 per 1,000 live births respectively. The leading category of perinatal death was congenital abnormality (24.9%). For term singleton births the leading categories of perinatal death were unexplained antepartum death (26.8%), congenital abnormality (16.4%) and hypoxic peripartum death (13.2%).

1 Introduction

Australia's mothers and babies 2008 is the eighteenth in the annual series prepared by the Australian Institute of Health and Welfare's (AIHW) National Perinatal Statistics Unit (NPSU). The report provides national information on the pregnancy and childbirth of mothers, and the characteristics and outcomes of their babies. It is a collaborative effort of the NPSU and states and territories, and can be used by researchers, academics, students, policy makers and health service planners, and those providing services in reproductive health. The report is based on data from the National Perinatal Data Collection (NPDC).

Purpose of this report

The purpose of *Australia's mothers and babies 2008* is to provide information on the women who gave birth to liveborn or stillborn babies in 2008, and on their babies.

This is achieved through:

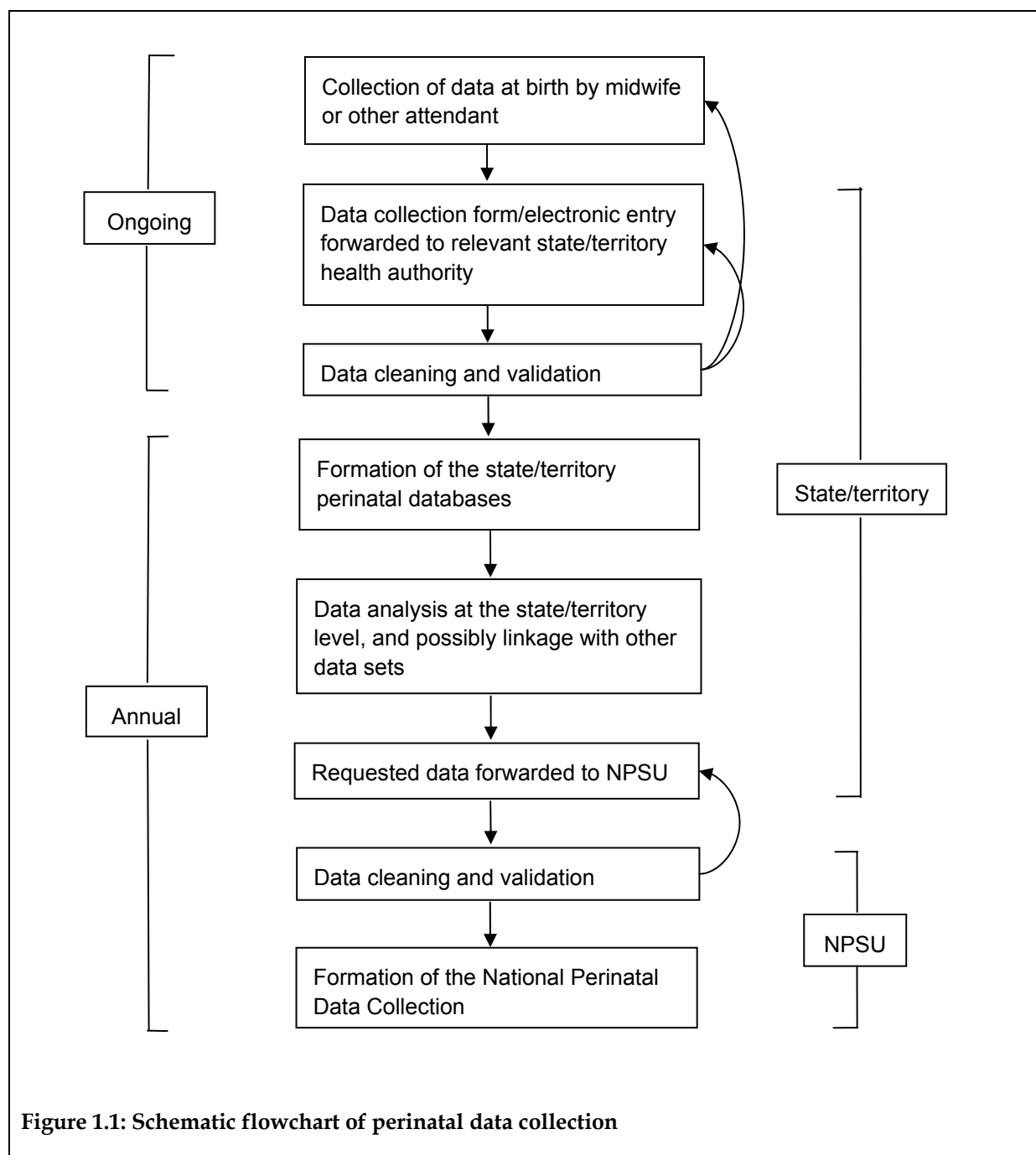
- reporting against the Perinatal National Minimum Data Set
- providing national information on women who gave birth in 2008, including demographics, risk factors and characteristics relating to the pregnancy, childbirth and puerperium
- providing national information on the characteristics and perinatal outcomes of babies born in 2008
- providing information for state and territory comparison
- providing information for international comparison.

National Perinatal Data Collection

The 2008 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. Figure 1.1 shows the pathway of perinatal data to the NPSU for national collation.

Each state and territory collects more information than is specified in the Perinatal National Minimum Data Set (NMDS), and the NPSU requests some of these additional items. The information includes characteristics of the mother, such as previous pregnancies and perineal status after vaginal birth, and characteristics of the baby, such as resuscitation and admission to a special care nursery or neonatal intensive care unit.

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. Due to 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. See Appendix 1 for a list of state and territory reports on the 2008 data and Appendix 2 for state and territory contact details.



The Perinatal National Minimum Data Set

An NMDS is a core set of data elements endorsed by the National Health Information Standards and Statistics Committee (NHISSC) for mandatory collection and reporting at a national level. An NMDS includes agreement on specified data elements as well as the scope of the application of those data elements and the statistical units for collection. Definitions of

all data elements that are included in NMDSs 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. An evaluation of compliance with the Perinatal NMDS specifications, reported in the *Perinatal National Minimum Data Set compliance evaluation 2001 to 2005* showed improvement for 2005 data, available at <www.preru.unsw.edu.au/PRERUWeb.nsf/page/ps21> (Laws 2008).

Current definitions are available in the *National health data dictionary* (NHDD) Version 15 (AIHW 2010) and on METeOR online at <www.meteor.aihw.gov.au>. A list of the current Perinatal NMDS data elements can be found in Appendix 3. Versions 13 and 14 of the NHDD were current at the time of collection of the 2008 data (HDSC 2006; HDSC 2008).

In 2009, a program for national data development was completed to add nationally agreed data items on smoking during pregnancy and gestation at the first antenatal visit to the Perinatal NMDS from 2010. Work is also underway to develop data elements for the collection of antenatal care information, risk factors during pregnancy including alcohol and drug use, and Indigenous status of the baby. Enhancement of perinatal data is a priority for the Council of Australian Governments (COAG).

The National Perinatal Data Development Committee

The primary role of the National Perinatal Data Development Committee (NPDDC) is to undertake perinatal data development. New data items and changes to existing items that are agreed to by the Committee are submitted to NHISSC for endorsement for inclusion in METeOR and the Perinatal NMDS. The NPDDC is comprised of representatives from each state and territory health authority, the Australian Bureau of Statistics (ABS), the AIHW and the NPSU, with temporary members invited on a transitory basis as their expertise is required. The NPDDC works in consultation with clinical reference groups.

A program of perinatal data development has led to improvements in data provision and reporting. The program of data development involves revision of existing Perinatal NMDS items, data development work on existing perinatal METeOR items and the development of new perinatal items.

Data quality, presentation and interpretation

This report presents perinatal data that can largely be compared with data presented in *Australia's mothers and babies 2007* (Laws & Sullivan 2009). This edition includes a special chapter on instrumental vaginal births (Chapter 5).

Tabulated data in this report are based on births in each state and territory in 2008 meeting the criteria for inclusion in the NPDC. Each state and territory has its own form and/or

electronic system for collecting perinatal data. Unless otherwise stated, the data in this report relate to the state or territory of occurrence of births in 2008 rather than to the state or territory of usual residence of the mother.

Data are presented for all states and territories where available. Although the perinatal collections are based on the 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 or data have not been published for other reasons, this is indicated in the footnotes of tables or figures.

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.

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 (AIHW 2010). 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.

Since 2005, all jurisdictions collect information on Indigenous status of the mother in accordance with the NMDS. All jurisdictions are working towards improving the ascertainment of Indigenous status in their perinatal collections. Consultation for a new data element to collect Indigenous status of the baby was completed in June 2010 and the data element is anticipated to be added to the Perinatal NMDS from July 2011. In 2007, the NPSU, in collaboration with the AIHW's Aboriginal and Torres Strait Islander Health and Welfare Unit, released a report on Indigenous mothers and their babies. This project included an assessment of Indigenous status data quality (Leeds et al. 2007).

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 2008, 29.1% of Aboriginal or Torres Strait Islander women who gave birth in the Australian Capital Territory were not Australian Capital Territory residents.

The Australian Capital Territory data contain a relatively high proportion of New South Wales residents who gave birth in the Australian Capital Territory. The proportion of non-residents who gave birth in the Australian Capital Territory was 15.7% in 2008. When interpreting the data it is important to note that these births to non-residents may include a disproportionate number of high risk and multi-fetal pregnancies associated with poorer perinatal outcomes. Therefore, percentages or rates such as those for preterm birth and perinatal deaths may be inflated for births that occur in the Australian Capital Territory. Reporting by state or territory of usual residence of the mother assists in addressing this issue.

The Perinatal NMDS does not include neonatal or perinatal death data items or information on cause of death. However, this information is collected as part of the NPDC. The data are incomplete. In some jurisdictions, neonatal deaths for babies transferred to another hospital or readmitted to hospital and those dying at home may not be included. Neonatal deaths for the Northern Territory are considered to be incomplete for 2008 as data do not include deaths occurring outside of the Northern Territory. Due to the small number of deaths, interpretation can be limited as to whether differences in mortality rates are due to statistical fluctuations or differential ascertainment.

The number of babies is marginally higher than the number of mothers because of multiple births. The terms 'mothers' or 'women who gave birth' have been used in this report when referring to maternal characteristics, whereas 'births' refers to babies.

Cell sizes of less than five in tables have not been published in line with AIHW guidelines for protecting privacy of individuals (SIMC 2007). Exceptions to this are small numbers in 'Other' and 'Not stated' categories. Where n.p. (not published) has been used to protect confidentiality, the suppressed numbers are included in the totals.

For multiple pregnancies, items presented for mothers which may be different for each baby, such as place of birth, are classified according to the characteristics of the first born baby. Where these items are presented for babies, each baby of a multiple birth is assigned the value of the first born baby. The exceptions are gestational age, presentation at birth and method of birth, for which the value for each baby of a multiple birth is presented.

Throughout the report, for totals, percentages may not add up to 100.0, and for subtotals, they may not add up to the sum of the percentages for the categories. This is due to rounding. Some percentages in the tables appear as 0.0% where numbers are small.

Structure of this report

The remainder of this report is divided into the following chapters:

- Chapter 2: Summary data

This chapter contains summary data on the number of women who gave birth and the number of babies born in 2008.

- Chapter 3: Mothers

This chapter contains information on women who gave birth in 2008, 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, perineal status).

- Chapter 4: Babies

This chapter contains information on the characteristics and outcomes of babies born in 2008, including birth status, gestational age, birthweight and sex ratios.

- Chapter 5: Instrumental vaginal births

This chapter focuses on selected characteristics of women who had instrumental vaginal births and outcomes of their babies.

- Chapter 6: Perinatal mortality

This chapter includes data from the NPDC on fetal, neonatal and perinatal deaths. It also presents deaths from some jurisdictions classified using the Perinatal Society of Australia and New Zealand Perinatal Death Classification (PSANZ-PDC).

Appendix 4 presents the underlying data for the figures in the report.

2 Summary data

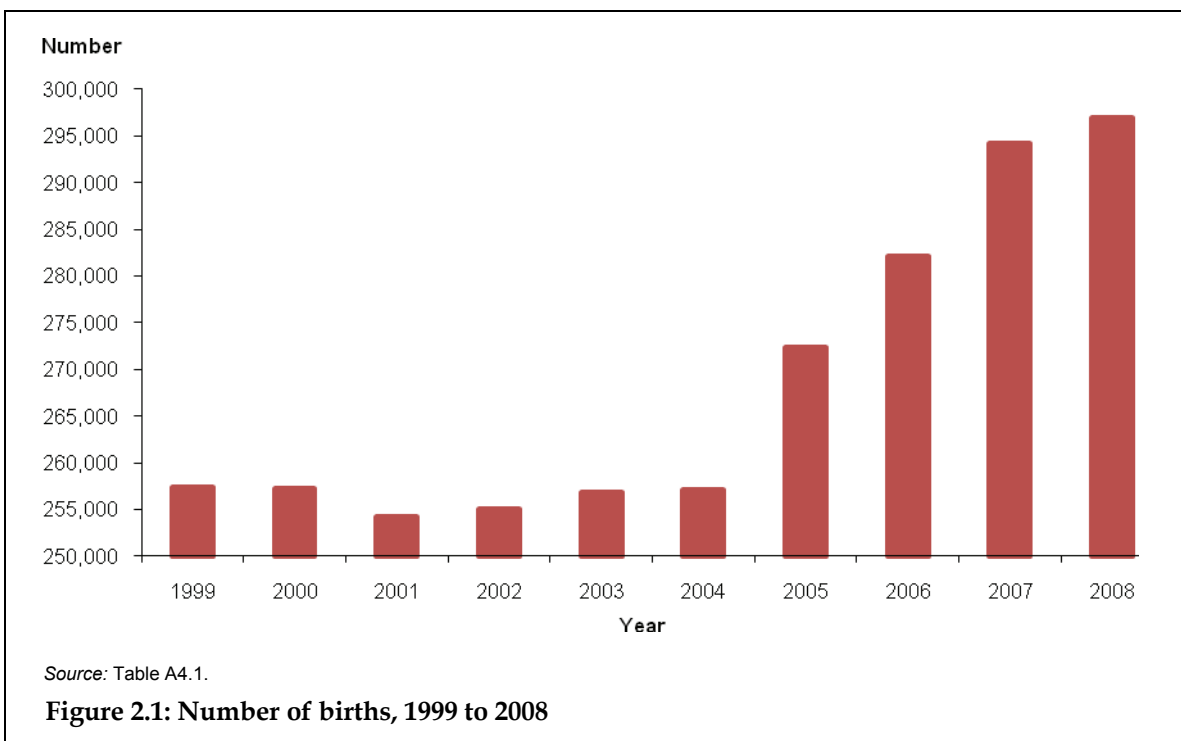
Women who gave birth and births

There were 292,156 women who gave birth in 2008 reported to the NPDC, resulting in a total of 296,925 births. Of these, 2,188 were fetal deaths (Table 2.1). This showed an increase of only 2,720 births (0.9%) from the 294,205 reported in 2007, and a 15.4% increase since 2004.

Table 2.1: Women who gave birth and births, by state and territory, 2008

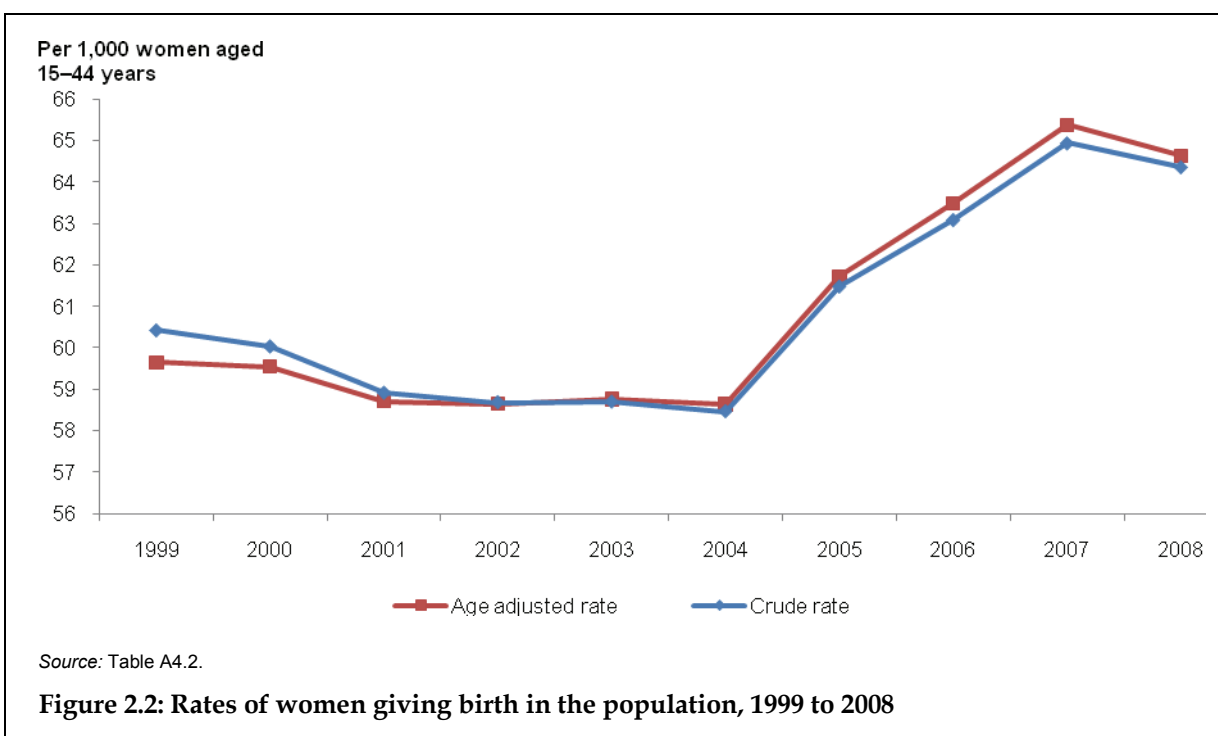
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Mothers	94,857	71,324	60,326	30,237	19,671	6,349	5,589	3,803	292,156
Fetal deaths	584	703	384	225	151	58	55	28	2,188
Live births	95,752	71,843	61,016	30,449	19,818	6,397	5,650	3,812	294,737
All births	96,336	72,546	61,400	30,674	19,969	6,455	5,705	3,840	296,925

Ten years earlier, in 1999, there were 257,430 births. The number of births has been increasing since 2001, when the lowest number of births during the past decade was reported (254,326) (Figure 2.1).



There were 294,737 live births in 2008 reported to the NPDC (Table 2.1). This was 1,884 less than the 296,621 live births registered in Australia in 2008 (ABS 2009). Reasons for the differences in national figures on live births between the two collections are being further investigated, but somewhat reflect the different scope, methods and timing of the data collections (Laws et al. 2007).

As a proportion of females of reproductive age (15–44 years) in the population, the crude rate of women who gave birth was 60.4 per 1,000 in 1999. This rate decreased to 58.5 per 1,000 in 2004 and increased again to 64.9 per 1,000 females aged 15–44 years in 2007, where the ‘baby boom’ peaked. In 2008, there was a slight decrease in the crude rate to 64.4 per 1,000 females aged 15–44 years. The age-adjusted rates were similar (Figure 2.2).



3 Mothers

Demographic profile

Maternal age

Maternal age is an important risk factor for both obstetric and perinatal outcome. Adverse outcomes are more likely to occur in younger and older mothers (Gortzak-Uzan et al. 2001; Joseph et al. 2005). The age of mothers ranged from less than 15 years to 58 years in 2008. The average age of women who gave birth in Australia has increased gradually in recent years. The mean age in 2008 was 29.9 years, compared with 29.0 years in 1999, while the median age in 2008 was 30.0 years. The trend in delayed childbearing can be attributed to a number of factors including social, educational and economic factors, and increased access to assisted reproductive technology (Carolan 2003; Cleary-Goldman et al. 2005).

In 2008, the average age of mothers was higher in women who gave birth in Victoria and the Australian Capital Territory (30.7 and 30.8 years respectively) and lower in the Northern Territory (27.7 years) than the national average of 29.9 years (Table 3.1). Nationally, the proportion of teenage mothers (less than 20 years) dropped from 5.1% in 1999 to 4.1% in 2007, increasing slightly to 4.2% in 2008. The proportion of women who gave birth in 2008 who were teenagers ranged from a low of 2.1% in the Australian Capital Territory to 10.9% in the Northern Territory (Table 3.1).

The proportion of mothers aged 20–24 years fell from 16.1% in 1999 to 14.5% in 2008. The proportion of older mothers, aged 35 years and over, has continued to increase from 16.3% in 1999 to 22.9% in 2008. Mothers aged 40 and over made up 3.8% of women giving birth in 2008 compared with 2.4% in 1999. There were 467 women aged 45 years and over who gave birth in 2008, accounting for 0.2%.

Table 3.1: Women who gave birth by maternal age and state and territory, 2008

Maternal age (years)	State/territory of birth								Australia
	NSW	Vic ^(a)	Qld	WA	SA ^(b)	Tas	ACT ^(c)	NT	
Mean	30.1	30.7	29.2	29.5	29.6	28.6	30.8	27.7	29.9
Number									
Less than 20	3,360	1,956	3,456	1,535	884	443	119	415	12,168
20–24	13,117	8,160	10,458	4,822	3,080	1,254	597	864	42,352
25–29	25,403	17,969	16,889	8,162	5,433	1,781	1,471	1,015	78,123
30–34	30,648	24,412	17,585	9,209	6,117	1,741	1,946	916	92,574
35–39	18,580	15,645	10,067	5,476	3,455	938	1,222	495	55,878
40 and over	3,738	3,174	1,871	1,033	702	192	234	98	11,042
Not stated	11	8	—	—	—	—	—	—	19
Total	94,857	71,324	60,326	30,237	19,671	6,349	5,589	3,803	292,156
Per cent									
Less than 20	3.5	2.7	5.7	5.1	4.5	7.0	2.1	10.9	4.2
20–24	13.8	11.4	17.3	15.9	15.7	19.8	10.7	22.7	14.5
25–29	26.8	25.2	28.0	27.0	27.6	28.1	26.3	26.7	26.7
30–34	32.3	34.2	29.1	30.5	31.1	27.4	34.8	24.1	31.7
35–39	19.6	21.9	16.7	18.1	17.6	14.8	21.9	13.0	19.1
40 and over	3.9	4.5	3.1	3.4	3.6	3.0	4.2	2.6	3.8
Not stated	0.0	0.0	—	—	—	—	—	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) For Vic, maternal ages presented here may differ from those produced by the Victorian Perinatal Data Collection.

(b) For SA, the mean maternal age presented here may differ from that produced by the Pregnancy Outcome Statistics Unit that uses maternal age to four decimal places for this calculation. The NPDC contains maternal age in completed years.

(c) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages.

When compared to Table 3.1, Table 3.2 excludes 0.13% of mothers not usually resident in Australia or whose state or territory of usual residence was 'Not stated'. There was minimal impact on the age of women accessing services outside of their state of usual residence with only Queensland showing a marginal decline of 0.1 year, and Victoria and the Australian Capital Territory an increase of 0.1 year, in their mean maternal ages.

Table 3.2: Women who gave birth by maternal age and state and territory of usual residence, 2008

Maternal age (years)	State/territory of usual residence								
	NSW	Vic ^(a)	Qld	WA	SA ^(b)	Tas	ACT ^(c)	NT	Australia
Mean	30.1	30.8	29.1	29.5	29.6	28.6	30.9	27.7	29.9
Number									
Less than 20	3,450	1,858	3,479	1,540	877	441	93	411	12,149
20–24	13,310	7,924	10,542	4,830	3,077	1,256	491	854	42,284
25–29	25,769	17,610	16,998	8,176	5,411	1,789	1,243	1,008	78,004
30–34	31,138	24,059	17,627	9,221	6,078	1,739	1,680	923	92,465
35–39	18,895	15,439	10,071	5,477	3,438	944	1,047	507	55,818
40 and over	3,790	3,144	1,874	1,034	701	192	201	97	11,033
Not stated	11	4	—	1	1	—	—	—	17
Total	96,363	70,038	60,591	30,279	19,583	6,361	4,755	3,800	291,770
Per cent									
Less than 20	3.6	2.7	5.7	5.1	4.5	6.9	2.0	10.8	4.2
20–24	13.8	11.3	17.4	16.0	15.7	19.7	10.3	22.5	14.5
25–29	26.7	25.1	28.1	27.0	27.6	28.1	26.1	26.5	26.7
30–34	32.3	34.4	29.1	30.5	31.0	27.3	35.3	24.3	31.7
35–39	19.6	22.0	16.6	18.1	17.6	14.8	22.0	13.3	19.1
40 and over	3.9	4.5	3.1	3.4	3.6	3.0	4.2	2.6	3.8
Not stated	0.0	0.0	—	0.0	0.0	—	—	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: Excludes mothers not usually resident in Australia and those whose state or territory of usual residence was 'Not stated'.

Aboriginal and Torres Strait Islander mothers

The data presented on Indigenous mothers are influenced by the quality and completeness of Indigenous identification, which may vary among jurisdictions. Further detail about the collection and reporting of Indigenous status data are presented in the report *Indigenous mothers and their babies, Australia 2001–2004* (Leeds et al. 2007).

In 2008, 11,188 women who identified as being Aboriginal or Torres Strait Islander gave birth in Australia, representing 3.8% of all women who gave birth (Table 3.3). Aboriginal or Torres Strait Islander mothers accounted for a much greater proportion of all mothers in the Northern Territory (36.8%) than in other jurisdictions. There were also high proportions of Aboriginal or Torres Strait Islander mothers in Western Australia and Queensland (both 5.6%). Because of their larger overall populations, there were more Aboriginal or Torres Strait Islander women who gave birth in Queensland (3,372), New South Wales (2,976) and Western Australia (1,694) than in the Northern Territory (1,400) (Table 3.3).

Table 3.3: Women who gave birth by Indigenous status and state and territory, 2008

Indigenous status	NSW	Vic	Qld	WA	SA	Tas	ACT ^(a)	NT	Australia
Number									
Aboriginal or Torres Strait Islander	2,976	723	3,372	1,694	624	296	103	1,400	11,188
Non-Indigenous	91,668	70,515	56,917	28,543	19,047	6,053	5,461	2,384	280,588
Not stated	213	86	37	—	—	—	25	19	380
Total	94,857	71,324	60,326	30,237	19,671	6,349	5,589	3,803	292,156
Per cent									
Aboriginal or Torres Strait Islander	3.1	1.0	5.6	5.6	3.2	4.7	1.8	36.8	3.8
Non-Indigenous	96.6	98.9	94.3	94.4	96.8	95.3	97.7	62.7	96.0
Not stated	0.2	0.1	0.1	—	—	—	0.4	0.5	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages. For example, 29.1% of Aboriginal or Torres Strait Islander women who gave birth in the ACT in 2008 were non-ACT residents.

More Aboriginal or Torres Strait Islander mothers have their babies at a younger age compared with non-Indigenous mothers. The average age of Aboriginal or Torres Strait Islander women who gave birth in 2008 was 25.1 years, compared with 30.1 years for non-Indigenous mothers. One in five (20.5%) Aboriginal or Torres Strait Islander mothers were teenagers, compared with 3.5% of non-Indigenous mothers.

Geographical location of the mother's usual residence

State and territory of the mother's usual residence

Of women who gave birth in the Australian Capital Territory, 15.7% lived outside of the Australian Capital Territory. For the remaining jurisdictions, the proportion of women who gave birth outside their state or territory of usual residence ranged from 0.1% in Western Australia, to 2.0% in both Victoria and the Northern Territory (Table 3.4).

Table 3.4: Women who gave birth by state and territory of usual residence and state and territory of birth, 2008

State/ territory of usual residence	State/territory of birth								Total
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	
	Number								
NSW	93,718	1,251	491	<5	n.p.	—	872	—	96,363
Vic	24	69,930	11	<5	66	—	n.p.	<5	70,038
Qld	780	47	59,746	5	8	—	<5	<5	60,591
WA	<5	18	14	30,206	n.p.	—	—	28	30,279
SA	<5	13	<5	<5	19,521	—	—	38	19,583
Tas	—	18	<5	—	<5	6,338	—	<5	6,361
ACT	40	<5	<5	—	<5	—	4,709	—	4,755
NT	<5	n.p.	26	5	33	—	—	3,728	3,800
Non-resident ^(a)	284	39	30	<5	<5	11	—	5	372
Not stated	—	—	—	14	—	—	—	—	14
Total	94,857	71,324	60,326	30,237	19,671	6,349	5,589	3,803	292,156
	Per cent								
NSW	98.8	1.8	0.8	n.p.	n.p.	—	15.6	—	33.0
Vic	0.0	98.0	0.0	n.p.	0.3	—	n.p.	n.p.	24.0
Qld	0.8	0.1	99.0	0.0	0.0	—	n.p.	n.p.	20.7
WA	n.p.	0.0	0.0	99.9	n.p.	—	—	0.7	10.4
SA	n.p.	0.0	n.p.	n.p.	99.2	—	—	1.0	6.7
Tas	—	0.0	n.p.	—	n.p.	99.8	—	n.p.	2.2
ACT	0.0	n.p.	n.p.	—	n.p.	—	84.3	—	1.6
NT	n.p.	n.p.	0.0	0.0	0.2	—	—	98.0	1.3
Non-resident ^(a)	0.3	0.1	0.0	n.p.	n.p.	0.2	—	0.1	0.1
Not stated	—	—	—	0.0	—	—	—	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Not usually resident in Australia.

n.p. Data not published to maintain confidentiality of small numbers.

Remoteness Area of the mother's usual residence

Data on the geographical location of the usual residence of the mother were provided as state and Statistical Local Area and/or postcode. These data have been mapped to levels of remoteness using the ABS's Australian Standard Geographical Classification (ASGC) remoteness structure.

The distribution of Remoteness Area of mothers varied by state and territory of usual residence. In Queensland, 59.3% of women resided in major cities compared with 70.0% or more in the other populous states. The Northern Territory and Australian Capital Territory presented different profiles of Remoteness Area, with almost all Australian Capital Territory resident mothers living in a major city compared with Northern Territory women who lived in outer regional, remote and very remote areas (Table 3.5).

Table 3.5: Women who gave birth by Remoteness Area of usual residence and state and territory of usual residence, 2008

Remoteness Area	State/territory of usual residence								Total
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	
	Number								
Major cities	73,067	53,944	35,943	21,270	14,297	..	4,748	..	203,269
Inner regional	17,108	13,183	12,229	3,695	2,326	4,188	7	..	52,736
Outer regional	5,582	2,862	9,880	2,890	2,173	2,046	..	2,041	27,474
Remote	493	40	1,534	1,546	589	103	..	816	5,121
Very remote	110	..	996	861	193	24	..	938	3,122
Total	96,360	70,029	60,582	30,262	19,578	6,361	4,755	3,795	291,722
	Per cent								
Major cities	75.8	77.0	59.3	70.3	73.0	..	99.9	..	69.7
Inner regional	17.8	18.8	20.2	12.2	11.9	65.8	0.1	..	18.1
Outer regional	5.8	4.1	16.3	9.5	11.1	32.2	..	53.8	9.4
Remote	0.5	0.1	2.5	5.1	3.0	1.6	..	21.5	1.8
Very remote	0.1	..	1.6	2.8	1.0	0.4	..	24.7	1.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: Excludes mothers not usually resident in Australia and those whose state or territory of usual residence was 'Not stated'.

.. Not applicable.

Remoteness Area of mother's usual residence also varied by Indigenous status. Of non-Indigenous women who gave birth in 2008, 71.4% lived in major cities, followed by 18.0% in inner regional areas. Aboriginal and Torres Strait Islander women were more evenly spread across Remoteness Areas, with 27.6% living in major cities and 25.7% in outer regional areas. Few non-Indigenous women who gave birth lived in very remote areas compared with Indigenous mothers (0.5% compared with 15.7%). Of not stated records for Indigenous status, 70.3% were in major cities (Table 3.6).

Table 3.6: Women who gave birth by Remoteness Area of usual residence and Indigenous status, 2008

Remoteness Area	Indigenous	Non-Indigenous	Not stated	Total
Number				
Major cities	3,084	199,922	263	203,269
Inner regional	2,290	50,380	66	52,736
Outer regional	2,879	24,559	40	27,478
Remote	1,170	3,949	2	5,121
Very remote	1,758	1,361	3	3,122
Total	11,181	280,171	374	291,726
Per cent				
Major cities	27.6	71.4	70.3	69.7
Inner regional	20.5	18.0	17.6	18.1
Outer regional	25.7	8.8	10.7	9.4
Remote	10.5	1.4	0.5	1.8
Very remote	15.7	0.5	0.8	1.1
Total	100.0	100.0	100.0	100.0

Note: Excludes mothers not usually resident in Australia.

Maternal country of birth

The country of birth of the mother may be an important risk factor for outcomes such as low birthweight and perinatal mortality. Of women who gave birth in Australia in 2008, 25.3% were born in countries other than Australia. Mothers born in the United Kingdom constituted 2.9% of all mothers and accounted for a relatively high proportion of all mothers in Western Australia (6.7%). New Zealand-born mothers constituted 2.9% of all women who gave birth. One in 10 women who gave birth was born in an Asian country (10.3%). Larger proportions of mothers born in non-English speaking countries gave birth in the more populous states, New South Wales and Victoria (Table 3.7).

Table 3.7: Women who gave birth by country of birth and state and territory, 2008

Country of birth	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Number									
Australia	65,694	51,923	48,765	20,858	16,201	5,953	4,390	3,268	217,052
New Zealand	2,388	1,486	3,150	1,064	217	39	59	61	8,464
United Kingdom	2,531	1,614	1,525	2,032	588	75	128	73	8,566
Former Yugoslavia	255	170	20	78	30	—	n.p.	<5	568
Other Europe and former USSR	2,427	2,223	1,034	840	357	56	143	66	7,146
Lebanon	1,557	473	21	21	26	—	<5	<5	2,102
Other Middle East and North Africa	2,404	1,747	343	437	236	20	72	20	5,279
China and Hong Kong	2,735	1,285	398	243	177	14	90	13	4,955
India	1,940	1,865	366	286	226	13	107	18	4,821
Philippines	1,373	645	542	217	171	24	46	42	3,060
Vietnam	1,699	1,620	344	311	291	<5	60	n.p.	4,341
Other Asia	5,336	3,626	1,483	1,427	671	58	256	117	12,974
Northern America	686	400	375	212	92	24	66	29	1,884
South and Central America and the Caribbean	830	452	269	167	86	n.p.	31	n.p.	1,851
Africa (excluding North Africa)	1,361	1,254	733	1,055	247	40	63	42	4,795
Other countries	1,437	541	932	86	55	11	56	31	3,149
Not stated	204	—	26	903	—	9	5	2	1,149
Total	94,857	71,324	60,326	30,237	19,671	6,349	5,589	3,803	292,156

(continued)

Table 3.7 (continued): Women who gave birth by country of birth and state and territory, 2008

Country of birth	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Per cent									
Australia	69.3	72.8	80.8	69.0	82.4	93.8	78.5	85.9	74.3
New Zealand	2.5	2.1	5.2	3.5	1.1	0.6	1.1	1.6	2.9
United Kingdom	2.7	2.3	2.5	6.7	3.0	1.2	2.3	1.9	2.9
Former Yugoslavia	0.3	0.2	0.0	0.3	0.2	—	n.p.	n.p.	0.2
Other Europe and former USSR	2.6	3.1	1.7	2.8	1.8	0.9	2.6	1.7	2.4
Lebanon	1.6	0.7	0.0	0.1	0.1	—	n.p.	n.p.	0.7
Other Middle East and North Africa	2.5	2.4	0.6	1.4	1.2	0.3	1.3	0.5	1.8
China and Hong Kong	2.9	1.8	0.7	0.8	0.9	0.2	1.6	0.3	1.7
India	2.0	2.6	0.6	0.9	1.1	0.2	1.9	0.5	1.7
Philippines	1.4	0.9	0.9	0.7	0.9	0.4	0.8	1.1	1.0
Vietnam	1.8	2.3	0.6	1.0	1.5	n.p.	1.1	n.p.	1.5
Other Asia	5.6	5.1	2.5	4.7	3.4	0.9	4.6	3.1	4.4
Northern America	0.7	0.6	0.6	0.7	0.5	0.4	1.2	0.8	0.6
South and Central America and the Caribbean	0.9	0.6	0.4	0.6	0.4	n.p.	0.6	n.p.	0.6
Africa (excluding North Africa)	1.4	1.8	1.2	3.5	1.3	0.6	1.1	1.1	1.6
Other countries	1.5	0.8	1.5	0.3	0.3	0.2	1.0	0.8	1.1
Not stated	0.2	0.0	0.0	3.0	—	0.1	0.1	0.1	0.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: Data were mapped to the ABS Standard Australian Classification of Countries (SACC) (ABS 1998).

n.p. Data not published to maintain confidentiality of small numbers.

Maternal characteristics

Parity

Parity is the number of a woman's previous pregnancies that resulted in a birth. In 2008, 41.6% of mothers had their first baby and 33.4% had their second baby. One in six mothers (15.2%) had given birth twice previously and 9.7% had given birth three or more times (Table 3.8).

A parity of three or more was more common in mothers in the Northern Territory than mothers in the other jurisdictions. In the Northern Territory, 8.4% of women had given birth three times previously and 6.9% four or more times, compared with 5.7% and 4.0% respectively for Australia (Table 3.8).

In 2008, 31.6% of Aboriginal or Torres Strait Islander mothers were having their first baby and 68.2% had given birth previously. More than one-quarter (27.0%) of Indigenous women had given birth three or more times previously.

Table 3.8: Women who gave birth by parity and state and territory, 2008

Parity	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Number									
None	39,446	30,935	24,149	12,481	8,156	2,480	2,429	1,497	121,573
One	31,637	24,070	19,565	10,220	6,869	2,119	1,982	1,099	97,561
Two	14,523	10,497	9,591	4,610	2,883	1,040	744	626	44,514
Three	5,438	3,542	3,927	1,733	1,090	401	261	318	16,710
Four or more	3,622	2,280	3,094	1,193	673	309	173	261	11,605
Not stated	191	—	—	—	—	—	—	2	193
Total	94,857	71,324	60,326	30,237	19,671	6,349	5,589	3,803	292,156
Per cent									
None	41.6	43.4	40.0	41.3	41.5	39.1	43.5	39.4	41.6
One	33.4	33.7	32.4	33.8	34.9	33.4	35.5	28.9	33.4
Two	15.3	14.7	15.9	15.2	14.7	16.4	13.3	16.5	15.2
Three	5.7	5.0	6.5	5.7	5.5	6.3	4.7	8.4	5.7
Four or more	3.8	3.2	5.1	3.9	3.4	4.9	3.1	6.9	4.0
Not stated	0.2	—	—	—	—	—	—	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The average age of first-time mothers increased from 27.1 years in 1999 to 28.2 years in 2008. The median age of first-time mothers was 28.0 years in 2008. Nevertheless, in 2008 57.8% of first-time mothers were aged less than 30 years. The average age of women giving birth for the second time was 30.5 years.

The average age of first-time Aboriginal and Torres Strait Islander mothers was 21.0 years in 2008. This was significantly lower than for first-time non-Indigenous mothers (28.4 years).

Figure 3.1 shows the increase in the proportion of first-time mothers in the older age groups between 1999 and 2008. Of women aged 35–39 years, 26.6% were first-time mothers compared with 24.0% in 1999. Of women aged 40 years and over, one-quarter (25.3%) had their first baby in 2008, compared with 22.4% in 1999. Of all first-time mothers, 14.5% were aged 35 years or older in 2008, compared with 9.5% in 1999. The proportion of mothers who had given birth at least twice previously increased with maternal age from 1.9% for teenagers to 42.8% for mothers aged 40 years and over (Table 3.9).

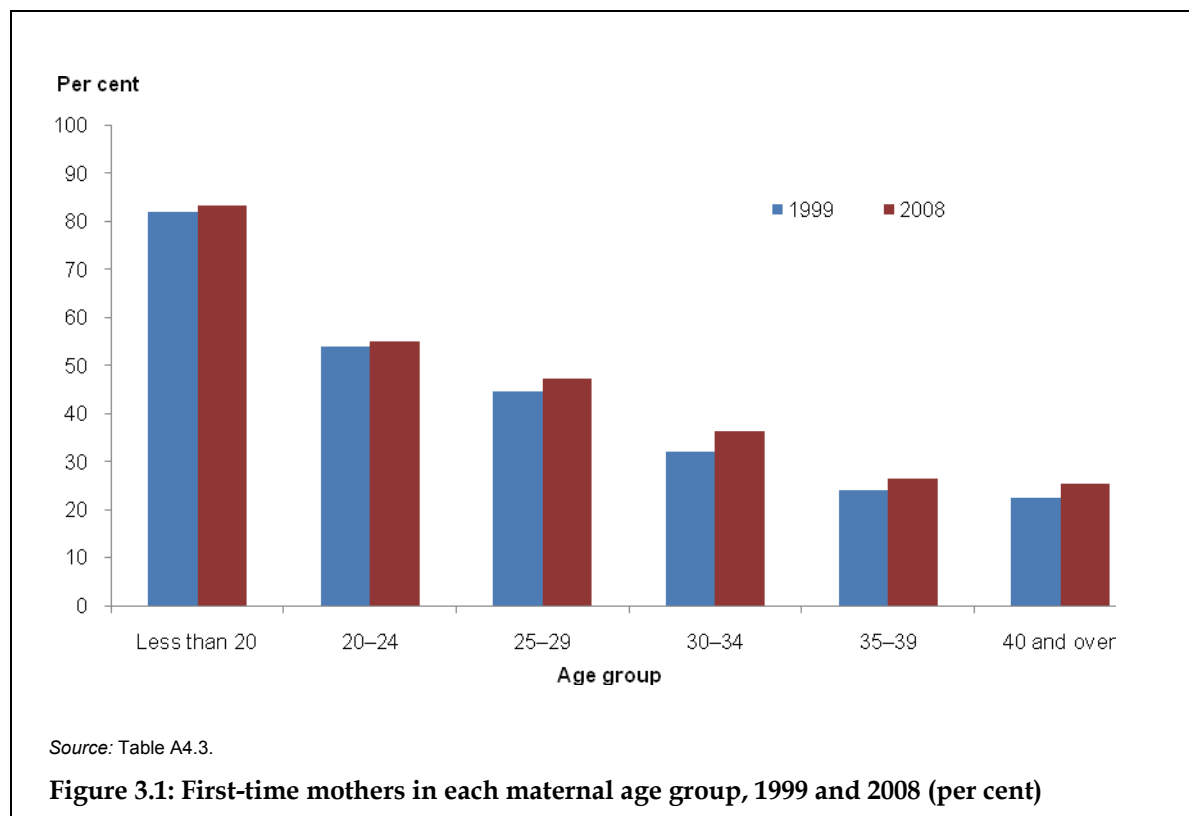


Table 3.9: Women who gave birth by parity and maternal age, 2008

Parity	Less than 20	20–24	25–29	30–34	35–39	40 and over	Not stated	Total
Number								
None	10,122	23,315	36,878	33,610	14,841	2,798	9	121,573
One	1,808	13,202	24,509	34,185	20,364	3,485	8	97,561
Two	209	4,321	10,480	15,311	11,976	2,216	1	44,514
Three	20	1,145	4,033	5,546	4,802	1,164	—	16,710
Four or more	6	354	2,192	3,875	3,830	1,348	—	11,605
Not stated	3	15	31	47	65	31	1	193
Total	12,168	42,352	78,123	92,574	55,878	11,042	19	292,156
Per cent								
None	83.2	55.1	47.2	36.3	26.6	25.3	47.4	41.6
One	14.9	31.2	31.4	36.9	36.4	31.6	42.1	33.4
Two	1.7	10.2	13.4	16.5	21.4	20.1	5.3	15.2
Three	0.2	2.7	5.2	6.0	8.6	10.5	—	5.7
Four or more	0.0	0.8	2.8	4.2	6.9	12.2	—	4.0
Not stated	0.0	0.0	0.0	0.1	0.1	0.3	5.3	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Previous caesarean sections

In 2008, 27.6% of multiparous women who gave birth in Australia had a history of previous caesarean section. This proportion ranged from 23.9% in Tasmania to 29.9% in South Australia (Table 3.10). Of those women who had a history of previous caesarean section (excluding Western Australia), 22.9% had had the procedure more than once.

Table 3.10: Multiparous women who gave birth by number of previous caesarean sections and state and territory, 2008

Previous caesarean sections	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Number									
None	39,782	29,176	25,447	12,466	8,077	2,945	2,291	1,702	121,886
At least one	14,099	11,212	10,730	5,290	3,438	924	785	601	47,079
<i>One</i>	11,012	8,635	8,108	<i>n.a.</i>	2,713	676	617	439	37,490
<i>Two</i>	2,498	2,128	2,122	<i>n.a.</i>	588	200	142	113	7,791
<i>Three or more</i>	589	449	500	<i>n.a.</i>	137	48	26	49	1,798
Not stated	1,339	1	—	—	—	—	84	1	1,425
Total	55,220	40,389	36,177	17,756	11,515	3,869	3,160	2,304	170,390
Per cent									
None	72.0	72.2	70.3	70.2	70.1	76.1	72.5	73.9	71.5
At least one	25.5	27.8	29.7	29.8	29.9	23.9	24.8	26.1	27.6
<i>One</i>	19.9	21.4	22.4	<i>n.a.</i>	23.6	17.5	19.5	19.1	22.0
<i>Two</i>	4.5	5.3	5.9	<i>n.a.</i>	5.1	5.2	4.5	4.9	4.6
<i>Three or more</i>	1.1	1.1	1.4	<i>n.a.</i>	1.2	1.2	0.8	2.1	1.1
Not stated	2.4	0.0	—	—	—	—	2.7	0.0	0.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

n.a. Data not available.

Assisted reproductive technology

Data on whether the pregnancy resulted from assisted reproductive technology (ART) were available for Victoria, Queensland, Western Australia, Tasmania and the Australian Capital Territory. Of women who gave birth in these five jurisdictions in 2008, 3.2% received ART treatment, ranging from 1.9% in the Australian Capital Territory to 3.9% in Queensland (Table 3.11).

The average age of women who received ART was 34.0 years. This was higher than the average age of women who did not receive ART treatment (29.8 years). In 2008, 63.6% of mothers who received ART treatment were having their first baby and 36.4% had given birth previously.

Table 3.11: Women who gave birth by whether pregnancy was the result of assisted reproductive technology (ART) and state and territory, 2008

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Number									
ART	n.a.	2,128	2,373	747	n.a.	177	106	n.a.	5,531
Not ART	n.a.	69,196	57,947	20,480	n.a.	6,172	5,483	n.a.	159,278
Not stated	n.a.	—	6	9,010	n.a.	—	—	n.a.	9,016
Total	n.a.	71,324	60,326	30,237	n.a.	6,349	5,589	n.a.	173,825
Per cent									
ART	n.a.	3.0	3.9	2.5	n.a.	2.8	1.9	n.a.	3.2
Not ART	n.a.	97.0	96.1	67.7	n.a.	97.2	98.1	n.a.	91.6
Not stated	n.a.	—	0.0	29.8	n.a.	—	—	n.a.	5.2
Total	n.a.	100.0	100.0	100.0	n.a.	100.0	100.0	n.a.	100.0

n.a. Data not available.

Antenatal period

Antenatal visits

Data on the number of antenatal visits during pregnancy were available for Queensland, South Australia and the Northern Territory. Table 3.12 shows that 98.3% of women who gave birth in these jurisdictions had at least one antenatal visit, with 92.0% having five or more visits. Only 0.3% had no antenatal visits (Table 3.12).

When only women who gave birth at 32 weeks gestation or more were included, thus excluding the very preterm births, 98.4% had at least one visit. Women who attended five or more visits accounted for 92.7%.

Aboriginal or Torres Strait Islander mothers attended fewer antenatal visits compared with non-Indigenous mothers. Of Indigenous mothers who gave birth at 32 weeks or more, 76.8% attended five or more visits, compared with 93.8% of non-Indigenous mothers.

Table 3.12: Women who gave birth by number of antenatal visits and state and territory, 2008

Antenatal visits	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Number									
None	n.a.	n.a.	173	n.a.	40	n.a.	n.a.	37	250
At least one	n.a.	n.a.	60,117	n.a.	18,497	n.a.	n.a.	3,735	82,349
<i>One</i>	<i>n.a.</i>	<i>n.a.</i>	<i>531</i>	<i>n.a.</i>	<i>54</i>	<i>n.a.</i>	<i>n.a.</i>	<i>67</i>	<i>652</i>
<i>Two to four</i>	<i>n.a.</i>	<i>n.a.</i>	<i>3,763</i>	<i>n.a.</i>	<i>486</i>	<i>n.a.</i>	<i>n.a.</i>	<i>379</i>	<i>4,628</i>
<i>Five or more</i>	<i>n.a.</i>	<i>n.a.</i>	<i>55,823</i>	<i>n.a.</i>	<i>17,957</i>	<i>n.a.</i>	<i>n.a.</i>	<i>3,289</i>	<i>77,069</i>
Not stated	n.a.	n.a.	36	n.a.	1,134	n.a.	n.a.	31	1,201
Total	n.a.	n.a.	60,326	n.a.	19,671	n.a.	n.a.	3,803	83,800
Per cent									
None	n.a.	n.a.	0.3	n.a.	0.2	n.a.	n.a.	1.0	0.3
At least one	n.a.	n.a.	99.7	n.a.	94.0	n.a.	n.a.	98.2	98.3
<i>One</i>	<i>n.a.</i>	<i>n.a.</i>	<i>0.9</i>	<i>n.a.</i>	<i>0.3</i>	<i>n.a.</i>	<i>n.a.</i>	<i>1.8</i>	<i>0.8</i>
<i>Two to four</i>	<i>n.a.</i>	<i>n.a.</i>	<i>6.2</i>	<i>n.a.</i>	<i>2.5</i>	<i>n.a.</i>	<i>n.a.</i>	<i>10.0</i>	<i>5.5</i>
<i>Five or more</i>	<i>n.a.</i>	<i>n.a.</i>	<i>92.5</i>	<i>n.a.</i>	<i>91.3</i>	<i>n.a.</i>	<i>n.a.</i>	<i>86.5</i>	<i>92.0</i>
Not stated	n.a.	n.a.	0.1	n.a.	5.8	n.a.	n.a.	0.8	1.4
Total	n.a.	n.a.	100.0	n.a.	100.0	n.a.	n.a.	100.0	100.0

n.a. Data not available.

Data on gestational age at first antenatal visit were available for New South Wales, South Australia and the Northern Territory. Of women who gave birth in these jurisdictions, 78.4% attended at least one antenatal visit in the first trimester (before 14 weeks gestation).

Smoking during pregnancy

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

For 2008, data on smoking status were available for seven states and territories: New South Wales, Queensland, Western Australia, South Australia, Tasmania, the Australian Capital Territory and the Northern Territory. The proportion of women who smoked while pregnant ranged from 12.8% in New South Wales to 26.9% in Tasmania. Overall, 16.2% of women in these states and territories smoked during pregnancy (Table 3.13). This proportion has changed little over the previous five years.

Table 3.13: Women who gave birth by tobacco smoking status during pregnancy and state and territory, 2008^(a)

Smoking status	NSW	Vic	Qld	WA	SA ^{(b)(c)}	Tas	ACT	NT ^(c)	Total
Number									
Smoked	12,095	n.a.	11,642	4,661	3,948	1,708	781	895	35,730
Did not smoke	82,726	n.a.	48,268	25,576	15,426	4,595	4,775	2,396	183,762
Not stated	36	n.a.	416	—	297	46	33	512	1,340
Total	94,857	n.a.	60,326	30,237	19,671	6,349	5,589	3,803	220,832
Per cent									
Smoked	12.8	n.a.	19.3	15.4	20.1	26.9	14.0	23.5	16.2
Did not smoke	87.2	n.a.	80.0	84.6	78.4	72.4	85.5	63.0	83.2
Not stated	0.0	n.a.	0.7	—	1.5	0.7	0.6	13.5	0.6
Total	100.0	n.a.	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Because of differences in definitions and methods used for data collection, care must be taken when comparing across jurisdictions.

(b) For SA, 'Smoked' includes women who quit before the first antenatal visit.

(c) For SA and NT, smoking status was recorded at the first antenatal visit.

n.a. Data not available.

Note: Mother's tobacco smoking status during pregnancy is self-reported.

The average age of mothers who smoked during pregnancy was 27.0 years compared with 30.2 years for those who did not smoke. Teenage mothers accounted for 11.2% of all mothers who reported smoking during pregnancy and 3.3% of mothers who did not smoke. Of all teenage mothers, 39.0% reported smoking.

Aboriginal or Torres Strait Islander mothers accounted for 14.9% of mothers who smoked during pregnancy in the jurisdictions which provided smoking data. Over half of the Aboriginal and Torres Strait Islander mothers reported smoking during pregnancy (50.9%), compared with 14.4% of non-Indigenous women who gave birth.

Labour and birth characteristics

Place of birth

Actual place of birth

Almost all births in Australia occur in hospitals, in conventional labour-ward settings. There were 283,119 women who gave birth in hospitals (96.9%) in 2008 (Table 3.14). A further 6,460 women gave birth in birth centres (2.2%) and this proportion was highest in South Australia (6.3%) and the Australian Capital Territory (6.0%). Planned homebirths and other births, such as those occurring unexpectedly before arrival in hospital or in other settings, were the two categories accounting for the smallest proportion of women who gave birth (2,567 women, 0.9%).

Table 3.14: Women who gave birth by actual place of birth and state and territory, 2008

Place of birth	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Number									
Hospital	91,245	69,607	59,426	29,558	18,258	6,213	5,228	3,584	283,119
Birth centre	2,911	1,082	431	317	1,236	34	333	116	6,460
Home	196	297	111	232	101	n.p.	<5	31	1,000
Other	496	337	358	130	76	n.p.	n.p.	^(a) 72	1,567
Not stated	9	1	—	—	—	—	—	—	10
Total	94,857	71,324	60,326	30,237	19,671	6,349	5,589	3,803	292,156
Per cent									
Hospital	96.2	97.6	98.5	97.8	92.8	97.9	93.5	94.2	96.9
Birth centre	3.1	1.5	0.7	1.0	6.3	0.5	6.0	3.1	2.2
Home	0.2	0.4	0.2	0.8	0.5	n.p.	n.p.	0.8	0.3
Other	0.5	0.5	0.6	0.4	0.4	n.p.	n.p.	^(a) 1.9	0.5
Not stated	0.0	0.0	—	—	—	—	—	—	0.0
Total	100.0	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.

n.p. Data not published to maintain confidentiality of small numbers.

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

Intended place of birth

The jurisdictions collect intended place of birth at different times during the pregnancy. Victoria, South Australia and Tasmania collect this item at the time of booking, while the remaining states and territories collect the intended place of birth at the onset of labour. Care must be taken when comparing data across the jurisdictions.

In 2008, the intended place of birth was hospital for 95.8% of mothers and birth centres for 3.5%. Only 0.6% intended to give birth at home or in other settings (Table 3.15).

Around 4.1% of mothers intended to give birth outside of a conventional labour-ward setting in 2008 (Table 3.15). Only 3.1% of mothers actually did so, giving birth in places such as birth centres or at home.

Table 3.15: Women who gave birth by intended place of birth and state and territory, 2008

Place of birth	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Number									
Hospital	90,139	69,044	59,605	29,272	17,227	6,171	4,907	3,548	279,913
Birth centre	3,950	1,886	568	645	2,289	104	503	179	10,124
Home	240	341	141	289	115	29	12	45	1,212
Other	493	—	9	31	40	45	—	^(a) 25	643
Not stated	35	53	3	—	—	—	167	6	264
Total	94,857	71,324	60,326	30,237	19,671	6,349	5,589	3,803	292,156
Per cent									
Hospital	95.0	96.8	98.8	96.8	87.6	97.2	87.8	93.3	95.8
Birth centre	4.2	2.6	0.9	2.1	11.6	1.6	9.0	4.7	3.5
Home	0.3	0.5	0.2	1.0	0.6	0.5	0.2	1.2	0.4
Other	0.5	—	0.0	0.1	0.2	0.7	—	^(a) 0.7	0.2
Not stated	0.0	0.1	0.0	—	—	—	3.0	0.2	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Includes remote community health centres.

Note: Intended place of birth at time of booking for Vic, SA and Tas. Intended place of birth at onset of labour for NSW, Qld, WA, ACT and NT.

Duration of pregnancy

Different methods may be used for estimating the duration of a pregnancy, which is reported as the number of completed weeks of gestation. Estimates may be made based on the calculated interval between the first day of the last menstrual period (LMP) and the baby's date of birth. For the majority of pregnancies, the gestational age derived from the known menstrual dates provides a good estimate of the duration of pregnancy. When the date of LMP is not known or is uncertain, gestational age can be estimated using ultrasound measurements taken in early pregnancy (before the 20th week of gestation). Estimates of gestational age may be revised if there is a discrepancy between gestational ages calculated from dates and ultrasounds, as most pregnant women have at least one ultrasound examination in early pregnancy.

Preterm birth (less than 37 completed weeks of gestation) occurred for 7.4% of all mothers in 2008. The average duration of pregnancy in Australia was 38.8 weeks. A small proportion of mothers gave birth at 20–27 weeks (0.8%) or 28–31 weeks (0.7%), while 5.9% gave birth at 32–36 weeks. There was a higher proportion of preterm birth in the Northern Territory (9.5%) than elsewhere (Table 3.16). This is likely to be associated with the different age structure of the population and higher proportion of births to Indigenous mothers (Tables 3.1 and 3.3).

Of women who gave birth in 2008, 91.7% gave birth at 37–41 completed weeks of gestation (term) and 0.9% gave birth at 42 or more weeks gestation (post-term). Post-term births were least common in South Australia (0.4%) and most common in the Australian Capital Territory (1.8%) (Table 3.16).

The numbers reported here are based on the duration of pregnancies of mothers, and so differ from the figures on gestational age in Chapter 4, which are based on the gestational age of their babies. The numbers differ because the lower gestational age associated with multiple births is applied once for the duration of pregnancy data, while the gestational age of each individual baby in a multiple birth is used for the data presented in Chapter 4.

Table 3.16: Women who gave birth by duration of pregnancy and state and territory, 2008

Duration of pregnancy (weeks)	NSW	Vic^(a)	Qld	WA	SA	Tas	ACT^(b)	NT	Australia
Mean	38.9	38.8	38.8	38.7	38.8	38.8	38.9	38.7	38.8
Number									
20–27 ^(c)	664	744	463	233	181	54	50	38	2,427
28–31	586	489	471	224	136	54	61	35	2,056
32–36	5,153	4,136	3,702	1,911	1,216	416	309	287	17,130
37–41	87,674	64,975	55,265	27,693	18,059	5,765	5,067	3,408	267,906
42 and over	763	971	420	176	79	60	102	35	2,606
Not stated	17	9	5	—	—	—	—	—	31
Total	94,857	71,324	60,326	30,237	19,671	6,349	5,589	3,803	292,156
Per cent									
20–27 ^(c)	0.7	1.0	0.8	0.8	0.9	0.9	0.9	1.0	0.8
28–31	0.6	0.7	0.8	0.7	0.7	0.9	1.1	0.9	0.7
32–36	5.4	5.8	6.1	6.3	6.2	6.6	5.5	7.5	5.9
37–41	92.4	91.1	91.6	91.6	91.8	90.8	90.7	89.6	91.7
42 and over	0.8	1.4	0.7	0.6	0.4	0.9	1.8	0.9	0.9
Not stated	0.0	0.0	0.0	—	—	—	—	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Preterm birth rates may be higher as the majority of late terminations for psychosocial indications are undertaken in Vic.

(b) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages. For example, the percentage of ACT resident women who gave birth at 20–27 weeks gestation was 0.7% and at 28–31 weeks gestation was 0.7%.

(c) Includes 2 pregnancies of less than 20 weeks duration.

Note: For multiple births, the gestational age of the first born baby was used.

Multiple pregnancy

The number of multiple births has increased in the last two decades. This can be attributed largely to the increased use of ART, delay in childbearing and the growing number of older mothers (Tough et al. 2000; Tough et al. 2002).

In the perinatal collections, multiple pregnancies are based on the number of fetuses that remain in utero at 20 weeks gestation and are subsequently delivered. In 2008, there were 4,703 multiple pregnancies (1.6% of all mothers) (Table 3.17), consisting of 4,639 twin pregnancies, 62 triplet pregnancies and 2 quadruplet pregnancies.

Table 3.17: Women who gave birth by plurality and state and territory, 2008

Plurality	NSW	Vic	Qld	WA	SA	Tas	ACT ^(a)	NT	Australia
Number									
Singleton	93,404	70,116	59,268	29,807	19,374	6,244	5,474	3,766	287,453
Multiple	1,453	1,208	1,058	430	297	105	115	37	4,703
Total	94,857	71,324	60,326	30,237	19,671	6,349	5,589	3,803	292,156
Per cent									
Singleton	98.5	98.3	98.2	98.6	98.5	98.3	97.9	99.0	98.4
Multiple	1.5	1.7	1.8	1.4	1.5	1.7	2.1	1.0	1.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages. For example, the percentage of multiple pregnancies for ACT residents who gave birth in the ACT was 1.7%.

There were 16.1 multiple pregnancies per 1,000 mothers in 2008. The twinning rate was 15.9 per 1,000 mothers. In 1999, there were 3,944 multiple pregnancies (15.6 per 1,000 mothers), with a twinning rate of 15.1 per 1,000 mothers. Triplet and higher order multiple pregnancies have remained fairly stable with a rate of 0.3 to 0.4 per 1,000 mothers since 1999, but dropped to a rate of 0.2 per 1,000 mothers in 2008.

Of women who gave birth in the five jurisdictions where data were available on whether the pregnancy resulted from ART (Table 3.11), 11.3% of women who had ART had a multiple pregnancy. Of these women, 10.9% had twins and 0.4% had higher order multiples. This compared with 1.4% for twins and 0.01% for higher order multiples for non-ART mothers.

Onset and type of labour

Onset of labour is categorised as spontaneous, induced or no labour, where a caesarean section was performed before labour had started. In 2008, the onset of labour was spontaneous for 57.0% of all women who gave birth, and there was no labour for 18.2% of mothers. Labour was induced for 24.8% of mothers (Table 3.18).

The proportion of mothers with spontaneous onset of labour was highest in the Northern Territory (64.9%) and lowest in Western Australia (52.6%). Western Australia and Queensland reported the highest proportions of mothers with no labour (20.7% and 20.3% respectively) (Table 3.18).

The percentage of induced labour was higher in South Australia (28.6%) than in the other states and territories. Overall, combined medical and surgical induction of labour was more common than either type alone.

Once labour has started it may be necessary to intervene to speed up or augment the labour. In 2008, labour was augmented for 19.9% of all mothers, representing 35.0% of mothers with spontaneous onset of labour. There was considerable variation among the states and territories in whether labour was augmented, ranging from 16.5% of all women who gave birth in New South Wales to 23.1% in Queensland (Table 3.18).

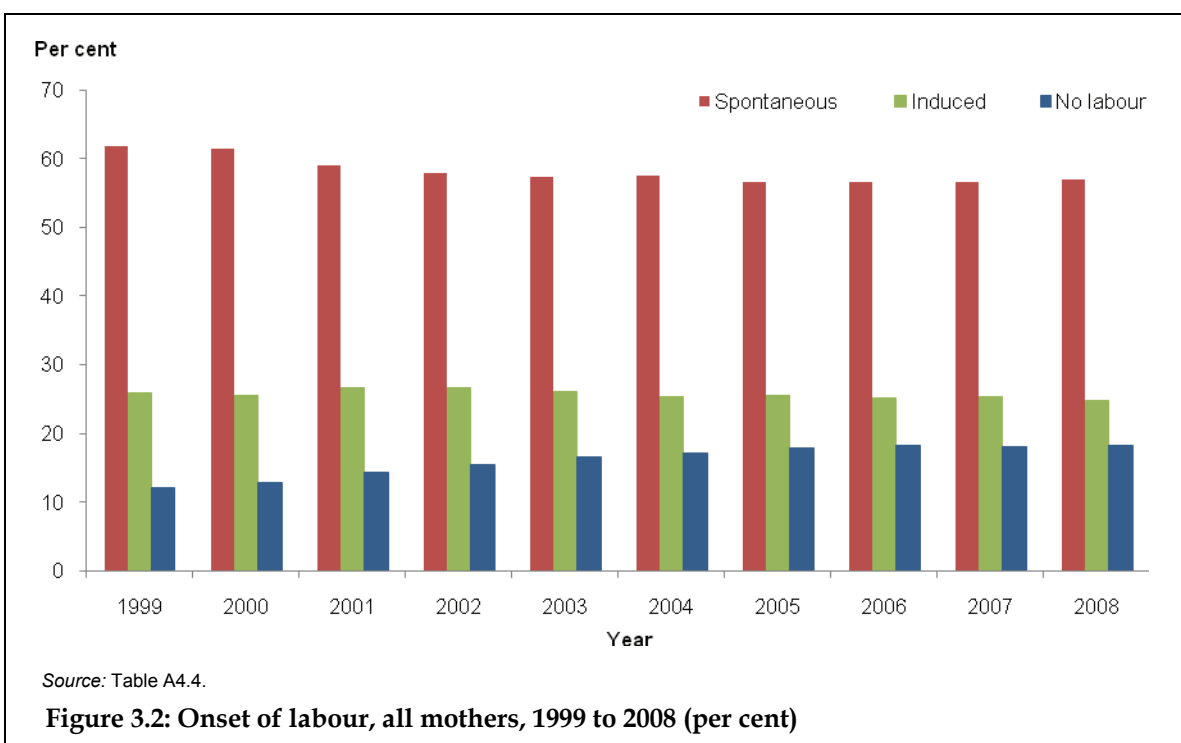
Table 3.18: Women who gave birth by onset of labour and state and territory, 2008

Onset of labour/type of augmentation or induction	NSW	Vic	Qld	WA	SA	Tas	ACT ^(a)	NT	Total
Number									
Spontaneous	54,729	41,270	34,439	15,911	10,660	3,776	3,346	2,468	166,599
<i>No augmentation</i>	39,054	26,775	20,504	9,257	6,312	2,588	2,043	1,298	107,831
<i>Medical only^(b)</i>	5,528	3,862	3,530	1,935	1,065	287	370	253	16,830
<i>Surgical only</i>	7,068	8,028	8,674	3,184	2,560	717	641	401	31,273
<i>Combined</i>	3,064	2,605	1,713	1,531	723	184	200	135	10,155
<i>Other/not stated</i>	15	—	18	4	—	—	92	381	510
Induced	23,997	17,546	13,615	8,059	5,634	1,632	1,225	761	72,469
<i>Medical only^(b)</i>	7,486	5,659	5,112	1,518	1,706	674	434	250	22,839
<i>Surgical only</i>	1,680	1,148	1,474	522	645	202	121	92	5,884
<i>Combined</i>	14,667	10,736	6,924	5,943	3,280	709	623	414	43,296
<i>Other/not stated</i>	164	3	105	76	3	47	47	5	450
No labour	16,120	12,508	12,270	6,267	3,377	941	1,018	574	53,075
Not stated	11	—	2	—	—	—	—	—	13
Total	94,857	71,324	60,326	30,237	19,671	6,349	5,589	3,803	292,156
Per cent									
Spontaneous	57.7	57.9	57.1	52.6	54.2	59.5	59.9	64.9	57.0
<i>No augmentation</i>	41.2	37.5	34.0	30.6	32.1	40.8	36.6	34.1	36.9
<i>Medical only^(b)</i>	5.8	5.4	5.9	6.4	5.4	4.5	6.6	6.7	5.8
<i>Surgical only</i>	7.5	11.3	14.4	10.5	13.0	11.3	11.5	10.5	10.7
<i>Combined</i>	3.2	3.7	2.8	5.1	3.7	2.9	3.6	3.5	3.5
<i>Other/not stated</i>	0.0	—	0.0	0.0	—	—	1.6	10.0	0.2
Induced	25.3	24.6	22.6	26.7	28.6	25.7	21.9	20.0	24.8
<i>Medical only^(b)</i>	7.9	7.9	8.5	5.0	8.7	10.6	7.8	6.6	7.8
<i>Surgical only</i>	1.8	1.6	2.4	1.7	3.3	3.2	2.2	2.4	2.0
<i>Combined</i>	15.5	15.1	11.5	19.7	16.7	11.2	11.1	10.9	14.8
<i>Other/not stated</i>	0.2	—	0.2	0.3	0.0	0.7	0.8	0.1	0.2
No labour	17.0	17.5	20.3	20.7	17.2	14.8	18.2	15.1	18.2
Not stated	0.0	—	0.0	—	—	—	—	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Multiple sources of data were used in the ACT to identify the types of augmentation and induction and improve ascertainment.

(b) Includes use of oxytocin and/or prostaglandins.

Figure 3.2 presents the trends in type of onset of labour over the period from 1999 to 2008. In line with the increase in caesarean sections, spontaneous onset of labour generally decreased during this time, from 61.9% of all women giving birth in 1999 to 57.0% in 2008. The proportion of women giving birth without labour gradually increased, from 12.1% in 1999 to 18.2% in 2008. The proportion of women having induction of labour has remained constant over recent years.



Data on the main reason for induction of labour are presented in Table 3.19. These data are not part of the Perinatal NMDS and are not standard across jurisdictions. The data presented in this table should be examined independently for each state and territory, as the data are not comparable across jurisdictions. This is because of variability in data collection methods and reporting by individual jurisdictions. Where the main reason for induction of labour was prolonged pregnancy or psychosocial, data have been reported in the 'Other' category due to variability among states.

In New South Wales the data were collected using tick boxes, and 'psychosocial reasons' was not an option. In Victoria, Queensland and South Australia the information was collected as text, therefore this category has been included in 'Other'. A review of data describing the main reason given for induction of labour highlights the need for further work to enable consistent reporting.

Table 3.19 shows similar results for medical and fetal conditions or complications for New South Wales, Victoria, Queensland and South Australia. In these states, hypertension or pre-eclampsia (range 10.2% to 12.6%) and premature rupture of membranes (range 12.3% to 13.0% excluding South Australia) were leading reasons for induction.

Table 3.19: Women who gave birth and had an induction by main reason for induction and state and territory, 2008^(a)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
	Number							
Hypertension/pre-eclampsia	2,473	2,071	1,390	n.a.	710	n.a.	n.a.	n.a.
Premature rupture of membranes	2,924	2,213	1,773	n.a.	186	n.a.	n.a.	n.a.
Diabetes	1,617	1,326	977	n.a.	347	n.a.	n.a.	n.a.
Intrauterine growth restriction	1,014	844	456	n.a.	254	n.a.	n.a.	n.a.
Fetal death	258	192	128	n.a.	55	n.a.	n.a.	n.a.
Fetal distress	390	486	130	n.a.	12	n.a.	n.a.	n.a.
Isoimmunisation	36	47	n.p.	n.a.	n.p.	n.a.	n.a.	n.a.
Chorioamnionitis	31	32	n.p.	n.a.	<5	n.a.	n.a.	n.a.
Other ^(b)	14,979	10,335	8,711	n.a.	4,055	n.a.	n.a.	n.a.
Not stated	—	—	—	n.a.	—	n.a.	n.a.	n.a.
Total	23,722	17,546	13,615	n.a.	5,634	n.a.	n.a.	n.a.
	Per cent							
Hypertension/pre-eclampsia	10.4	11.8	10.2	n.a.	12.6	n.a.	n.a.	n.a.
Premature rupture of membranes	12.3	12.6	13.0	n.a.	3.3	n.a.	n.a.	n.a.
Diabetes	6.8	7.6	7.2	n.a.	6.2	n.a.	n.a.	n.a.
Intrauterine growth restriction	4.3	4.8	3.3	n.a.	4.5	n.a.	n.a.	n.a.
Fetal death	1.1	1.1	0.9	n.a.	1.0	n.a.	n.a.	n.a.
Fetal distress	1.6	2.8	1.0	n.a.	0.2	n.a.	n.a.	n.a.
Isoimmunisation	0.2	0.3	n.p.	n.a.	n.p.	n.a.	n.a.	n.a.
Chorioamnionitis	0.1	0.2	n.p.	n.a.	n.p.	n.a.	n.a.	n.a.
Other ^(b)	63.1	58.9	64.0	n.a.	72.0	n.a.	n.a.	n.a.
Not stated	—	—	—	n.a.	—	n.a.	n.a.	n.a.
Total	100.0	100.0	100.0	n.a.	100.0	100.0	n.a.	n.a.

(a) Because of differences in definitions and methods used for data collection these data are not comparable across jurisdictions.

(b) Includes prolonged pregnancy, psychosocial reasons and other reasons.

n.a. Data not available.

n.p. Data not published to maintain confidentiality of small numbers.

Pain relief for labour and operative delivery

The type of analgesia or anaesthesia used for labour or delivery determines the effectiveness of pain relief, the extent to which a woman is able to actively participate in the birth and her mobility immediately after the birth. Data were available for all states and territories on whether analgesia was administered to relieve pain for labour and whether anaesthesia was administered for an operative delivery (caesarean section, vacuum extraction or forceps). Information on the type or types of analgesic or anaesthetic is also available and more than one type could be recorded for each woman. For the purposes of reporting, epidural or caudal, spinal and combined spinal-epidural analgesia or anaesthesia have been grouped into the category of 'regional analgesia or anaesthesia'. The data are presented both individually and grouped for use in comparison with other modes of analgesia or anaesthesia.

Table 3.20 shows that, of all women who laboured (defined as spontaneous or induced onset of labour), 74.6% had analgesia administered. This proportion ranged from 68.5% in the Australian Capital Territory to 78.8% in Western Australia.

Table 3.20: Women who laboured by whether analgesia was administered to relieve pain for labour and state and territory, 2008^(a)

Analgesia	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Number									
None	19,149	15,706	13,171	5,077	3,770	1,484	1,439	975	60,771
Analgesia administered	59,575	43,110	34,879	18,893	12,524	3,924	3,132	2,237	178,274
Not stated	2	—	4	—	—	—	—	17	23
Total	78,726	58,816	48,054	23,970	16,294	5,408	4,571	3,229	239,068
Per cent									
None	24.3	26.7	27.4	21.2	23.1	27.4	31.5	30.2	25.4
Analgesia administered	75.7	73.3	72.6	78.8	76.9	72.6	68.5	69.3	74.6
Not stated	0.0	—	0.0	—	—	—	—	0.5	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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

Of first-time mothers who laboured, 84.9% had analgesia administered for labour. This was higher than the proportion in multiparous women (66.2%).

Table 3.21 shows the method of analgesia administration for labour. As more than one type may be recorded for each woman, the individual categories add up to more than the number of women who laboured. Nitrous oxide (inhaled) was used by half of all women who laboured (50.3%) with the highest proportion of use in the Northern Territory (57.5%). Regional analgesia was used for 31.8% of women; epidural or caudal method for 28.2% and a spinal or combined spinal-epidural for a further 3.6% of women. Systemic opioids were administered to one-quarter of women who laboured (24.4%).

Table 3.21: Types of analgesia administered to relieve pain for labour by state and territory, 2008^(a)

Type of analgesia	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Number									
Nitrous oxide	41,166	30,514	24,960	9,898	7,354	2,669	1,812	1,856	120,229
Systemic opioids	15,554	17,293	12,348	5,017	3,967	1,896	1,454	698	58,227
Regional	22,817	19,473	13,554	10,949	6,267	1,340	1,094	505	75,999
<i>Epidural or caudal</i>	21,537	^(b) 15,712	11,886	9,419	6,102	1,191	1,041	491	67,379
<i>Spinal</i>	642	—	1,422	362	154	117	n.p.	<5	2,747
<i>Combined spinal-epidural</i>	638	3,761	246	1,168	11	32	<5	n.p.	5,873
Other	6,325	559	92	514	240	105	140	89	8,064
Total women	78,726	58,816	48,054	23,970	16,294	5,408	4,571	3,229	239,068
Rate per 100 women who laboured									
Nitrous oxide	52.3	51.9	51.9	41.3	45.1	49.4	39.6	57.5	50.3
Systemic opioids	19.8	29.4	25.7	20.9	24.3	35.1	31.8	21.6	24.4
Regional	29.0	33.1	28.2	45.7	38.5	24.8	23.9	15.6	31.8
<i>Epidural or caudal</i>	27.4	^(b) 26.7	24.7	39.3	37.4	22.0	22.8	15.2	28.2
<i>Spinal</i>	0.8	—	3.0	1.5	0.9	2.2	n.p.	n.p.	1.1
<i>Combined spinal-epidural</i>	0.8	6.4	0.5	4.9	0.1	0.6	n.p.	n.p.	2.5
Other	8.0	1.0	0.2	2.1	1.5	1.9	3.1	2.8	3.4

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

(b) Includes spinal as this type was not collected separately.

n.p. Data not published to maintain confidentiality of small numbers.

Note: More than one type of analgesia could be recorded, therefore the sums of individual categories are greater than the total numbers of women who gave birth and percentages add to more than 100%.

Of all women who gave birth in 2008 and had a forceps, vacuum extraction or caesarean section delivery, 94.7% had anaesthesia administered. This proportion ranged from 82.2% in the Australian Capital Territory to around 97.0% in both New South Wales and Western Australia (Table 3.22).

Table 3.22: Women who gave birth and had caesarean section or instrumental vaginal deliveries^(a) by whether anaesthetic was administered for the operative delivery and state and territory, 2008

Anaesthesia	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Number									
None	1,138	2,126	1,867	485	350	183	421	59	6,629
Anaesthesia administered	37,149	29,333	23,684	13,718	8,210	2,102	1,952	1,290	117,438
Not stated	3	—	—	—	—	—	1	—	4
Total	38,290	31,459	25,551	14,203	8,560	2,285	2,374	1,349	124,071
Per cent									
None	3.0	6.8	7.3	3.4	4.1	8.0	17.7	4.4	5.3
Anaesthesia administered	97.0	93.2	92.7	96.6	95.9	92.0	82.2	95.6	94.7
Not stated	0.0	—	—	—	—	—	0.0	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Instrumental vaginal deliveries include forceps and vacuum extraction.

Table 3.23 presents method of administration of anaesthesia in 2008 for women giving birth by caesarean section. As more than one type may be recorded for each woman, the totals in the table add up to more than the number of women who had a caesarean section. Although this data element specifies method of delivery of anaesthetic for caesarean sections, some states and territories may include anaesthetics administered for labour or administered after birth under this item, and this may be reflected in the differences reported among the states and territories.

In 2008, 61.3% of women who had a caesarean section had a spinal anaesthetic, while 42.8% had an epidural or caudal anaesthetic and 10.5% had a combined spinal-epidural anaesthetic (Table 3.23). The data on regional anaesthesia suggest that a combination of types may be administered for each woman who has a caesarean section, noting that more than one type can be reported.

A general anaesthetic was administered for 7.9% of caesarean sections (Table 3.23). There was variability in the proportion of women having a general anaesthetic for caesarean section by state and territory, from 4.8% in Western Australia to 11.6% in the Australian Capital Territory.

Table 3.23: Types of anaesthetic administered for caesarean sections by state and territory, 2008^(a)

Type of anaesthetic	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Number									
Regional	25,286	37,418	19,236	11,862	6,057	1,719	1,519	970	104,067
<i>Epidural or caudal</i>	6,443	20,440	3,665	5,909	1,575	280	437	140	38,889
<i>Spinal</i>	15,058	15,816	12,866	4,283	4,430	1,427	1,065	695	55,640
<i>Combined spinal-epidural</i>	3,785	1,162	2,705	1,670	52	12	17	135	9,538
General	3,129	1,314	1,379	488	407	161	192	79	7,149
Total women	27,974	21,758	20,106	10,067	6,334	1,825	1,652	1,049	90,765
Rate per 100 women who had caesarean sections									
Regional	90.4	172.0	95.7	117.8	95.6	94.2	91.9	92.5	114.7
<i>Epidural or caudal</i>	23.0	93.9	18.2	58.7	24.9	15.3	26.5	13.3	42.8
<i>Spinal</i>	53.8	72.7	64.0	42.5	69.9	78.2	64.5	66.3	61.3
<i>Combined spinal-epidural</i>	13.5	5.3	13.5	16.6	0.8	0.7	1.0	12.9	10.5
General	11.2	6.0	6.9	4.8	6.4	8.8	11.6	7.5	7.9

(a) Table excludes 304 cases of local anaesthetic to perineum, pudendal anaesthetic and other types of anaesthetic.

Note: More than one type of anaesthetic could be recorded, therefore the sums of individual categories are greater than the total numbers of women who gave birth and percentages add to more than 100%.

Of the 7,149 women who had a general anaesthetic for caesarean section, 53.6% had an intrapartum caesarean section and 46.4% had a caesarean section without labour. Of the women who had an intrapartum caesarean section and a general anaesthetic, 62.6% had a spontaneous onset of labour and 37.4% had an induction of labour. Of the women who had a

regional anaesthetic for caesarean section, 40.7% had an intrapartum caesarean section and 59.3% had a caesarean section without labour.

The method of anaesthetic administration varied between states and territories. More than half of all women who had an instrumental delivery had a regional anaesthetic (55.6%). Administration of a general anaesthetic was rare at 4 per 1,000 women having an instrumental vaginal birth. A local anaesthetic to the perineum was administered in 26.8% and a pudendal block in 6.1% of instrumental deliveries (Table 3.24).

Table 3.24: Types of anaesthetic administered for instrumental vaginal deliveries^(a) by state and territory, 2008

Type of anaesthetic	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Number									
None	1,138	2,126	1,867	485	350	183	421	59	6,629
Local anaesthetic to perineum	4,008	2,106	1,290	751	454	87	137	96	8,929
Pudendal	624	751	187	173	159	17	82	29	2,022
Regional	5,329	5,922	2,428	2,979	1,414	192	120	123	18,507
<i>Epidural or caudal</i>	4,922	5,339	2,221	2,660	1,369	162	91	108	16,872
<i>Spinal</i>	288	382	158	69	40	29	27	7	1,000
<i>Combined spinal-epidural</i>	119	201	49	250	n.p.	<5	<5	8	635
General	80	8	18	6	<5	—	<5	<5	120
Other	101	—	5	75	24	—	2	17	224
Total women	10,316	9,701	5,445	4,136	2,226	460	722	300	33,306
Rate per 100 women who had instrumental vaginal deliveries									
None	11.0	21.9	34.3	11.7	15.7	39.8	58.3	19.7	19.9
Local anaesthetic to perineum	38.9	21.7	23.7	18.2	20.4	18.9	19.0	32.0	26.8
Pudendal	6.0	7.7	3.4	4.2	7.1	3.7	11.4	9.7	6.1
Regional	51.7	61.0	44.6	72.0	63.5	41.7	16.6	41.0	55.6
<i>Epidural or caudal</i>	47.7	55.0	40.8	64.3	61.5	35.2	12.6	36.0	50.7
<i>Spinal</i>	2.8	3.9	2.9	1.7	1.8	6.3	3.7	2.3	3.0
<i>Combined spinal-epidural</i>	1.2	2.1	0.9	6.0	n.p.	n.p.	n.p.	2.7	1.9
General	0.8	0.1	0.3	0.1	n.p.	—	n.p.	n.p.	0.4
Other	1.0	—	0.1	1.8	1.1	—	0.3	5.7	0.7

(a) Instrumental vaginal deliveries include forceps and vacuum extraction.

n.p. Data not published to maintain confidentiality of small numbers.

Note: More than one type of anaesthetic could be recorded, therefore the sums of individual categories are greater than the total numbers of women who gave birth and percentages add to more than 100%.

Presentation at birth

Data are included in this section by mother. Women who gave birth to more than one baby are categorised according to the presentation at birth of the first born baby. Table 4.11 provides the presentation for each individual baby by plurality.

In 2008, the predominant presentation at birth was cephalic (94.6%) which included presentation of any part (vertex, face or brow) of the fetal head in labour. Vertex presentation, where the crown (vertex) of the fetal head is the presenting part, occurred for 94.3% of all women who gave birth while face or brow presentation occurred for 0.3% of mothers. Breech presentation, the presentation of the baby's buttocks or feet in labour, occurred for 4.0% of mothers. Summary data for breech presentation are presented; data were not available on complete, incomplete and frank breech presentations (Table 3.25). Of the 11,816 women with a breech presentation, 91.4% were singleton pregnancies and 8.6% were multiple pregnancies.

Table 3.25: Women who gave birth by presentation at birth and state and territory, 2008

Presentation	NSW	Vic	Qld	WA	SA	Tas ^(a)	ACT ^(b)	NT	Australia
Number									
Vertex	90,504	67,277	57,063	28,658	18,623	4,494	5,296	3,607	275,522
Breech	3,598	3,019	2,615	1,316	860	<5	255	n.p.	11,816
Face	118	104	84	43	12	8	6	5	380
Brow	87	98	72	52	31	<5	13	n.p.	361
Other ^(c)	522	757	452	168	115	16	19	22	2,071
Not stated	28	69	40	—	30	1,825	—	14	2,006
Total	94,857	71,324	60,326	30,237	19,671	6,349	5,589	3,803	292,156
Per cent									
Vertex	95.4	94.3	94.6	94.8	94.7	70.8	94.8	94.8	94.3
Breech	3.8	4.2	4.3	4.4	4.4	n.p.	4.6	n.p.	4.0
Face	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Brow	0.1	0.1	0.1	0.2	0.2	n.p.	0.2	n.p.	0.1
Other ^(c)	0.6	1.1	0.7	0.6	0.6	0.3	0.3	0.6	0.7
Not stated	0.0	0.1	0.1	—	0.2	28.7	—	0.4	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) For Tas, presentations were only recorded for vaginal births. Where a caesarean section occurred the presentation was recorded as 'Not stated'.

(b) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages. For example, the percentage of breech presentation for ACT residents who gave birth in the ACT was 4.1% and 7.2% for non-ACT residents who gave birth in the ACT.

(c) Includes shoulder/transverse and compound presentations.

n.p. Data not published to maintain confidentiality of small numbers.

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

Method of birth

Data are presented in this section by mother; for multiple births, women are categorised according to the method of birth for the first born baby. Table 4.12 presents method of birth data for each individual baby by plurality.

From 2007, changes to the Perinatal NMDS item for method of birth were implemented. 'Spontaneous vaginal' was changed to 'Non-instrumental vaginal', and 'Vaginal breech' was no longer a category. Therefore, care must be taken when looking at time series data. Vaginal breech births would be recorded as either 'Non-instrumental vaginal' or 'Forceps' for 2007 and 2008 with breech as the presentation. Four of the eight jurisdictions were able to provide data in this way; therefore the 'Non-instrumental vaginal' category for 2007 and 2008 may include women who had breech births where instruments were used for New South Wales, Victoria, Western Australia and the Northern Territory.

Tables 4.13 and 4.14 present information on method of birth for babies with breech presentations.

Vaginal births

Of all women who gave birth in 2008, 57.5% had a non-instrumental vaginal birth. The proportion of non-instrumental vaginal births ranged from 53.0% in Western Australia to 64.5% in the Northern Territory (Table 3.26).

Approximately 1 in 9 mothers (11.4%) had an instrumental vaginal delivery where either forceps or vacuum extraction was used. The proportions of these instrumental deliveries varied among the states and territories, from 7.2% in Tasmania to 13.7% in Western Australia. Forceps delivery occurred for 3.7% of mothers and was most common in the Australian Capital Territory (6.4%). Deliveries by vacuum extraction accounted for 7.7% of women who gave birth nationally, ranging from 5.2% in the Northern Territory to 11.2% in Western Australia (Table 3.26). More detailed information on instrumental vaginal births can be found in Chapter 5.

Table 3.26: Women who gave birth by method of birth and state and territory, 2008

Method of birth	NSW ^(a)	Vic ^(a)	Qld	WA ^(a)	SA	Tas	ACT ^(b)	NT ^(a)	Australia
Number									
Non-instrumental vaginal	56,553	39,865	34,774	16,034	11,111	4,064	3,215	2,454	168,070
Forceps	3,486	3,911	1,167	736	832	119	359	102	10,712
Vacuum extraction	6,830	5,790	4,278	3,400	1,394	341	363	198	22,594
Caesarean section	27,974	21,758	20,106	10,067	6,334	1,825	1,652	1,049	90,765
<i>Labour</i>	11,851	9,250	7,836	3,800	2,957	884	634	475	37,687
<i>No labour</i>	16,120	12,508	12,270	6,267	3,377	941	1,018	574	53,075
<i>Not stated</i>	3	—	—	—	—	—	—	—	3
Not stated	14	—	1	—	—	—	—	—	15
Total	94,857	71,324	60,326	30,237	19,671	6,349	5,589	3,803	292,156
Per cent									
Non-instrumental vaginal	59.6	55.9	57.6	53.0	56.5	64.0	57.5	64.5	57.5
Forceps	3.7	5.5	1.9	2.4	4.2	1.9	6.4	2.7	3.7
Vacuum extraction	7.2	8.1	7.1	11.2	7.1	5.4	6.5	5.2	7.7
Caesarean section	29.5	30.5	33.3	33.3	32.2	28.7	29.6	27.6	31.1
<i>Labour</i>	12.5	13.0	13.0	12.6	15.0	13.9	11.3	12.5	12.9
<i>No labour</i>	17.0	17.5	20.3	20.7	17.2	14.8	18.2	15.1	18.2
<i>Not stated</i>	0.0	—	—	—	—	—	—	—	0.0
Not stated	0.0	—	0.0	—	—	—	—	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) For these four jurisdictions, 'Non-instrumental vaginal' includes all women who had a vaginal breech birth, whether or not instruments were used. For the remaining jurisdictions, vaginal breech births are only included where instruments were not used.

(b) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages. For example, 28.5% of ACT resident women had a caesarean section compared with 35.1% of non-ACT residents who gave birth in the ACT.

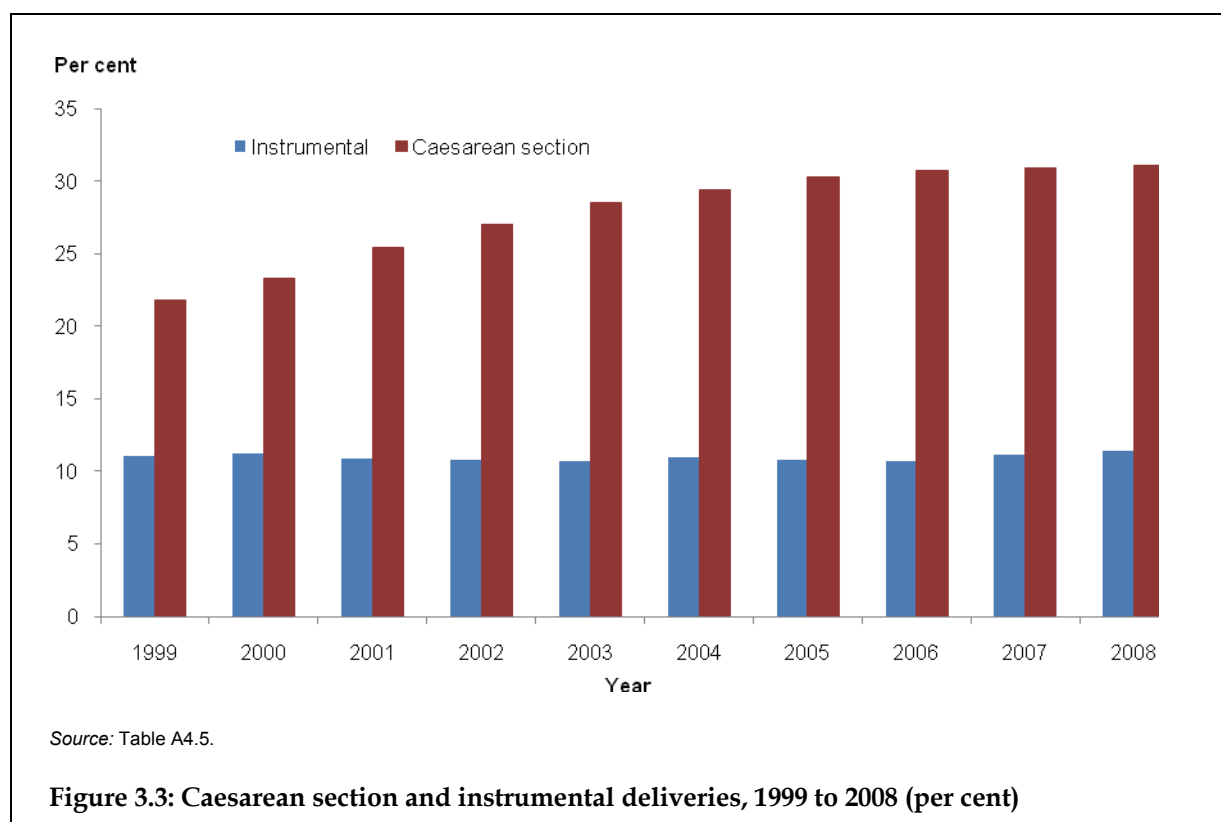
Note: For multiple births, the method of birth of the first born baby was used.

Caesarean sections

There were 90,765 caesarean sections performed in 2008, accounting for 31.1% of women who gave birth. The rate has remained stable from 2006, when the rate was 30.8%, followed by a rate of 30.9% in 2007. Of all women who gave birth, 18.2% had a caesarean section without labour, while 12.9% had a caesarean section with labour.

The proportion of caesarean section deliveries varied by state and territory, and ranged from 27.6% in the Northern Territory to 33.3% in both Queensland and Western Australia. Three states, Queensland, Western Australia and South Australia, recorded caesarean section rates (percentage) above 32.0% (Table 3.26).

The caesarean section rate has shown an overall upward trend over the last 10 years, although it did not increase significantly from 2006 to 2007, or from 2007 to 2008. The proportion of women having caesarean sections has increased from 21.8% in 1999 to 31.1% in 2008. In contrast, the proportion of instrumental deliveries has remained stable at around 11.0% throughout this period (Figure 3.3).



Directly age-standardised rates of caesarean section were calculated for states and territories for 2008, using as the standard, all women who gave birth in 2008. The age-standardised rates of caesarean section varied by state and territory, ranging from 28.5% in the Australian Capital Territory to 34.4% in Queensland (Table 3.27).

Table 3.27: Women who gave birth by caesarean section by age and state and territory, 2008

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Number									
Less than 20	552	286	601	256	179	72	15	71	2,032
20–24	2,650	1,609	2,446	1,113	754	276	113	191	9,152
25–29	6,401	4,663	5,052	2,375	1,585	497	373	291	21,237
30–34	9,712	7,877	6,603	3,387	2,108	546	580	277	31,090
35–39	6,944	5,876	4,467	2,399	1,390	354	464	179	22,073
40 and over	1,712	1,447	937	537	318	80	107	40	5,178
Not stated	3	—	—	—	—	—	—	—	3
Total	27,974	21,758	20,106	10,067	6,334	1,825	1,652	1,049	90,765
Per cent									
Less than 20	2.0	1.3	3.0	2.5	2.8	3.9	0.9	6.8	2.2
20–24	9.5	7.4	12.2	11.1	11.9	15.1	6.8	18.2	10.1
25–29	22.9	21.4	25.1	23.6	25.0	27.2	22.6	27.7	23.4
30–34	34.7	36.2	32.8	33.6	33.3	29.9	35.1	26.4	34.3
35–39	24.8	27.0	22.2	23.8	21.9	19.4	28.1	17.1	24.3
40 and over	6.1	6.7	4.7	5.3	5.0	4.4	6.5	3.8	5.7
Not stated	0.0	—	—	—	—	—	—	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Age-standardised rate^(a)									
Rate	29.3	29.5	34.4	33.8	32.5	30.1	^(b) 28.5	29.6	—

(a) Directly age-standardised using the Australian population of women who gave birth in 2008.

(b) The ACT rate includes non-ACT residents who gave birth in the ACT. Therefore the rate is a health service population rate rather than an ACT population rate.

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

Information about the main reason for carrying out a caesarean section is presented in Table 3.28 for five states and territories: Victoria, Queensland, South Australia, Tasmania and the Northern Territory. The table shows that data were not available or coded to the 'Other' category for a substantial proportion of caesarean sections. A history of repeat/previous caesarean section was the leading reason reported for caesarean section (range 33.6% to 37.0%). There was no separate category for patient choice in the data presented.

It is important when interpreting the data presented in this table that each state and territory is examined independently. Data are not comparable across jurisdictions since the methods for collecting these data were different in each jurisdiction. The data are presented as a baseline to promote discussion and to assist in development of consistency across jurisdictions, so that in the future more comprehensive and comparable information will be available.

Table 3.28: Women who gave birth by caesarean section by main reason for caesarean section and state and territory, 2008^(a)

	NSW	Vic ^(b)	Qld	WA	SA	Tas	ACT	NT
	Number							
Previous caesarean section	n.p.	8,059	7,412	n.a.	2,167	640	n.a.	352
Fetal distress	n.p.	2,585	1,944	n.a.	801	359	n.a.	175
Malpresentation	n.p.	2,617	1,840	n.a.	660	172	n.a.	133
Antepartum haemorrhage	n.p.	645	472	n.a.	142	—	n.a.	28
Hypertension/ pre-eclampsia	n.p.	473	501	n.a.	145	—	n.a.	—
Multiple pregnancy	n.p.	390	354	n.a.	87	—	n.a.	—
Intrauterine growth restriction	n.p.	157	157	n.a.	49	—	n.a.	—
Other ^(c)	n.p.	6,832	7,426	n.a.	2,283	653	n.a.	307
Not stated	n.p.	—	—	n.a.	—	—	n.a.	54
Total	n.p.	21,758	20,106	n.a.	6,334	1,825	n.a.	1,049
	Per cent							
Previous caesarean section	n.p.	37.0	36.9	n.a.	34.2	35.1	n.a.	33.6
Fetal distress	n.p.	11.9	9.7	n.a.	12.6	19.7	n.a.	16.7
Malpresentation	n.p.	12.0	9.2	n.a.	10.4	9.4	n.a.	12.7
Antepartum haemorrhage	n.p.	3.0	2.3	n.a.	2.2	—	n.a.	2.7
Hypertension/ pre-eclampsia	n.p.	2.2	2.5	n.a.	2.3	—	n.a.	—
Multiple pregnancy	n.p.	1.8	1.8	n.a.	1.4	—	n.a.	—
Intrauterine growth restriction	n.p.	0.7	0.8	n.a.	0.8	—	n.a.	—
Other ^(c)	n.p.	31.4	36.9	n.a.	36.0	35.8	n.a.	29.3
Not stated	n.p.	—	—	n.a.	—	—	n.a.	5.1
Total	n.p.	100.0	100.0	n.a.	100.0	100.0	n.a.	100.0

(a) Because of differences in definitions used and methods of data collection these data are not comparable across jurisdictions.

(b) Vic collects up to four indications for caesarean section. To obtain the main reason, the following hierarchy was used: 1) Previous/repeat caesarean, 2) Malpresentation, 3) Multiple pregnancy, 4) Antepartum haemorrhage, 5) Pre-eclampsia/hypertension, 6) Intrauterine growth restriction, 7) Non-reassuring fetal status, 8) Cephalopelvic disproportion/failure to progress/obstructed labour and 9) Other. In cases of multiple births the reason refers to the first born baby. Patient choice for repeat caesarean is coded under 'Previous caesarean section'.

(c) Includes Failure to progress/cephalopelvic disproportion, psychosocial/elective/patient choice and other reasons.

n.a. Data not available.

n.p. Data not published as complete data were not available in a comparable format.

Method of birth and maternal age

Table 3.29 presents methods of birth by maternal age groups. Non-instrumental vaginal birth declined progressively with increasing maternal age. These were most common in women aged less than 20 years (71.5%) and least common in the 40 years and over age group (44.6%). The proportion of instrumental vaginal births was highest in the 25–29 years age group (12.7%).

Caesarean section rates increased with maternal age. In 2008, caesarean section rates ranged from 16.7% for mothers aged less than 20 years to 46.9% for mothers aged 40 years and older (Table 3.29).

Table 3.29: Method of birth by maternal age, 2008

Method of birth	Less than 20	20–24	25–29	30–34	35–39	40 and over	Not stated	Total
Number								
Non-instrumental vaginal ^(a)	8,702	28,648	46,997	50,453	28,328	4,928	14	168,070
Forceps	427	1,404	3,116	3,696	1,785	283	1	10,712
Vacuum extraction	1,004	3,143	6,771	7,332	3,691	652	1	22,594
Caesarean section	2,032	9,152	21,237	31,090	22,073	5,178	3	90,765
Not stated	3	5	2	3	1	1	—	15
Total	12,168	42,352	78,123	92,574	55,878	11,042	19	292,156
Per cent								
Non-instrumental vaginal ^(a)	71.5	67.6	60.2	54.5	50.7	44.6	73.7	57.5
Forceps	3.5	3.3	4.0	4.0	3.2	2.6	5.3	3.7
Vacuum extraction	8.3	7.4	8.7	7.9	6.6	5.9	5.3	7.7
Caesarean section	16.7	21.6	27.2	33.6	39.5	46.9	15.8	31.1
Not stated	0.0	0.0	0.0	0.0	0.0	0.0	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) For four jurisdictions, 'Non-instrumental vaginal' includes all women who had a vaginal breech birth, whether or not instruments were used. For the remaining jurisdictions, vaginal breech births are only included where instruments were not used.

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

Method of birth and Indigenous status

Mothers who identified as being of Aboriginal or Torres Strait Islander origin had a higher proportion of non-instrumental vaginal births compared with non-Indigenous mothers (69.5% compared with 57.0%) and a lower proportion of instrumental vaginal deliveries (forceps or vacuum extraction). The caesarean section rate of 24.8% for mothers who identified as Aboriginal or Torres Strait Islander was less than that for non-Indigenous mothers (31.3%) (Table 3.30). This may be partially explained by the younger age of Indigenous mothers, which averaged 25.1 years.

Table 3.30: Women who gave birth by Indigenous status, method of birth and state and territory, 2008

Indigenous status ^(a) method of birth	NSW ^(b)	Vic ^(b)	Qld	WA ^(b)	SA	Tas	ACT ^(c)	NT ^(b)	Australia
Indigenous									
	Number								
Non-instrumental vaginal	2,099	506	2,329	1,181	396	214	65	986	7,776
Instrumental vaginal ^(d)	199	55	159	105	34	13	7	60	632
Caesarean section	675	162	884	408	194	69	31	354	2,777
Not stated	3	—	—	—	—	—	—	—	3
Total	2,976	723	3,372	1,694	624	296	103	1,400	11,188
	Per cent								
Non-instrumental vaginal	70.5	70.0	69.1	69.7	63.5	72.3	63.1	70.4	69.5
Instrumental vaginal ^(d)	6.7	7.6	4.7	6.2	5.4	4.4	6.8	4.3	5.6
Caesarean section	22.7	22.4	26.2	24.1	31.1	23.3	30.1	25.3	24.8
Not stated	0.1	—	—	—	—	—	—	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Non-Indigenous									
	Number								
Non-instrumental vaginal	54,314	39,313	32,419	14,853	10,715	3,850	3,142	1,460	160,066
Instrumental vaginal ^(d)	10,100	9,618	5,283	4,031	2,192	447	711	239	32,621
Caesarean section	27,243	21,584	19,215	9,659	6,140	1,756	1,608	685	87,890
Not stated	11	—	—	—	—	—	—	—	11
Total	91,668	70,515	56,917	28,543	19,047	6,053	5,461	2,384	280,588
	Per cent								
Non-instrumental vaginal	59.3	55.8	57.0	52.0	56.3	63.6	57.5	61.2	57.0
Instrumental vaginal ^(d)	11.0	13.6	9.3	14.1	11.5	7.4	13.0	10.0	11.6
Caesarean section	29.7	30.6	33.8	33.8	32.2	29.0	29.4	28.7	31.3
Not stated	0.0	—	—	—	—	—	—	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Indigenous status 'Not stated' not included.

(b) For these four jurisdictions, 'Non-instrumental vaginal' includes all women who had a vaginal breech birth, whether or not instruments were used. For the remaining jurisdictions, vaginal breech births are only included where instruments were not used.

(c) 29.1% of Aboriginal and Torres Strait Islander women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages. For example, the percentage of caesarean sections for Aboriginal and Torres Strait Islander ACT residents who gave birth in the ACT was 23.3%.

(d) 'Instrumental vaginal' includes forceps and vacuum extraction.

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

Age-specific rates of caesarean section were calculated by Indigenous status for 2008 (Table 3.31). The rate of caesarean section for Aboriginal and Torres Strait Islander mothers was higher than for non-Indigenous mothers for those aged less than 20 years and 20–24 years. Comparatively, for mothers aged 25 years and older, the rate of caesarean section was lower for Indigenous mothers than for non-Indigenous mothers (Table 3.31).

Table 3.31: Women who gave birth by caesarean section by Indigenous status and age, 2008

	Less than 20	20–24	25–29	30–34	35–39	40 and over	Not stated	Total
Number								
Indigenous	431	813	670	508	294	61	—	2,777
Non-Indigenous	1,599	8,328	20,549	30,545	21,759	5,108	2	87,890
Not stated	2	11	18	37	20	9	1	98
Total	2,032	9,152	21,237	31,090	22,073	5,178	3	90,765
Age-specific rate								
Indigenous	18.8	22.9	25.4	30.1	34.4	37.2	—	24.8
Non-Indigenous	16.2	21.5	27.3	33.6	39.6	47.0	15.4	31.3

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

Primary caesarean sections

The rate of primary caesarean section varied by parity with 32.0% of primiparous women giving birth by caesarean section compared with 10.2% of multiparous women. The rate of caesarean section for primiparous women ranged from 28.1% in the Northern Territory to 34.5% in Queensland. The overall rate for women without a history of previous caesarean section was 21.1% (Table 3.32).

Table 3.32: Primary caesarean sections by parity and state and territory, 2008

Parity	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Number									
Primiparas	12,310	9,611	8,323	4,100	2,695	745	705	421	38,910
Multiparas ^(a)	3,963	2,776	2,769	1,332	839	313	295	178	12,465
Total	16,273	12,387	11,092	5,432	3,534	1,058	1,000	599	51,375
Per cent									
Primiparas	31.2	31.1	34.5	32.8	33.0	30.0	29.0	28.1	32.0
Multiparas ^(a)	10.0	9.5	10.9	10.7	10.4	10.6	12.9	10.5	10.2
Total	20.5	20.6	22.4	21.8	21.8	19.5	21.2	18.7	21.1

(a) Only includes multiparous women who had not previously had a caesarean section.

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

Method of birth and previous caesarean section

In 2008, 13.3% of mothers who had previously had a caesarean section had a non-instrumental vaginal birth, and 3.4% had an instrumental vaginal birth. Repeat caesarean sections occurred for 83.2% of mothers with a history of caesarean section, and ranged from 74.9% in the Northern Territory to 87.6% in Western Australia (Table 3.33).

Table 3.33: Multiparous mothers who previously had a caesarean section by current method of birth and state and territory, 2008

Method of birth	NSW ^(a)	Vic ^(a)	Qld	WA ^(a)	SA	Tas	ACT	NT ^(a)	Total
Number									
Non-instrumental vaginal	2,053	1,395	1,441	483	497	134	140	136	6,279
Instrumental vaginal ^(b)	506	447	275	172	141	23	31	15	1,610
Caesarean section	11,539	9,371	9,014	4,635	2,800	767	614	450	39,190
Not stated	1	—	—	—	—	—	—	—	1
Total	14,099	11,213	10,730	5,290	3,438	924	785	601	47,080
Per cent									
Non-instrumental vaginal	14.6	12.4	13.4	9.1	14.5	14.5	17.8	22.6	13.3
Instrumental vaginal ^(b)	3.6	4.0	2.6	3.3	4.1	2.5	3.9	2.5	3.4
Caesarean section	81.8	83.6	84.0	87.6	81.4	83.0	78.2	74.9	83.2
Not stated	0.0	—	—	—	—	—	—	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) For these four jurisdictions, 'Non-instrumental vaginal' includes all women who had a vaginal breech birth, whether or not instruments were used. For the remaining jurisdictions, vaginal breech births are only included where instruments were not used.

(b) 'Instrumental vaginal' includes forceps and vacuum extraction.

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

In 2008, the rate of caesarean section for women giving birth to term singletons ranged from 17.6% at 40 weeks gestation to 46.4% at 38 weeks gestation, and was 29.8% overall. Intrapartum caesarean section was most common at 41 weeks. The rate of no labour caesarean section peaked at 38 weeks at 36.2% (Table 3.34).

Table 3.34: Women who gave birth to term singleton babies and had a caesarean section by gestational age and onset of labour, 2008

Gestational age	Labour	No labour	Not stated	Total
Number				
37	2,514	4,005	1	6,520
38	5,499	19,673	—	25,172
39	7,089	17,134	—	24,223
40	10,374	3,918	—	14,292
41	7,550	1,346	2	8,898
Total	33,026	46,076	3	79,105
Per cent				
37	14.6	23.3	0.0	37.9
38	10.1	36.2	—	46.4
39	9.5	23.1	—	32.6
40	12.8	4.8	—	17.6
41	19.4	3.5	0.0	22.9
Total	12.4	17.3	0.0	29.8

Perineal status after vaginal birth

In 2008, approximately 1 in 3 mothers (33.1%) had an intact perineum following vaginal birth. A first or second degree laceration or graze was reported in 44.7% of women after vaginal birth. In 1 in 100 vaginal births (1.6%), a third or fourth degree laceration of the perineum was reported. This proportion varied among the states and territories, from 1.5% in Queensland to 2.3% in the Australian Capital Territory. An episiotomy only was performed for 14.4% of vaginal births, with the highest rate being recorded in Victoria (20.4%). A combined laceration and episiotomy occurred in 2.4% of women who had a vaginal birth, giving a total of 16.9% of women who had a vaginal birth in 2008 having an episiotomy (Table 3.35).

Table 3.35: Women who gave birth vaginally by perineal status and state and territory, 2008

Perineal status	NSW	Vic	Qld	WA	SA	Tas ^(a)	ACT	NT	Total
Number									
Episiotomy	9,063	10,103	4,685	2,470	1,609	560	363	235	29,088
Intact	16,994	20,209	12,876	7,863	3,809	2,246	1,274	1,401	66,672
1st degree laceration/ vaginal graze	19,072	6,019	6,811	3,175	3,400	726	628	426	40,257
2nd degree laceration	17,382	11,714	9,461	4,599	3,603	921	1,509	566	49,755
3rd/4th degree laceration	1,056	778	623	317	250	71	92	60	3,247
Combined laceration and episiotomy	1,855	743	587	979	620	—	68	41	4,893
Other	^(b) 1,433	—	5,173	^(c) 767	44	—	3	23	7,443
Not stated	14	—	3	—	2	—	—	2	21
Total	66,869	49,566	40,219	20,170	13,337	4,524	3,937	2,754	201,376
Per cent									
Episiotomy	13.6	20.4	11.6	12.2	12.1	12.4	9.2	8.5	14.4
Intact	25.4	40.8	32.0	39.0	28.6	49.6	32.4	50.9	33.1
1st degree laceration/ vaginal graze	28.5	12.1	16.9	15.7	25.5	16.0	16.0	15.5	20.0
2nd degree laceration	26.0	23.6	23.5	22.8	27.0	20.4	38.3	20.6	24.7
3rd/4th degree laceration	1.6	1.6	1.5	1.6	1.9	1.6	2.3	2.2	1.6
Combined laceration and episiotomy	2.8	1.5	1.5	4.9	4.6	—	1.7	1.5	2.4
Other	^(b) 2.1	—	12.9	^(c) 3.8	0.3	—	0.1	0.8	3.7
Not stated	0.0	—	0.0	—	0.0	—	—	0.1	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) For Tas, cases where both a laceration and episiotomy occurred were coded as Episiotomy.

(b) Includes unspecified perineal tear and vulval or perineal haematoma.

(c) Includes cases where the perineum was intact but a graze was reported.

Note: For multiple births, the perineal status after the birth of the first born baby was used.

Pre-existing and pregnancy-related medical conditions

This section presents state and territory data on selected pre-existing conditions and complications arising in pregnancy. The collection of comprehensive and reliable information on risk factors and complications arising in pregnancy continues to be a challenging area of data development. The development of nationally consistent scope, collection methods and classifications of these conditions and complications is progressing in line with the overall priorities of perinatal data development.

Table 3.36 provides the numbers and rates of pre-existing medical conditions, selected conditions arising during pregnancy and conditions arising during birth for women who gave birth in each state and territory. It is important when interpreting the data presented in this table that each state and territory is examined independently. Data are not currently comparable across jurisdictions. No national estimates or totals are provided.

The way in which data are collected varies. Data on these conditions and complications are generally collected using a tick box on the perinatal form of each state and territory. However, for some jurisdictions, a tick box is not available for some of these conditions and complications, so the condition or complication may be recorded using free text. The scope of the selected conditions may vary between jurisdictions – a higher rate may reflect a broader definition of the condition or a lower rate may reflect different practices in collection of the data or different inclusion criteria for the conditions.

Despite these limitations there was a remarkable homogeneity in the rates of several conditions, notably pre-existing epilepsy, diabetes mellitus and hypertension, antepartum haemorrhage, gestational diabetes, cord prolapse and retained placenta. For the remaining three conditions the rates varied considerably between jurisdictions. Pregnancy-induced hypertension may be subject to broader definitions in some jurisdictions. Fetal distress in labour and postpartum haemorrhage rates may reflect the relevant definitions as well as variability in the practices and protocols used to assess the conditions.

Table 3.36: Women who gave birth by selected maternal medical and obstetric conditions and state and territory, 2008^(a)

Medical condition or complication	NSW	Vic	Qld	WA	SA	Tas	ACT ^(b)	NT
Number								
Essential hypertension	833	764	367	411	230	86	78	34
Diabetes mellitus	601	429	329	228	116	50	105	46
Epilepsy	n.a.	371	275	171	130	59	33	23
Antepartum haemorrhage	n.a.	2,107	1,397	1,067	649	143	280	407
<i>Placenta praevia</i>	n.a.	564	359	226	111	32	78	n.a.
<i>Abruptio placenta</i>	n.a.	266	263	99	95	15	29	n.a.
<i>Other</i>	n.a.	1,277	775	742	443	96	173	n.a.
Pregnancy-induced hypertension	5,982	3,428	3,141	120	1,353	328	191	126
Gestational diabetes	4,509	3,919	3,040	1,351	989	178	318	236
Fetal distress	n.a.	12,807	11,101	3,811	2,327	49	398	374
Cord prolapse	n.a.	128	100	40	20	<5	8	9
Postpartum haemorrhage	953	8,228	3,153	3,650	2,131	206	427	499
Retained placenta	n.a.	1,038	684	395	298	74	71	40
Rate per 1,000 women who gave birth								
Essential hypertension	8.8	10.7	6.1	13.6	11.7	13.5	14.0	8.9
Diabetes mellitus	6.3	6.0	5.5	7.5	5.9	7.9	18.8	12.1
Epilepsy	n.a.	5.2	4.6	5.7	6.6	9.3	5.9	6.0
Antepartum haemorrhage	n.a.	29.5	23.2	35.3	33.0	22.5	50.1	107.0
<i>Placenta praevia</i>	n.a.	7.9	6.0	7.5	5.6	5.0	14.0	n.a.
<i>Abruptio placenta</i>	n.a.	3.7	4.4	3.3	4.8	2.4	5.2	n.a.
<i>Other</i>	n.a.	17.9	12.8	24.5	22.5	15.1	31.0	n.a.
Pregnancy-induced hypertension	63.1	48.1	52.1	4.0	68.8	51.7	34.2	33.1
Gestational diabetes	47.5	54.9	50.4	44.7	50.3	28.0	56.9	62.1
Fetal distress	n.a.	179.6	184.0	126.0	118.3	7.7	71.2	98.3
Cord prolapse	n.a.	1.8	1.7	1.3	1.0	n.p.	1.4	2.4
Postpartum haemorrhage	10.0	115.4	52.3	120.7	108.3	32.4	76.4	131.2
Retained placenta	n.a.	14.6	11.3	13.1	15.1	11.7	12.7	10.5

(a) Because of differences in definitions and methods used for data collection these data are not comparable across jurisdictions.

(b) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting rates. The ACT uses broader inclusion criteria for these conditions and data are collected from multiple sources.

n.a. Data not available.

n.p. Data not published to maintain confidentiality of small numbers.

Women who gave birth in hospitals

Hospitals and birth centres

Hospitals and birth centres were categorised by the number of women who gave birth in them in 2008. The categories vary from those with very few births each year to those with more than 2,000 births, and are affected by geographical location, the population of the region and policies regarding maternity services. Table 3.37 presents the number of hospitals or birth centres in each category by state and territory. In 2008, 38.2% of the hospitals or birth centres had 100 or fewer women who gave birth, and 10.8% had in excess of 2,000 women who gave birth (Table 3.37). There has been a decrease in the number of hospitals or birth centres with 1–100 and 101–500 women who gave birth. In 1999, there were 244 and 146 hospitals or birth centres in these groups respectively, compared with 155 and 102 in 2008.

Table 3.37: Hospitals and birth centres by number of women who gave birth and state and territory, 2008

Number of women who gave birth	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Number of hospitals and birth centres									
1–100	30	27	53	20	22	2	—	1	155
101–500	34	19	22	10	13	2	—	2	102
501–1,000	17	13	9	5	4	2	1	2	53
1,001–2,000	15	13	13	4	2	2	2	1	52
2,001 and over	17	11	10	2	3	—	1	—	44
Total	113	83	107	41	44	8	4	6	406
Per cent									
1–100	26.5	32.5	49.5	48.8	50.0	25.0	—	16.7	38.2
101–500	30.1	22.9	20.6	24.4	29.5	25.0	—	33.3	25.1
501–1,000	15.0	15.7	8.4	12.2	9.1	25.0	25.0	33.3	13.1
1,001–2,000	13.3	15.7	12.1	9.8	4.5	25.0	50.0	16.7	12.8
2,001 and over	15.0	13.3	9.3	4.9	6.8	—	25.0	—	10.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: In some jurisdictions, a birth centre and co-located hospital labour ward would be considered as one maternity unit.

Hospital sector

'Hospital sector' indicates whether a patient was admitted to a public or a private hospital. Of women who gave birth in hospitals in 2008, the proportion in private hospitals was 30.2%, and ranged from 20.9% in the Northern Territory to 41.2% in Western Australia (Table 3.38).

Table 3.38: Women who gave birth in hospital by hospital sector and state and territory, 2008

Hospital sector	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Number									
Public	67,782	48,082	41,145	17,370	13,076	4,151	3,298	2,836	197,740
Private	23,463	21,525	18,281	12,188	5,182	2,062	1,930	748	85,379
Not stated	—	—	—	—	—	—	—	—	—
Total	91,245	69,607	59,426	29,558	18,258	6,213	5,228	3,584	283,119
Per cent									
Public	74.3	69.1	69.2	58.8	71.6	66.8	63.1	79.1	69.8
Private	25.7	30.9	30.8	41.2	28.4	33.2	36.9	20.9	30.2
Not stated	—	—	—	—	—	—	—	—	—
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Admitted patient election status

'Admitted patient election status' is the accommodation chargeable status elected by a patient on admission to hospital. Of women who gave birth in hospitals in 2008, the proportion who elected private status (i.e. elected to be treated as a private patient) was 33.9%, and ranged from 23.9% in the Northern Territory to 40.8% in the Australian Capital Territory (Table 3.39).

Table 3.39: Women who gave birth in hospital by admitted patient election status and state and territory, 2008

Admitted patient election status	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Number									
Public	57,699	44,992	39,816	18,352	12,018	4,576	3,094	2,727	183,274
Private	29,729	24,614	19,610	11,079	6,240	1,637	2,134	857	95,900
Not stated	3,817	1	—	127	—	—	—	—	3,945
Total	91,245	69,607	59,426	29,558	18,258	6,213	5,228	3,584	283,119
Per cent									
Public	63.2	64.6	67.0	62.1	65.8	73.7	59.2	76.1	64.7
Private	32.6	35.4	33.0	37.5	34.2	26.3	40.8	23.9	33.9
Not stated	4.2	0.0	—	0.4	—	—	—	—	1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Method of birth and hospital sector

Method of birth for women who gave birth in hospitals was compared by hospital sector and state and territory (Table 3.40). Women who gave birth in public hospitals reported higher levels of non-instrumental vaginal birth than those in private hospitals (61.8% compared with 43.3%). Private hospital patients had higher proportions than public hospital patients of vaginal births requiring forceps (4.9% compared with 3.3%) or vacuum extraction (10.4% compared with 6.9%) (Table 3.40).

Of women who gave birth in public hospitals, the highest rate of forceps deliveries occurred in the Australian Capital Territory (6.5%), and of those in private hospitals, the highest rate of forceps deliveries occurred in Victoria (8.1%). Vacuum extraction was most common for both public and private hospitals in Western Australia.

Of women who gave birth in hospitals in Australia in 2008, 32.1% had a caesarean section delivery. The caesarean section rate of 41.3% for women who were in private hospitals was higher than the rate of 28.1% for those in public hospitals. The highest rate of caesarean section deliveries in private hospitals was in Queensland (47.5%), followed by Western Australia (42.6%) and South Australia (41.5%) (Table 3.40).

Table 3.40: Women who gave birth in hospital by method of birth, hospital sector and state and territory, 2008

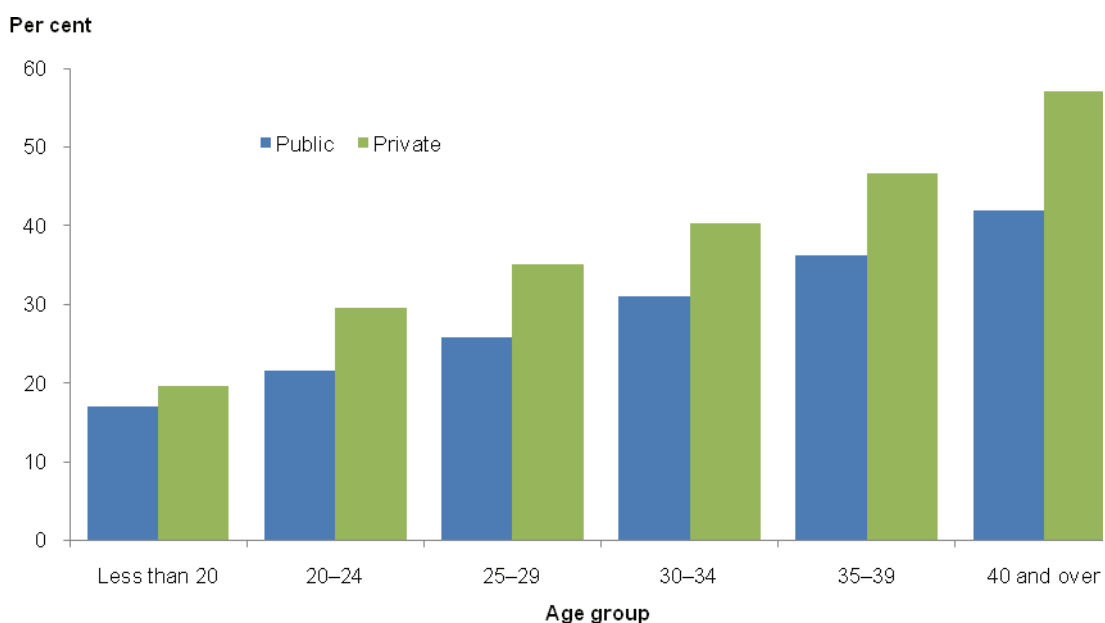
Hospital sector/ method of birth	NSW^(a)	Vic^(a)	Qld	WA^(a)	SA	Tas	ACT^(b)	NT^(a)	Australia
Public	Number								
Non-instrumental vaginal	42,389	28,856	26,464	10,360	7,435	2,708	2,019	1,901	122,132
Forceps	2,347	2,177	647	467	516	78	213	52	6,497
Vacuum extraction	4,362	3,547	2,604	1,662	942	218	172	114	13,621
Caesarean section	18,672	13,502	11,430	4,881	4,183	1,147	894	769	55,478
Not stated	12	—	—	—	—	—	—	—	12
Total	67,782	48,082	41,145	17,370	13,076	4,151	3,298	2,836	197,740
	Per cent								
Non-instrumental vaginal	62.5	60.0	64.3	59.6	56.9	65.2	61.2	67.0	61.8
Forceps	3.5	4.5	1.6	2.7	3.9	1.9	6.5	1.8	3.3
Vacuum extraction	6.4	7.4	6.3	9.6	7.2	5.3	5.2	4.0	6.9
Caesarean section	27.5	28.1	27.8	28.1	32.0	27.6	27.1	27.1	28.1
Not stated	0.0	—	—	—	—	—	—	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Private	Number								
Non-instrumental vaginal	10,609	9,293	7,411	4,997	2,300	1,221	835	334	37,000
Forceps	1,122	1,734	520	267	306	41	146	50	4,186
Vacuum extraction	2,429	2,242	1,674	1,738	425	122	191	84	8,905
Caesarean section	9,301	8,256	8,676	5,186	2,151	678	758	280	35,286
Not stated	2	—	—	—	—	—	—	—	2
Total	23,463	21,525	18,281	12,188	5,182	2,062	1,930	748	85,379
	Per cent								
Non-instrumental vaginal	45.2	43.2	40.5	41.0	44.4	59.2	43.3	44.7	43.3
Forceps	4.8	8.1	2.8	2.2	5.9	2.0	7.6	6.7	4.9
Vacuum extraction	10.4	10.4	9.2	14.3	8.2	5.9	9.9	11.2	10.4
Caesarean section	39.6	38.4	47.5	42.6	41.5	32.9	39.3	37.4	41.3
Not stated	0.0	—	—	—	—	—	—	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) For these four jurisdictions, 'Non-instrumental vaginal' includes all women who had a vaginal breech birth, whether or not instruments were used. For the remaining jurisdictions, vaginal breech births are only included where instruments were not used.

(b) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages.

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

Caesarean section rates were higher in private hospitals compared with public hospitals across all age groups. Figure 3.4 shows the differences by age group and hospital sector. The caesarean section rate for mothers aged 35–39 years who gave birth in private hospitals was 46.6% compared with 36.3% for those in public hospitals. Of mothers aged 40 years or more, 57.1% in private hospitals had a caesarean section compared with 41.9% of those in public hospitals.



Source: Table A4.6.

Figure 3.4: Caesarean sections by maternal age and hospital sector, 2008 (per cent)

Length of stay in hospital

Antenatal length of stay

Two-thirds of women (67.2%) gave birth within a day of admission to hospital. The proportion of women who gave birth within two days of admission was 93.6%. Only 0.8% of mothers were hospitalised for seven days or more immediately before giving birth (Table 3.41).

Table 3.41: Women who gave birth in hospital by length of antenatal stay and state and territory, 2008

Length of stay	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Number									
Less than 1 day	58,666	48,826	41,360	19,658	11,694	4,231	3,345	2,359	190,139
1 day	24,517	17,551	15,042	8,302	5,393	1,636	1,520	907	74,868
2–6 days	4,697	2,593	2,656	1,231	943	284	328	267	12,999
7–13 days	484	305	219	136	134	n.p.	n.p.	41	1,369
14 or more days	313	332	149	104	94	n.p.	<5	10	1,014
Not stated	2,568	—	—	127	—	28	7	—	2,730
Total	91,245	69,607	59,426	29,558	18,258	6,213	5,228	3,584	283,119
Per cent									
Less than 1 day	64.3	70.1	69.6	66.5	64.0	68.1	64.0	65.8	67.2
1 day	26.9	25.2	25.3	28.1	29.5	26.3	29.1	25.3	26.4
2–6 days	5.1	3.7	4.5	4.2	5.2	4.6	6.3	7.4	4.6
7–13 days	0.5	0.4	0.4	0.5	0.7	n.p.	n.p.	1.1	0.5
14 or more days	0.3	0.5	0.3	0.4	0.5	n.p.	n.p.	0.3	0.4
Not stated	2.8	—	—	0.4	—	0.5	0.1	—	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

n.p. Data not published to maintain confidentiality of small numbers.

Postnatal length of stay

The length of the mother's postnatal stay in hospital may be influenced by factors such as the method of birth, maternal medical and obstetric complications, neonatal morbidity and specific hospital policies on early discharge. In 2008, the median postnatal hospital stay for mothers was 3.0 days. South Australia and the Northern Territory reported a longer median length of stay of 4.0 days (Table 3.42).

The trend towards shorter postnatal stays in hospital is reflected by the higher proportion of mothers who were discharged less than five days after giving birth. In 2008, 14.4% of mothers were discharged less than two days after giving birth, and 64.3% of mothers were discharged between two and four days after giving birth (Table 3.42). This compares with 10.8% and 56.0% respectively in 1999. Relatively more mothers in Queensland (85.0%) and Victoria (81.2%) had stays of less than five days in 2008. Longer lengths of stay (of five or more days) were relatively more common in the Northern Territory.

Table 3.42: Women who gave birth in hospital^(a) by length of postnatal stay and state and territory, 2008

Length of stay	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Median (days)	3.0	3.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0
Number									
Less than 1 day	2,217	1,361	2,195	792	424	204	n.p.	n.p.	7,464
1 day	10,632	5,463	9,727	3,318	1,582	787	638	165	32,312
2 days	17,454	15,973	13,048	4,742	3,178	1,240	952	572	57,159
3 days	18,861	13,004	13,106	5,588	3,559	1,215	1,098	839	57,270
4 days	19,095	19,166	11,889	5,730	4,653	1,040	1,174	614	63,361
5 days	11,900	10,040	6,383	4,278	3,034	790	760	602	37,787
6 days	4,135	1,653	1,484	2,458	1,009	395	210	208	11,552
7–13 days	2,138	976	915	1,776	461	224	97	250	6,837
14 or more days	84	39	42	45	14	33	<5	n.p.	290
Not stated	2,514	—	—	—	—	2	—	—	2,516
Total	89,030	67,675	58,789	28,727	17,914	5,930	5,139	3,344	276,548
Per cent									
Less than 1 day	2.5	2.0	3.7	2.8	2.4	3.4	n.p.	n.p.	2.7
1 day	11.9	8.1	16.5	11.6	8.8	13.3	12.4	4.9	11.7
2 days	19.6	23.6	22.2	16.5	17.7	20.9	18.5	17.1	20.7
3 days	21.2	19.2	22.3	19.5	19.9	20.5	21.4	25.1	20.7
4 days	21.4	28.3	20.2	19.9	26.0	17.5	22.8	18.4	22.9
5 days	13.4	14.8	10.9	14.9	16.9	13.3	14.8	18.0	13.7
6 days	4.6	2.4	2.5	8.6	5.6	6.7	4.1	6.2	4.2
7–13 days	2.4	1.4	1.6	6.2	2.6	3.8	1.9	7.5	2.5
14 or more days	0.1	0.1	0.1	0.2	0.1	0.6	n.p.	n.p.	0.1
Not stated	2.8	—	—	—	—	0.0	—	—	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Only includes mothers who were discharged home.

n.p. Data not published to maintain confidentiality of small numbers.

Note: For multiple births, the length of stay after the birth of the first born baby was used.

Mothers in private hospitals had a median postnatal length of stay of 4.0 days in 2008, compared with 3.0 days for those in public hospitals. The proportion of women who gave birth in hospital with a postnatal stay of less than five days was 59.3% for those in private hospitals, compared with 87.3% in public hospitals.

Women who had a caesarean section or forceps delivery had a longer median length of stay (4.0 days) compared with women who had a non-instrumental vaginal birth (2.0 days). The median length of stay for women who had a vacuum extraction delivery was 3.0 days. Of women who had a caesarean section, 5.3% had a postnatal length of stay of seven days or longer (Table 3.43).

Table 3.43: Women who gave birth in hospital^(a) by length of postnatal stay and method of birth, 2008

Length of stay	Non-instrumental vaginal ^(b)	Forceps	Vacuum extraction	Caesarean section	Not stated	Australia
Median (days)	2.0	4.0	3.0	4.0	—	3.0
Number						
Less than 1 day	7,037	144	188	95	—	7,464
1 day	29,735	478	1,511	585	3	32,312
2 days	44,786	1,901	4,505	5,967	—	57,159
3 days	32,787	2,387	5,155	16,936	5	57,270
4 days	28,896	3,632	6,891	23,941	1	63,361
5 days	7,272	1,203	2,297	27,014	1	37,787
6 days	2,232	375	842	8,100	3	11,552
7–13 days	1,577	255	513	4,492	—	6,837
14 or more days	71	8	12	199	—	290
Not stated	1,202	93	203	1,018	—	2,516
Total	155,595	10,476	22,117	88,347	13	276,548
Per cent						
Less than 1 day	4.5	1.4	0.9	0.1	—	2.7
1 day	19.1	4.6	6.8	0.7	23.1	11.7
2 days	28.8	18.1	20.4	6.8	—	20.7
3 days	21.1	22.8	23.3	19.2	38.5	20.7
4 days	18.6	34.7	31.2	27.1	7.7	22.9
5 days	4.7	11.5	10.4	30.6	7.7	13.7
6 days	1.4	3.6	3.8	9.2	23.1	4.2
7–13 days	1.0	2.4	2.3	5.1	—	2.5
14 or more days	0.0	0.1	0.1	0.2	—	0.1
Not stated	0.8	0.9	0.9	1.2	—	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

(a) Only includes mothers who were discharged home.

(b) For four jurisdictions, 'Non-instrumental vaginal' includes all women who had a vaginal breech birth, whether or not instruments were used.

Note: For multiple births, the length of stay after the birth of the first born baby and the method of birth of the first born baby were used.

Mode of separation from hospital

Nearly all women who gave birth in hospital were discharged to their homes (97.7%). Around 2.2% of mothers were transferred to another hospital (Table 3.44). This usually occurs for continuing care in a hospital located nearer to the mother's place of residence or for further treatment of complications. The transfers to another hospital occurred more in Tasmania (4.6%) than in the other jurisdictions.

Table 3.44: Women who gave birth in hospital by mode of separation and state and territory, 2008

Mode of separation	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Number									
Discharge home	89,030	67,675	58,789	28,727	17,914	5,930	5,139	3,344	276,548
Transfer to another hospital	2,193	1,930	634	575	344	283	89	63	6,111
Died	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	7
Other ^(a)	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	305
Not stated	21	—	—	127	—	—	—	—	148
Total	91,245	69,607	59,426	29,558	18,258	6,213	5,228	3,584	283,119
Per cent									
Discharge home	97.6	97.2	98.9	97.2	98.1	95.4	98.3	93.3	97.7
Transfer to another hospital	2.4	2.8	1.1	1.9	1.9	4.6	1.7	1.8	2.2
Died	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	0.0
Other ^(a)	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	0.1
Not stated	0.0	—	—	0.4	—	—	—	—	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) 'Other' includes statistical discharges and transfers to accommodation other than acute hospitals, such as hostels and prisons, and mothers discharged against medical advice.

n.p. Data not published to maintain confidentiality of small numbers. Note that in this table <5 cells and some blank cells have been presented as 'n.p.'.

Homebirths

In 2008, 1,000 planned homebirths, representing 0.3% of all women who gave birth, were reported nationally. The highest proportions of homebirths occurred in Western Australia and the Northern Territory (both 0.8%) (Table 3.14). It is probable that not all homebirths are reported to the perinatal data collections.

The mean age of mothers who gave birth at home in 2008 was 31.9 years (Table 3.45). The proportion of mothers aged less than 20 years was 0.5%, and the proportion aged 35 years and over was 30.5%. The proportion of mothers who gave birth at home who identified as being of Aboriginal or Torres Strait Islander origin was 0.4%. The largest proportion of women who had a homebirth lived in major cities (62.5%) (Table 3.45).

Of mothers who gave birth at home, one-quarter had their first baby (25.5%), and 74.3% were multiparous. The method of birth was non-instrumental vaginal for 99.0% of women who gave birth at home (Table 3.45), and the presentation was vertex for 97.9% of women who gave birth at home.

Of babies born at home in 2008, 99.4% were liveborn. The mean birthweight of these liveborn babies was 3,700 grams (Table 3.45). The proportion of liveborn babies of low birthweight born at home was 0.4%, and the proportion of babies born at home that were preterm was 1.0%.

Table 3.45: Selected characteristics of women who gave birth at home, 2008

Characteristic	Number	Per cent
Women who gave birth	1,000	—
Mean maternal age	31.9	—
Parity		
None	255	25.5
One	384	38.4
Two	207	20.7
Three	92	9.2
Four or more	60	6.0
Remoteness Area of mother's usual residence^(a)		
Major cities	625	62.5
Inner regional	278	27.8
Outer regional	80	8.0
Remote/Very remote	14	1.4
Method of birth		
Non-instrumental vaginal ^(b)	990	99.0
Other	10	1.0
Births	1,002	—
Birth status		
Live births	996	99.4
Fetal deaths	6	0.6
Sex		
Males	521	52.0
Females	480	47.9
Mean birthweight of live births (g)	3,700	—

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

(b) For four jurisdictions, 'Non-instrumental vaginal' includes all women who had a vaginal breech birth, whether or not instruments were used. For the remaining jurisdictions, vaginal breech births are only included where instruments were not used.

4 Babies

Demographic profile

Birth status

Babies are recorded as liveborn or stillborn (fetal deaths) on perinatal notification forms. A live birth is defined as the complete expulsion or extraction from the mother of a baby which, after such separation, breathes or shows any other evidence of life. A fetal death is defined as a death occurring prior to the complete expulsion or extraction from the mother of a product of conception of 20 or more completed weeks gestation or 400 grams or more birthweight (AIHW 2010). In the NPDC, the same criteria are applied to live births, that is, live births must also be at least 20 weeks gestation or at least 400 grams birthweight.

There were 294,737 live births and 2,188 fetal deaths in Australia in 2008, with a total of 296,925 births reported to the NPDC (Table 2.1). This equates to a stillbirth rate of 7.4 per 1,000 births.

Month of birth

In 2008, most births occurred in July and October (both 8.7%). July births were most common in New South Wales (8.9%) and October births were most common in Victoria (8.8%) (Table 4.1).

Table 4.1: Births by month of birth, 2008

Month	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Number									
January	7,986	6,164	5,177	2,720	1,632	549	483	346	25,057
February	7,608	5,779	4,841	2,566	1,605	518	448	301	23,666
March	8,216	6,113	5,244	2,586	1,731	537	475	329	25,231
April	7,757	5,899	5,225	2,529	1,595	527	447	326	24,305
May	8,017	5,823	5,104	2,636	1,731	519	475	331	24,636
June	7,584	5,700	4,992	2,520	1,566	518	427	330	23,637
July	8,574	6,287	5,280	2,541	1,753	563	503	322	25,823
August	8,182	6,195	5,211	2,562	1,681	549	486	336	25,202
September	8,014	6,306	5,184	2,615	1,716	513	513	324	25,185
October	8,394	6,417	5,185	2,616	1,736	560	499	306	25,713
November	7,593	5,770	4,764	2,254	1,562	535	444	286	23,208
December	8,411	6,093	5,193	2,529	1,661	567	505	303	25,262
Total	96,336	72,546	61,400	30,674	19,969	6,455	5,705	3,840	296,925
Per cent									
January	8.3	8.5	8.4	8.9	8.2	8.5	8.5	9.0	8.4
February	7.9	8.0	7.9	8.4	8.0	8.0	7.9	7.8	8.0
March	8.5	8.4	8.5	8.4	8.7	8.3	8.3	8.6	8.5
April	8.1	8.1	8.5	8.2	8.0	8.2	7.8	8.5	8.2
May	8.3	8.0	8.3	8.6	8.7	8.0	8.3	8.6	8.3
June	7.9	7.9	8.1	8.2	7.8	8.0	7.5	8.6	8.0
July	8.9	8.7	8.6	8.3	8.8	8.7	8.8	8.4	8.7
August	8.5	8.5	8.5	8.4	8.4	8.5	8.5	8.8	8.5
September	8.3	8.7	8.4	8.5	8.6	7.9	9.0	8.4	8.5
October	8.7	8.8	8.4	8.5	8.7	8.7	8.7	8.0	8.7
November	7.9	8.0	7.8	7.3	7.8	8.3	7.8	7.4	7.8
December	8.7	8.4	8.5	8.2	8.3	8.8	8.9	7.9	8.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sex

Male births exceeded female births in all states and territories, and accounted for 51.4% of all live births nationally in 2008. This proportion was similar across the states and territories. In 2008, the sex ratio for Australia, defined as the number of male liveborn babies per 100 female liveborn babies, was 105.6 (Table 4.2).

Table 4.2: Live births by sex and state and territory, 2008

Sex	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Sex ratio (M:F)	104.7	106.1	108.0	104.0	103.9	105.3	109.1	103.6	105.6
Number									
Males	48,949	36,984	31,680	15,519	10,097	3,280	2,948	1,939	151,396
Females	46,774	34,859	29,331	14,929	9,721	3,115	2,701	1,872	143,302
Indeterminate/ not stated	29	—	5	1	—	2	1	1	39
Total	95,752	71,843	61,016	30,449	19,818	6,397	5,650	3,812	294,737
Per cent									
Males	51.1	51.5	51.9	51.0	50.9	51.3	52.2	50.9	51.4
Females	48.8	48.5	48.1	49.0	49.1	48.7	47.8	49.1	48.6
Indeterminate/ not stated	0.0	—	0.0	0.0	—	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

For singleton live births the sex ratio was 105.9 male births per 100 female births. The sex ratio for twins was 99.8 and for higher order multiples, 72.0. The sex ratio for all live births was highest in the Australian Capital Territory, at 109.1 male births per 100 female births, and lowest in the Northern Territory, at 103.6.

Babies of Aboriginal and Torres Strait Islander mothers

The mothers reported to the NPDC for 2008, who identified as being Aboriginal or Torres Strait Islander, gave birth to 11,204 liveborn babies and 128 stillborn babies (fetal deaths). There were 280,588 non-Indigenous mothers who gave birth to 283,198 live births and 2,006 stillbirths (Table 4.3).

Table 4.3: Births by maternal Indigenous status and state and territory, 2008

Indigenous status ^(a)	NSW	Vic	Qld	WA	SA	Tas	ACT ^(b)	NT	Australia
Aboriginal or Torres Strait Islander									
Fetal deaths	33	11	27	23	11	n.p.	<5	17	128
Live births	2,982	719	3,390	1,688	626	n.p.	n.p.	1,394	11,204
All births	3,015	730	3,417	1,711	637	304	107	1,411	11,332
Non-Indigenous									
Fetal deaths	544	647	355	202	140	53	54	11	2,006
Live births	92,557	71,081	57,591	28,761	19,192	6,098	5,519	2,399	283,198
All births	93,101	71,728	57,946	28,963	19,332	6,151	5,573	2,410	285,204

(a) Indigenous status 'Not stated' not included.

(b) 29.1% of Aboriginal and Torres Strait Islander women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages. For example, 75 of the 107 babies were born in the ACT to ACT resident Aboriginal or Torres Strait Islander women in 2008.

n.p. Data not published to maintain confidentiality of small numbers.

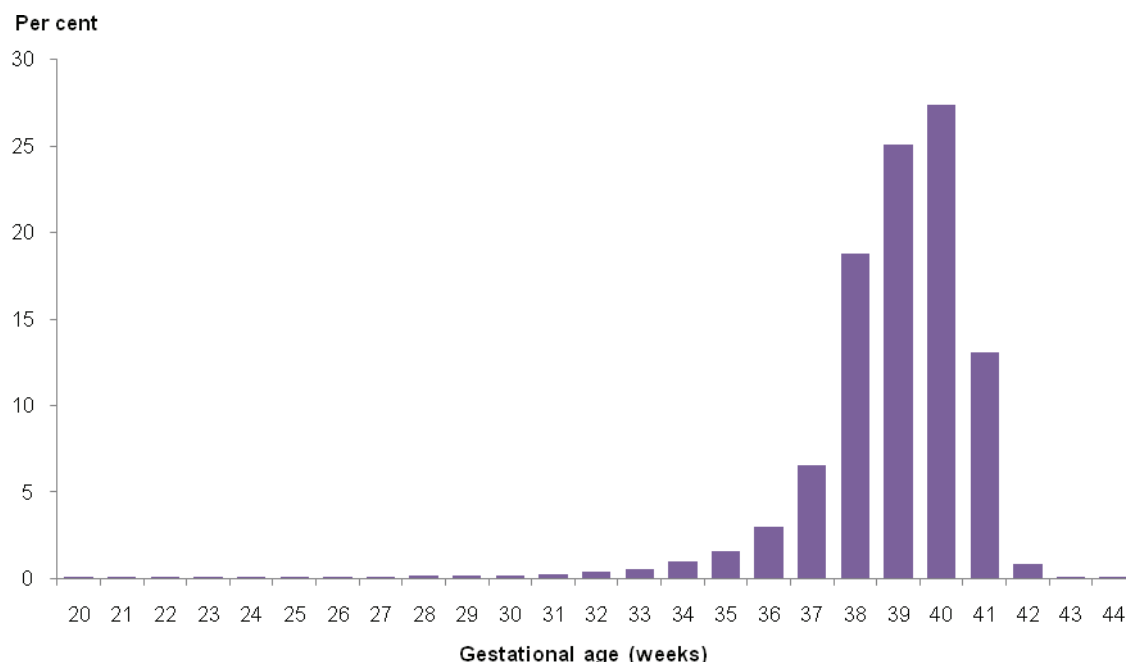
Outcomes

Gestational age

In 2008, the mean gestational age for all babies was 38.8 weeks. The proportion of babies born at term (37–41 weeks gestation) was 90.9% (Table 4.4).

Preterm birth (before 37 completed weeks of gestation) is associated with a higher risk of neonatal problems that cause significant morbidity and mortality in newborn babies.

Preterm births were classified according to the criteria of the WHO into groups of 20–27 weeks, 28–31 weeks and 32–36 weeks. Of all babies born in 2008, 8.2% were preterm, with most of the preterm births occurring at a gestational age of 32–36 completed weeks (Figure 4.1; Table 4.4).



Source: Table 4.4.

Figure 4.1: Distribution of gestational age, 2008 (per cent)

The mean gestational age of stillborn babies was 27.5 weeks in 2008, compared with 38.8 weeks for liveborn babies. Preterm birth occurred in 81.5% of stillborn babies, compared with 7.7% of liveborn babies (Table 4.4).

Table 4.4: Births by gestational age and birth status, 2008

Gestational age (weeks)	Live births		Fetal deaths		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
20 ^(a)	70	0.0	280	12.8	350	0.1
21	90	0.0	277	12.7	367	0.1
22	124	0.0	249	11.4	373	0.1
23	114	0.0	180	8.2	294	0.1
24	153	0.1	105	4.8	258	0.1
25	218	0.1	84	3.8	302	0.1
26	274	0.1	78	3.6	352	0.1
27	297	0.1	46	2.1	343	0.1
28	426	0.1	57	2.6	483	0.2
29	431	0.1	43	2.0	474	0.2
30	557	0.2	50	2.3	607	0.2
31	788	0.3	46	2.1	834	0.3
32	1,126	0.4	51	2.3	1,177	0.4
33	1,620	0.5	56	2.6	1,676	0.6
34	2,957	1.0	52	2.4	3,009	1.0
35	4,572	1.6	65	3.0	4,637	1.6
36	8,772	3.0	64	2.9	8,836	3.0
37	19,484	6.6	72	3.3	19,556	6.6
38	55,621	18.9	102	4.7	55,723	18.8
39	74,348	25.2	75	3.4	74,423	25.1
40	81,195	27.5	101	4.6	81,296	27.4
41	38,874	13.2	42	1.9	38,916	13.1
42	2,561	0.9	7	0.3	2,568	0.9
43	35	0.0	—	—	35	0.0
44	5	0.0	—	—	5	0.0
Not stated	25	0.0	6	0.3	31	0.0
Total	294,737	100.00	2,188	100.0	296,925	100.0
20–36	22,589	7.7	1,783	81.5	24,372	8.2
Mean (weeks)	38.8		27.5		38.8	

(a) Includes 2 babies of less than 20 weeks gestation.

The mean gestational age for all preterm births in 2008 was 33.2 weeks. Nationally, 0.9% of births were at 20–27 weeks gestation, 0.8% were at 28–31 weeks and 6.5% were at 32–36 weeks. The Northern Territory had the highest proportion of preterm births, at 9.8% of all births, and New South Wales had the lowest, at 7.5% of all births (Table 4.5).

Table 4.5: Preterm births by gestational age and state and territory, 2008

Gestational age (weeks)	NSW	Vic^(a)	Qld	WA	SA	Tas	ACT^(b)	NT	Australia
Mean	33.3	32.9	33.3	33.4	33.1	33.3	32.7	33.1	33.2
Number									
20–27 ^(c)	728	800	514	248	194	57	56	42	2,639
28–31	683	577	541	268	157	64	70	38	2,398
32–36	5,794	4,697	4,234	2,131	1,359	465	358	297	19,335
Total	7,205	6,074	5,289	2,647	1,710	586	484	377	24,372
Per cent of total births									
20–27 ^(c)	0.8	1.1	0.8	0.8	1.0	0.9	1.0	1.1	0.9
28–31	0.7	0.8	0.9	0.9	0.8	1.0	1.2	1.0	0.8
32–36	6.0	6.5	6.9	6.9	6.8	7.2	6.3	7.7	6.5
Total	7.5	8.4	8.6	8.6	8.6	9.1	8.5	9.8	8.2

(a) Preterm birth rates may be higher as the majority of late terminations for psychosocial indications are undertaken in Vic.

(b) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages. For example, the percentage of preterm births among babies of ACT residents who gave birth in the ACT was 6.8% compared with 17.2% of non-ACT residents who gave birth in the ACT.

(c) Includes 2 babies of less than 20 weeks gestation.

In 2008, 13.3% of babies of Aboriginal and Torres Strait Islander mothers were born preterm. This was greater than the proportion of 8.0% in babies of non-Indigenous mothers.

For singletons, the mean gestational age was 38.9 weeks, compared with 35.1 weeks for twins and 32.0 weeks for higher order multiple births. Preterm birth occurred in 56.7% of twins and in all higher order multiple births, both much higher than the proportion of 6.6% found among singleton births (Table 4.6). The downward shift in the distributions of gestational age for babies born as multiples compared with singletons dramatically increased for babies of less than 32 weeks gestation, when the risks of subsequent complications are much higher. In 2008, birth before 32 weeks gestation occurred for 11.2% of twin births and 27.3% of other multiple births, but only 1 in 100 (1.4%) singleton births (Table 4.6).

Only 0.9% of babies were born post-term (at 42 weeks or more gestation) (Table 4.6). The duration of pregnancy by state and territory is detailed in Table 3.16.

Table 4.6: Births by gestational age and plurality, 2008

Gestational age (weeks)	Singletons		Twins		Other multiple births		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
20–27 ^(a)	n.p.	n.p.	n.p.	n.p.	19	9.8	2,639	0.9
28–31	1,725	0.6	639	6.9	34	17.5	2,398	0.8
32–36	14,970	5.2	4,224	45.5	141	72.7	19,335	6.5
37–41	265,899	92.5	4,015	43.3	—	—	269,914	90.9
42 and over	n.p.	n.p.	<5	n.p.	—	—	2,608	0.9
Not stated	31	0.0	—	—	—	—	31	0.0
Total	287,453	100.0	9,278	100.0	194	100.0	296,925	100.0
20–36	18,919	6.6	5,259	56.7	194	100.0	24,372	8.2
Mean (weeks)	38.9		35.1		32.0		38.8	

(a) Includes 2 babies of less than 20 weeks gestation.

n.p. Data not published to maintain confidentiality of small numbers.

Birthweight

A baby's birthweight is a key indicator of health status. Babies are defined as low birthweight if their weight at birth is less than 2,500 grams. Within this category, those weighing less than 1,500 grams are defined as very low birthweight and those less than 1,000 grams as extremely low birthweight (WHO 1992).

Low birthweight babies have a greater risk of poor health and dying, require a longer period of hospitalisation after birth, and are more likely to develop significant disabilities (Goldenberg & Culhane 2007). A baby may be small due to being born early (preterm), or may be small for its gestational age (intrauterine growth retardation). Some factors contributing to low birthweight include socioeconomic status, size of parents, age of mother, number of babies previously born, mother's nutritional status, smoking and alcohol intake, and illness during pregnancy (Ashdown-Lambert 2005; Mohsin et al. 2003).

In 2008, 92.0% of liveborn babies had a birthweight in the range 2,500–4,499 grams. The average birthweight of liveborn babies in Australia in 2008 was 3,377 grams and ranged from 3,317 grams in the Northern Territory to 3,395 grams in Tasmania (Table 4.7).

In 2008, there were 18,101 (6.1%) liveborn babies of low birthweight. This rate was the lowest in the decade; during the period 1999 to 2007, the rate ranged from 6.2–6.4%. The 2,997 very low birthweight babies constituted 1.0% of all live births in 2008, and the 1,315 extremely low birthweight babies constituted 0.4% (Table 4.7).

Table 4.7: Live births by birthweight and state and territory, 2008

Birthweight (g)	NSW	Vic	Qld	WA	SA	Tas	ACT^(a)	NT	Australia
Mean	3,382	3,377	3,388	3,357	3,359	3,395	3,381	3,317	3,377
Number									
Less than 1,000	385	348	298	109	100	20	26	29	1,315
1,000–1,499	488	409	384	198	109	33	39	22	1,682
1,500–1,999	1,185	879	791	388	266	95	87	50	3,741
2,000–2,499	3,516	2,799	2,366	1,183	791	290	214	204	11,363
2,500–2,999	14,105	10,791	8,610	4,795	3,042	913	797	654	43,707
3,000–3,499	34,566	25,775	21,414	11,146	7,182	2,141	2,006	1,356	105,586
3,500–3,999	29,866	21,976	19,328	9,328	6,086	2,011	1,790	1,064	91,449
4,000–4,499	9,877	7,476	6,602	2,855	1,931	757	574	377	30,449
4,500 and over	1,714	1,387	1,219	447	308	137	115	56	5,383
Not stated	50	3	4	—	3	—	2	—	62
Total	95,752	71,843	61,016	30,449	19,818	6,397	5,650	3,812	294,737
<i>Less than 1,500</i>	<i>873</i>	<i>757</i>	<i>682</i>	<i>307</i>	<i>209</i>	<i>53</i>	<i>65</i>	<i>51</i>	<i>2,997</i>
<i>Less than 2,500</i>	<i>5,574</i>	<i>4,435</i>	<i>3,839</i>	<i>1,878</i>	<i>1,266</i>	<i>438</i>	<i>366</i>	<i>305</i>	<i>18,101</i>
Per cent									
Less than 1,000	0.4	0.5	0.5	0.4	0.5	0.3	0.5	0.8	0.4
1,000–1,499	0.5	0.6	0.6	0.7	0.6	0.5	0.7	0.6	0.6
1,500–1,999	1.2	1.2	1.3	1.3	1.3	1.5	1.5	1.3	1.3
2,000–2,499	3.7	3.9	3.9	3.9	4.0	4.5	3.8	5.4	3.9
2,500–2,999	14.7	15.0	14.1	15.7	15.3	14.3	14.1	17.2	14.8
3,000–3,499	36.1	35.9	35.1	36.6	36.2	33.5	35.5	35.6	35.8
3,500–3,999	31.2	30.6	31.7	30.6	30.7	31.4	31.7	27.9	31.0
4,000–4,499	10.3	10.4	10.8	9.4	9.7	11.8	10.2	9.9	10.3
4,500 and over	1.8	1.9	2.0	1.5	1.6	2.1	2.0	1.5	1.8
Not stated	0.1	0.0	0.0	—	0.0	—	0.0	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Less than 1,500</i>	<i>0.9</i>	<i>1.1</i>	<i>1.1</i>	<i>1.0</i>	<i>1.1</i>	<i>0.8</i>	<i>1.2</i>	<i>1.3</i>	<i>1.0</i>
<i>Less than 2,500</i>	<i>5.8</i>	<i>6.2</i>	<i>6.3</i>	<i>6.2</i>	<i>6.4</i>	<i>6.8</i>	<i>6.5</i>	<i>8.0</i>	<i>6.1</i>

(a) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages. For example, the percentage of live births of ACT residents who gave birth in the ACT where the birthweight was less than 1,500 grams was 0.7% and where the birthweight was less than 2,500 grams the percentage was 4.9%.

The mean birthweight of stillborn babies was 1,222 grams in 2008 compared with 3,377 grams for liveborn babies. Low birthweight occurred in 78.7% of stillborn babies. More than half (60.8%) of the stillborn babies had a birthweight of less than 1,000 grams (Table 4.8).

A smaller proportion of male liveborn babies was low birthweight (5.6%) compared with female babies (6.7%). The average birthweight of liveborn male babies was 3,436 grams, 121 grams higher than that of females (3,315 grams).

Table 4.8: Births by birthweight and birth status, 2008

Birthweight (g)	Live births		Fetal deaths		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Less than 1,000	1,315	0.4	1,330	60.8	2,645	0.9
1,000–1,499	1,682	0.6	140	6.4	1,822	0.6
1,500–1,999	3,741	1.3	131	6.0	3,872	1.3
2,000–2,499	11,363	3.9	121	5.5	11,484	3.9
2,500–2,999	43,707	14.8	158	7.2	43,865	14.8
3,000–3,499	105,586	35.8	139	6.4	105,725	35.6
3,500–3,999	91,449	31.0	78	3.6	91,527	30.8
4,000–4,499	30,449	10.3	34	1.6	30,483	10.3
4,500 and over	5,383	1.8	9	0.4	5,392	1.8
Not stated	62	0.0	48	2.2	110	0.0
Total	294,737	100.0	2,188	100.0	296,925	100.0
<i>Less than 1,500</i>	<i>2,997</i>	<i>1.0</i>	<i>1,470</i>	<i>67.2</i>	<i>4,467</i>	<i>1.5</i>
<i>Less than 2,500</i>	<i>18,101</i>	<i>6.1</i>	<i>1,722</i>	<i>78.7</i>	<i>19,823</i>	<i>6.7</i>
Mean (g)	3,377		1,222		3,362	

For liveborn singletons, the mean birthweight was 3,409 grams, compared with 2,402 grams for twins and 1,675 grams for other multiple births. Low birthweight occurred in half of all liveborn twins (50.2%) and in almost all higher order multiple births (99.5%), which was markedly higher than the proportion of 4.7% found among singleton births (Table 4.9).

Table 4.9: Live births by birthweight and plurality, 2008

Birthweight (g)	Singletons		Twins		Other multiple births		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Less than 1,000	985	0.3	310	3.4	20	10.9	1,315	0.4
1,000–1,499	1,166	0.4	481	5.3	35	19.0	1,682	0.6
1,500–1,999	2,500	0.9	1,166	12.8	75	40.8	3,741	1.3
2,000–2,499	8,702	3.0	n.p.	n.p.	n.p.	n.p.	11,363	3.9
2,500–2,999	40,501	14.2	n.p.	n.p.	<5	n.p.	43,707	14.8
3,000–3,499	104,434	36.6	1,152	12.7	—	—	105,586	35.8
3,500–3,999	91,291	32.0	158	1.7	—	—	91,449	31.0
4,000–4,499	n.p.	n.p.	<5	n.p.	—	—	30,449	10.3
4,500 and over	n.p.	n.p.	<5	n.p.	—	—	5,383	1.8
Not stated	56	0.0	6	0.1	—	—	62	0.0
Total	285,462	100.0	n.p.	100.0	n.p.	100.0	294,737	100.0
<i>Less than 1,500</i>	<i>2,151</i>	<i>0.8</i>	<i>791</i>	<i>8.7</i>	<i>55</i>	<i>29.9</i>	<i>2,997</i>	<i>1.0</i>
<i>Less than 2,500</i>	<i>13,353</i>	<i>4.7</i>	<i>4,565</i>	<i>50.2</i>	<i>183</i>	<i>99.5</i>	<i>18,101</i>	<i>6.1</i>
Mean (g)	3,409		2,402		1,675		3,377	

n.p. Data not published to maintain confidentiality of small numbers.

In 2008, the average birthweight of liveborn babies of Aboriginal and Torres Strait Islander mothers was 3,196 grams. This was 189 grams lighter than the average of 3,385 grams for liveborn babies of non-Indigenous mothers. The proportion of low birthweight in liveborn babies of Aboriginal and Torres Strait Islander mothers was 12.3% (Table 4.10), twice that of babies of non-Indigenous mothers (5.9%). The mean birthweight of liveborn babies of mothers identified as Aboriginal or Torres Strait Islander, and the proportion with low birthweight, varied markedly among the states and territories.

Table 4.10: Live births of Aboriginal or Torres Strait Islander mothers by birthweight and state and territory, 2008

Birthweight (g)	NSW	Vic	Qld	WA	SA	Tas	ACT ^(a)	NT	Australia
Mean	3,241	3,184	3,232	3,113	3,116	3,266	3,012	3,156	3,196
Number									
Less than 1,500	56	14	73	38	20	5	6	30	242
1,500–2,499	268	88	278	212	82	31	21	161	1,141
2,500–2,999	601	139	661	394	145	53	17	312	2,322
3,000–3,499	996	245	1,184	576	193	92	32	470	3,788
3,500–3,999	761	168	884	367	132	87	23	298	2,720
4,000–4,499	251	56	259	86	46	n.p.	n.p.	98	825
4,500 and over	48	9	50	15	8	n.p.	<5	25	164
Not stated	1	—	1	—	—	—	—	—	2
Total	2,982	719	3,390	1,688	626	299	106	1,394	11,204
<i>Less than 2,500</i>	<i>324</i>	<i>102</i>	<i>351</i>	<i>250</i>	<i>102</i>	<i>36</i>	<i>27</i>	<i>191</i>	<i>1,383</i>
Per cent									
Less than 1,500	1.9	1.9	2.2	2.3	3.2	1.7	5.7	2.2	2.2
1,500–2,499	9.0	12.2	8.2	12.6	13.1	10.4	19.8	11.5	10.2
2,500–2,999	20.2	19.3	19.5	23.3	23.2	17.7	16.0	22.4	20.7
3,000–3,499	33.4	34.1	34.9	34.1	30.8	30.8	30.2	33.7	33.8
3,500–3,999	25.5	23.4	26.1	21.7	21.1	29.1	21.7	21.4	24.3
4,000–4,499	8.4	7.8	7.6	5.1	7.3	n.p.	n.p.	7.0	7.4
4,500 and over	1.6	1.3	1.5	0.9	1.3	n.p.	n.p.	1.8	1.5
Not stated	0.0	—	0.0	—	—	—	—	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Less than 2,500</i>	<i>10.9</i>	<i>14.2</i>	<i>10.4</i>	<i>14.8</i>	<i>16.3</i>	<i>12.0</i>	<i>25.5</i>	<i>13.7</i>	<i>12.3</i>

(a) 29.1% of Aboriginal and Torres Strait Islander women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages. For example, the percentage of liveborn babies born in the ACT to ACT resident Aboriginal or Torres Strait Islander women in 2008 where the birthweight was less than 2,500 grams was 13.5%.

n.p. Data not published to maintain confidentiality of small numbers.

Mothers aged 30–34 years had the lowest proportion of low birthweight liveborn babies (5.6%). The proportion was higher among babies of younger and older mothers (8.0% for both mothers aged less than 20 years and mothers aged 40–44 years, and 16.1% for mothers aged 45 years and older).

Of hospital births, the proportion of low birthweight liveborn babies was higher in babies of mothers who gave birth in public hospitals (7.1%) than in babies of mothers who gave birth in private hospitals (4.4%). Liveborn babies of mothers who reported smoking during pregnancy had a higher proportion of low birthweight babies (10.8%) compared with mothers who did not smoke (5.1%).

Presentation at birth

In 2008, vertex presentations occurred for 93.7% of all babies. Breech presentation occurred for 4.5% of babies, and other presentations occurred for 1.0% of babies. Around 31.9% of twins and one-third of higher order multiple births (33.0%) had non-vertex presentations at birth (Table 4.11).

Table 4.11: Births by presentation at birth and plurality, 2008

Presentation	Singletons		Twins		Other multiple births		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Vertex	272,015	94.6	6,153	66.3	123	63.4	278,291	93.7
Breech	10,799	3.8	2,649	28.6	58	29.9	13,506	4.5
Other ^(a)	2,713	0.9	307	3.3	6	3.1	3,026	1.0
Not stated	1,926	0.7	169	1.8	7	3.6	2,102	0.7
Total	287,453	100.0	9,278	100.0	194	100.0	296,925	100.0

(a) Includes face, brow, shoulder/transverse and compound presentations.

Table 3.25 shows the presentation at birth for mothers, where the presentation at birth of the first born baby in multiple births is used.

Method of birth

Of all births in 2008, 31.7% of babies were delivered by caesarean section and 57.0% of babies had a non-instrumental vaginal birth. Approximately 1 in 9 babies was born by an instrumental vaginal delivery (11.3%). Two-thirds of all twins (69.5%) and the majority of higher order multiples (90.2%) were delivered by caesarean section (Table 4.12).

Table 3.26 presents data for mothers, where the method of birth of the first born baby in multiple births is used.

Table 4.12: Births by method of birth and plurality, 2008

Method of birth	Singletons		Twins		Other multiple births		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Non-instrumental vaginal ^(a)	166,959	58.1	2,177	23.5	19	9.8	169,155	57.0
Instrumental vaginal ^(b)	32,961	11.5	653	7.0	—	—	33,614	11.3
Caesarean section	87,518	30.4	6,448	69.5	175	90.2	94,141	31.7
Not stated	15	0.0	—	—	—	—	15	0.0
Total	287,453	100.0	9,278	100.0	194	100.0	296,925	100.0

(a) For four jurisdictions, 'Non-instrumental vaginal' includes all women who had a vaginal breech birth, whether or not instruments were used. For the remaining jurisdictions, vaginal breech births are only included where instruments were not used.

(b) 'Instrumental vaginal' includes forceps and vacuum extraction.

Method of birth for babies with breech presentations

Of babies with breech presentations at birth in 2008, 87.8% were born by caesarean section. This ranged from 83.7% in the Northern Territory to 90.3% in Queensland (Table 4.13). The remaining babies were born vaginally, with or without the use of instruments.

Table 4.13: Babies with breech presentations by method of birth and state and territory, 2008

Method of birth	NSW	Vic	Qld	WA	SA	Tas	ACT ^(a)	NT	Total
Number									
Vaginal ^(b)	504	459	293	196	117	n.p.	46	27	1,642
Caesarean section	3,519	3,082	2,727	1,290	851	n.p.	252	139	11,860
Not stated	—	—	—	—	—	n.p.	—	—	—
Total	4,023	3,541	3,020	1,486	968	n.p.	298	166	13,502
Per cent									
Vaginal ^(b)	12.5	13.0	9.7	13.2	12.1	n.p.	15.4	16.3	12.2
Caesarean section	87.5	87.0	90.3	86.8	87.9	n.p.	84.6	83.7	87.8
Not stated	—	—	—	—	—	n.p.	—	—	—
Total	100.0	100.0	100.0	100.0	100.0	n.p.	100.0	100.0	100.0

(a) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages. For example, the percentage of babies born in the ACT to ACT residents with a breech presentation by a vaginal birth was 13.4%.

(b) Includes instrumental vaginal births.

n.p. Data for Tas not published as presentations were only recorded for vaginal births.

Of singleton babies born at term with breech presentations, 95.7% were born by caesarean section. Three-quarters of all term singleton breech births were delivered by caesarean section without labour (76.3%) (Table 4.14).

Table 4.14: Term singleton babies with breech presentations by method of birth and state and territory, 2008

Method of birth	NSW	Vic	Qld	WA	SA	Tas	ACT ^(a)	NT	Total
Number									
Vaginal ^(b)	128	92	63	34	29	n.p.	n.p.	<5	360
Caesarean section	2,521	2,015	1,755	906	560	n.p.	n.p.	n.p.	8,004
<i>Labour</i>	555	369	364	164	121	n.p.	n.p.	n.p.	1,623
<i>No labour</i>	1,966	1,646	1,391	742	439	n.p.	n.p.	n.p.	6,381
Not stated	—	—	—	—	—	n.p.	—	—	—
Total	2,649	2,107	1,818	940	589	n.p.	174	87	8,364
Per cent									
Vaginal ^(b)	4.8	4.4	3.5	3.6	4.9	n.p.	n.p.	n.p.	4.3
Caesarean section	95.2	95.6	96.5	96.4	95.1	n.p.	n.p.	n.p.	95.7
<i>Labour</i>	21.0	17.5	20.0	17.4	20.5	n.p.	n.p.	n.p.	19.4
<i>No labour</i>	74.2	78.1	76.5	78.9	74.5	n.p.	n.p.	n.p.	76.3
Not stated	—	—	—	—	—	n.p.	—	—	—
Total	100.0	100.0	100.0	100.0	100.0	n.p.	100.0	100.0	100.0

(a) 15.7% of women who gave birth in the ACT were non-ACT residents.

(b) Includes instrumental vaginal births.

n.p. Data not published to maintain confidentiality of small numbers. Data for Tas not published as presentations were only recorded for vaginal births.

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 complications and of compromise for the baby.

In 2008, 1.4% of liveborn babies had a low Apgar score (between 0 and 6) at 5 minutes. Scores of 0–3 were recorded at 5 minutes in 0.3% of all live births nationally, and scores of 4–6 were recorded in 1.1% of live births. Among the states and territories, the distribution of low Apgar scores at 5 minutes ranged from 1.2% of all live births in Queensland, Western Australia, South Australia and Tasmania, to 2.4% in the Australian Capital Territory (Table 4.15).

Table 4.15: Live births by Apgar score at 5 minutes and state and territory, 2008

Apgar score	NSW	Vic	Qld	WA	SA	Tas	ACT ^(a)	NT	Australia
Number									
0–3	326	226	195	53	56	17	31	14	918
4–6	1,080	974	546	313	190	59	106	66	3,334
7–10	94,074	70,577	60,231	30,067	19,542	6,311	5,509	3,730	290,041
Not stated	272	66	44	16	30	10	4	2	444
Total	95,752	71,843	61,016	30,449	19,818	6,397	5,650	3,812	294,737
<i>Less than 7</i>	<i>1,406</i>	<i>1,200</i>	<i>741</i>	<i>366</i>	<i>246</i>	<i>76</i>	<i>137</i>	<i>80</i>	<i>4,252</i>
Per cent									
0–3	0.3	0.3	0.3	0.2	0.3	0.3	0.5	0.4	0.3
4–6	1.1	1.4	0.9	1.0	1.0	0.9	1.9	1.7	1.1
7–10	98.2	98.2	98.7	98.7	98.6	98.7	97.5	97.8	98.4
Not stated	0.3	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Less than 7</i>	<i>1.5</i>	<i>1.7</i>	<i>1.2</i>	<i>1.2</i>	<i>1.2</i>	<i>1.2</i>	<i>2.4</i>	<i>2.1</i>	<i>1.4</i>

(a) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages.

Resuscitation at birth

The types of active resuscitation measures given to babies immediately after birth are presented in Table 4.16. For these data, the type of resuscitation used is coded hierarchically, with suction being the lowest order and external cardiac massage and ventilation being the highest order. If more than one type of resuscitation was used, the highest order type in the hierarchy is coded.

Suction and oxygen therapy were the most common types of resuscitation used. Ventilatory assistance by intermittent positive pressure respiration (IPPR) through a bag and mask or after endotracheal intubation was performed for at least 7.2% of all live births in 2008. External cardiac massage was provided for a small proportion of babies (0.3%) (Table 4.16).

Table 4.16: Live births by active resuscitation measures at birth and state and territory, 2008

Resuscitation type ^(a)	NSW	Vic	Qld	WA	SA	Tas	ACT ^(b)	NT	Australia
Number									
None	67,708	56,965	38,254	22,444	14,349	4,977	4,221	2,740	211,658
Suction	10,302	3,120	7,925	2,246	1,058	249	473	375	25,748
Oxygen therapy	10,945	6,104	9,896	2,893	2,932	697	358	353	34,178
IPPR through bag and mask	5,820	5,057	3,972	1,878	1,291	433	437	279	19,167
Endotracheal intubation and IPPR	620	412	528	246	137	25	118	39	2,125
External cardiac massage and ventilation	329	171	144	66	38	16	16	11	791
Other ^(c)	—	8	287	676	13	—	—	7	991
Not stated	28	6	10	—	—	—	27	8	79
Total	95,752	71,843	61,016	30,449	19,818	6,397	5,650	3,812	294,737
Per cent									
None	70.7	79.3	62.7	73.7	72.4	77.8	74.7	71.9	71.8
Suction	10.8	4.3	13.0	7.4	5.3	3.9	8.4	9.8	8.7
Oxygen therapy	11.4	8.5	16.2	9.5	14.8	10.9	6.3	9.3	11.6
IPPR through bag and mask	6.1	7.0	6.5	6.2	6.5	6.8	7.7	7.3	6.5
Endotracheal intubation and IPPR	0.6	0.6	0.9	0.8	0.7	0.4	2.1	1.0	0.7
External cardiac massage and ventilation	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
Other ^(c)	—	0.0	0.5	2.2	0.1	—	0.0	0.2	0.3
Not stated	0.0	0.0	0.0	—	—	—	0.5	0.2	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) A hierarchical coding system is used for this item, starting with suction, up to external cardiac massage and ventilation. If more than one type of resuscitation was used, the highest order type in the hierarchy is coded.

(b) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages.

(c) Includes tactile stimulation for Qld.

Admission to special care nurseries or neonatal intensive care units

Babies are admitted to a special care nursery (SCN) or neonatal intensive care unit (NICU) if they require more specialised medical care and treatment than is available on the postnatal ward. Of liveborn babies in 2008, 14.9% were admitted to an SCN or NICU. This proportion appears low in Western Australia because only babies who stayed in an SCN or NICU for one day or more were included. In the other states and territories, this ranged from 10.1% in Tasmania to 16.2% in Queensland (Table 4.17).

Table 4.17: Live births by admission to special care nursery or neonatal intensive care unit and state and territory, 2008

Admission to SCN or NICU	NSW	Vic	Qld	WA ^(a)	SA	Tas	ACT ^(b)	NT	Australia
Number									
Admitted	14,242	11,548	9,891	3,212	3,094	648	628	594	43,857
Not admitted	81,433	60,295	51,125	27,237	16,724	5,749	5,017	3,218	250,798
Not stated	77	—	—	—	—	—	5	—	82
Total	95,752	71,843	61,016	30,449	19,818	6,397	5,650	3,812	294,737
Per cent									
Admitted	14.9	16.1	16.2	10.5	15.6	10.1	11.1	15.6	14.9
Not admitted	85.0	83.9	83.8	89.5	84.4	89.9	88.8	84.4	85.1
Not stated	0.1	—	—	—	—	—	0.1	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) For WA, babies were recorded as being admitted to an SCN or NICU only if the length of stay was one day or more.

(b) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages. For example, the percentage of live babies born in the ACT to ACT resident women where there was an admission to a special care nursery or neonatal intensive care unit was 9.3%. Also, multiple sources were used for 2008 to improve the reporting of SCN or NICU admissions.

Hospital births

Length of stay in hospital of birth

The majority of babies are discharged from hospital at the same time as their mothers; however, some ill babies require longer hospitalisation. A baby's gestation and birthweight are two factors that influence the duration of hospitalisation. Twins and higher order multiple births usually have longer stays in hospital than singleton babies.

In 2008, the median length of stay in hospital for babies born in hospital who were discharged home was 3.0 days. The majority of babies remained in their hospital of birth for less than six days (89.3%), and over half stayed in hospital for less than four days (53.5%). Relatively more babies born in Queensland had a length of stay of less than four days (62.1%). Babies hospitalised for 28 or more days accounted for 0.7% of babies born in hospital in 2008 (Table 4.18).

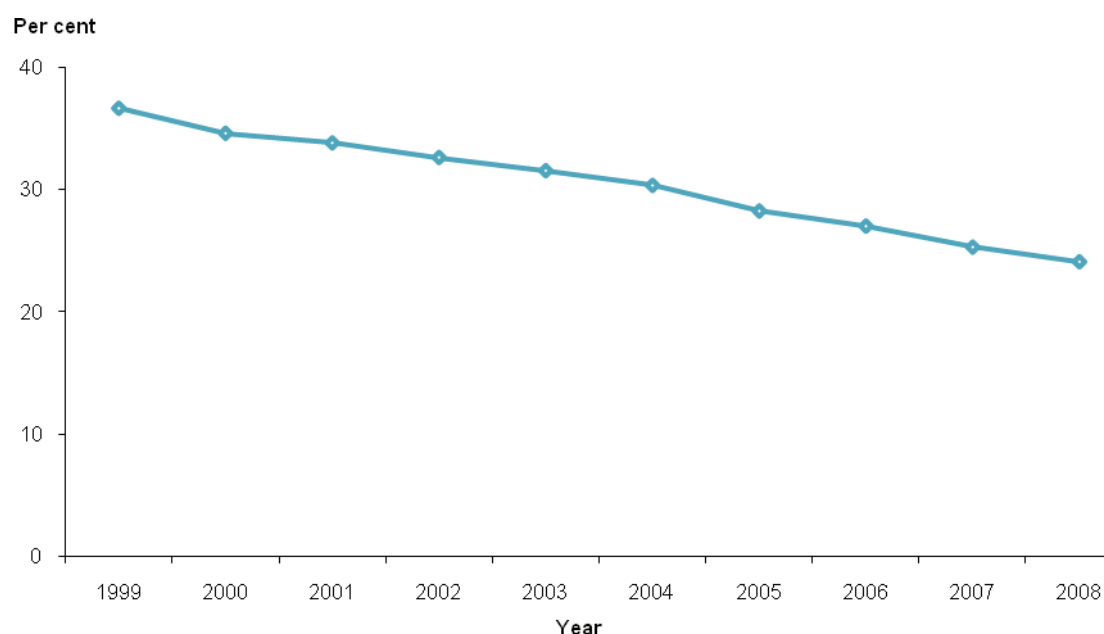
Table 4.18: Babies born in hospital^(a) by length of stay and state and territory, 2008

Length of stay (days)	NSW	Vic	Qld	WA	SA	Tas	ACT^(b)	NT	Australia
Median	3.0	3.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0
Number									
Less than 1 day	1,859	973	1,970	783	355	194	235	67	6,436
1 day	9,895	5,165	9,258	3,033	1,451	760	602	156	30,320
2 days	17,061	15,139	12,503	4,489	2,945	1,191	900	536	54,764
3 days	18,679	12,231	12,518	5,419	3,360	1,181	1,014	765	55,167
4 days	19,081	18,300	11,316	5,559	4,430	982	1,074	537	61,279
5 days	12,035	9,640	6,073	4,240	2,845	760	697	519	36,809
6 days	4,345	1,770	1,510	2,480	959	381	198	161	11,804
7–13 days	3,533	2,153	1,753	1,979	745	284	209	261	10,917
14–20 days	900	861	642	135	285	83	63	85	3,054
21–27 days	399	374	364	38	119	66	25	30	1,415
28 or more days	560	409	484	162	257	92	29	58	2,051
Not stated	8	—	—	—	—	—	—	—	8
Total	88,355	67,015	58,391	28,317	17,751	5,974	5,046	3,175	274,024
Per cent									
Less than 1 day	2.1	1.5	3.4	2.8	2.0	3.2	4.7	2.1	2.3
1 day	11.2	7.7	15.9	10.7	8.2	12.7	11.9	4.9	11.1
2 days	19.3	22.6	21.4	15.9	16.6	19.9	17.8	16.9	20.0
3 days	21.1	18.3	21.4	19.1	18.9	19.8	20.1	24.1	20.1
4 days	21.6	27.3	19.4	19.6	25.0	16.4	21.3	16.9	22.4
5 days	13.6	14.4	10.4	15.0	16.0	12.7	13.8	16.3	13.4
6 days	4.9	2.6	2.6	8.8	5.4	6.4	3.9	5.1	4.3
7–13 days	4.0	3.2	3.0	7.0	4.2	4.8	4.1	8.2	4.0
14–20 days	1.0	1.3	1.1	0.5	1.6	1.4	1.2	2.7	1.1
21–27 days	0.5	0.6	0.6	0.1	0.7	1.1	0.5	0.9	0.5
28 or more days	0.6	0.6	0.8	0.6	1.4	1.5	0.6	1.8	0.7
Not stated	0.0	—	—	—	—	—	—	—	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Only babies who were discharged home are included. For multiple births, the place of birth of the first born baby was used for all subsequent babies.

(b) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages as babies of non-ACT residents were more likely to stay in hospital for four days or more, compared with babies of ACT residents (52.0% and 44.4%).

Over the 10-year period from 1999 to 2008, the proportion of hospital-born babies with a length of stay of less than five days increased from 63.3% to 75.9%, while the proportion of babies with a length of stay in hospital of five days or more decreased from 36.6% in 1999 to 24.1% in 2008 (Figure 4.2).



Note: Only babies who were discharged home are included.

Source: Table A4.7.

Figure 4.2: Length of stay of five days or more for babies born in hospital, 1999 to 2008 (per cent)

Mode of separation from hospital

In 2008, 95.2% of babies born in hospital were discharged home, varying from 87.7% in the Northern Territory to 96.5% in Queensland. A total of 3.7% of babies were transferred to another hospital from their hospital of birth (Table 4.19).

Babies dying at their hospital of birth accounted for 1.0% of separations. These data do not include babies born outside hospital, and may not include all babies who are transferred to another hospital and die, or babies discharged home who subsequently die.

Table 4.19: Babies born in hospital^(a) by mode of separation and state and territory, 2008

Mode of separation	NSW	Vic	Qld	WA	SA	Tas	ACT ^(b)	NT	Australia
Number									
Discharge home	88,355	67,015	58,391	28,317	17,751	5,974	5,046	3,175	274,024
Transfer to another hospital ^(c)	3,492	2,875	1,565	1,397	615	287	220	83	10,534
Fetal or neonatal death	823	877	536	256	190	57	72	35	2,846
Other ^(d)	—	^(e) 58	6	24	—	—	—	^(f) 323	411
Not stated	45	—	—	—	—	—	6	5	56
Total	92,715	70,825	60,498	29,994	18,556	6,318	5,344	3,621	287,871
Per cent									
Discharge home	95.3	94.6	96.5	94.4	95.7	94.6	94.4	87.7	95.2
Transfer to another hospital ^(c)	3.8	4.1	2.6	4.7	3.3	4.5	4.1	2.3	3.7
Fetal or neonatal death	0.9	1.2	0.9	0.9	1.0	0.9	1.3	1.0	1.0
Other ^(d)	—	^(e) 0.1	0.0	0.1	—	—	—	^(f) 8.9	0.1
Not stated	0.0	—	—	—	—	—	0.1	0.1	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) For multiple births, the place of birth of the first born baby was used for all subsequent babies.

(b) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting percentages. For example, the percentage of live babies born in the ACT to ACT residents who were transferred to another hospital was 2.6%.

(c) Includes babies who were transferred to another hospital and died.

(d) May include statistical discharges, transfers to health care accommodation other than acute hospitals and postneonatal deaths.

(e) These cases refer to postneonatal deaths (at 28 days or more after birth), regardless of the mode of separation.

(f) Includes mothers discharged with their babies against medical advice, babies transferred to accommodation hostels and statistical discharges.

5 Special topic: instrumental vaginal births

Instrumental vaginal births include those by vacuum extraction and forceps. Of women who gave birth in the period 2006–2008, 11.1% had an instrumental delivery. Over the 10 years to 2008, the overall proportion of instrumental deliveries has remained fairly stable at around 11%. Figure 5.1 shows that vacuum extractions have increased from 5.4% in 1999 to 7.7% in 2008, while forceps have decreased from 5.6% in 1999 to 3.7% in 2008.

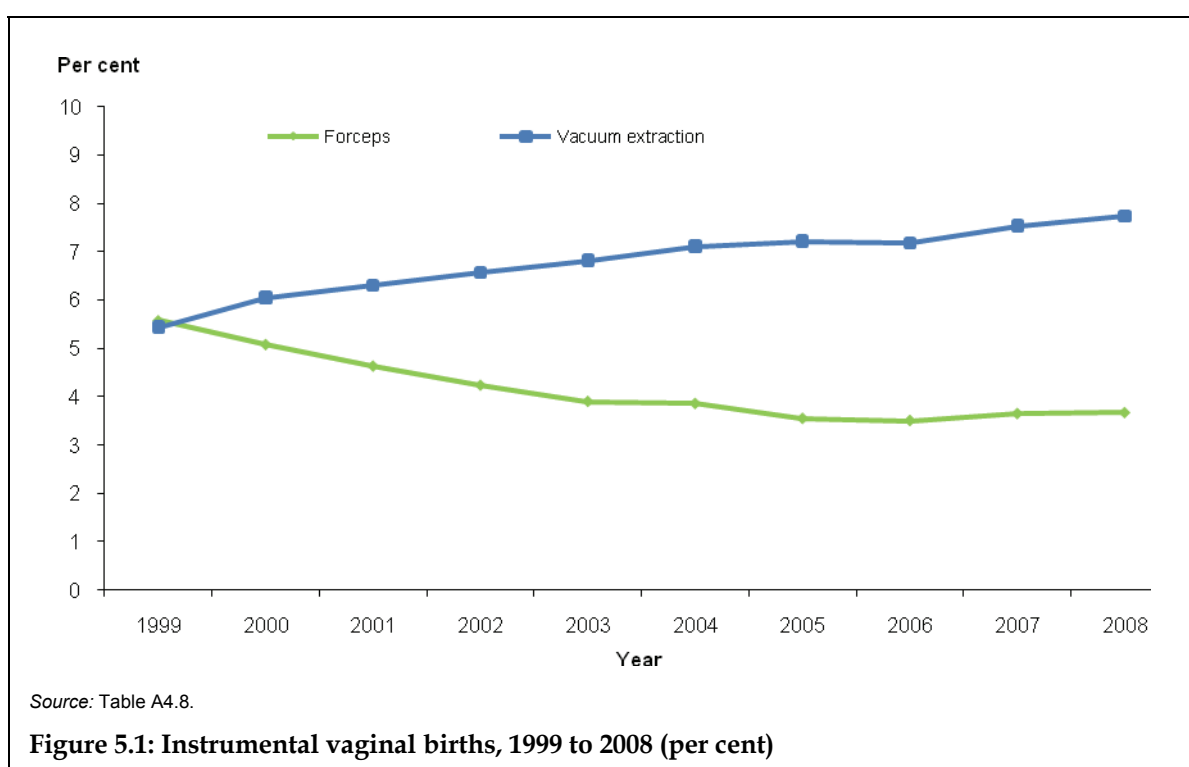
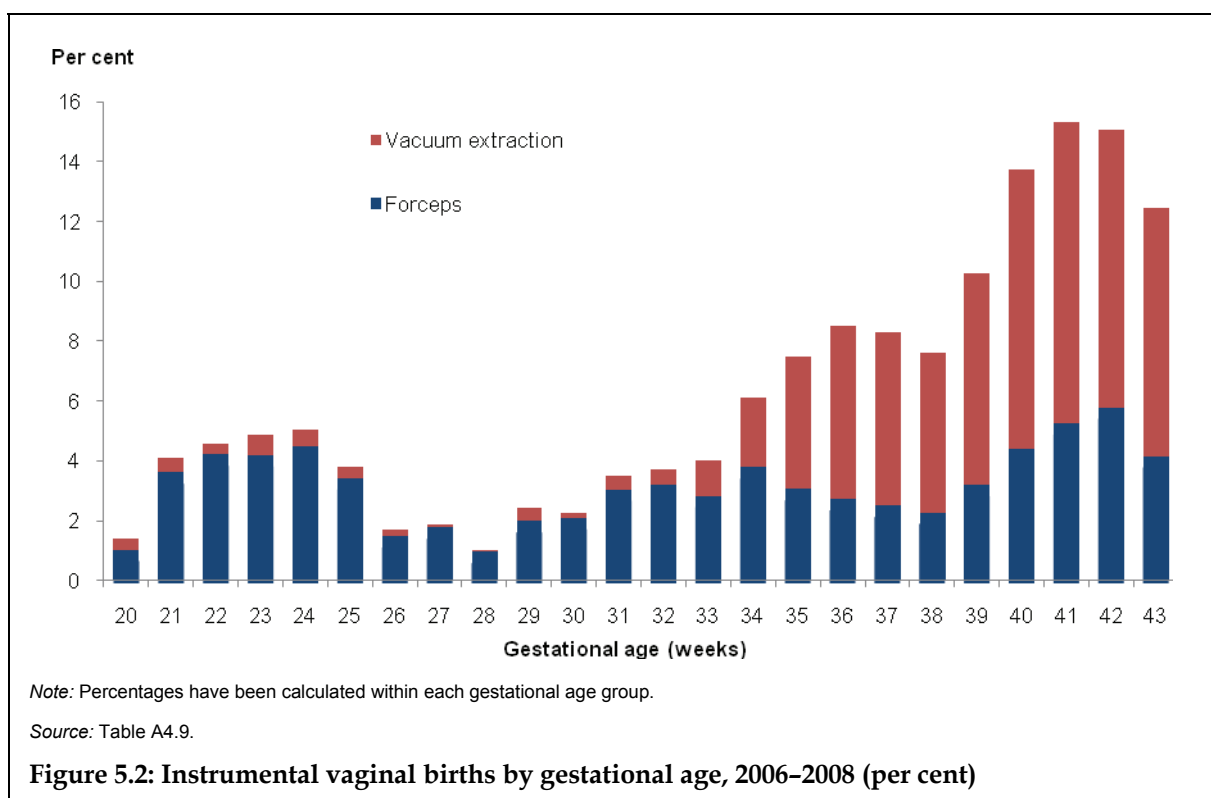


Figure 5.2 shows the proportion of all women who had forceps and vacuum extraction deliveries by single week of gestation for 2006–2008. Forceps accounted for a greater proportion of deliveries up to and including 34 weeks gestation. From 35 weeks gestation onwards, vacuum extractions were more common.



The following tables include women who had babies with vertex presentations. Selected characteristics of women reported as having instrumental vaginal births during 2006–2008 are presented in Table 5.1, along with those of women having non-instrumental, or ‘other’ vaginal births. The tables do not present all categories of the element of interest.

The mean maternal age ranged from 29.2 years for non-instrumental vaginal births to 29.9 years for forceps births. Instrumental birth was more prevalent in major cities than in other settings. A larger proportion of women who had instrumental deliveries were primiparous (83.1% of forceps and 75.2% of vacuum extraction deliveries) compared with women who had non-instrumental vaginal births (33.7%).

About 10.2% of women who had forceps and 11.4% of women who had vacuum extraction deliveries were reported as smoking during pregnancy, compared with 19.3% of women who had non-instrumental births. Private patient election status was more common in those women who had instrumental births (Table 5.1).

Table 5.1: Selected characteristics of women who had vaginal births, 2006–2008^(a)

	Forceps	Vacuum extraction	Other vaginal	Total vaginal births
Total number	30,730	63,974	491,672	586,376
Mean age	29.9	29.6	29.2	29.3
Aboriginal or Torres Strait Islander	452	Number 1,217	22,366	24,035
Remoteness				
Major cities	24,149	47,571	331,362	403,082
Inner/outer regional	6,141	14,854	144,176	165,171
Australian-born	22,462	46,876	370,236	439,574
Primiparas	25,541	48,120	165,743	239,404
Essential hypertension	261	498	3,484	4,243
Diabetes mellitus	173	250	1,727	2,150
Smoking during pregnancy ^(b)	1,930	5,431	72,365	79,726
Private patient election status	14,112	27,708	123,888	165,708
Aboriginal or Torres Strait Islander	1.5	Per cent^(c) 1.9	4.5	4.1
Remoteness				
Major cities	78.6	74.4	67.4	68.7
Inner/outer regional	20.0	23.2	29.3	28.2
Australian-born	73.1	73.3	75.3	75.0
Primiparas	83.1	75.2	33.7	40.8
Essential hypertension	0.8	0.8	0.7	0.7
Diabetes mellitus	0.6	0.4	0.4	0.4
Smoking during pregnancy ^(b)	10.2	11.4	19.3	18.0
Private patient election status	45.9	43.3	25.2	28.3

(a) Includes mothers of babies with vertex presentations only.

(b) Excludes Vic. For SA, 'Smoking during pregnancy' includes women who quit before the first antenatal visit. For SA and NT, smoking status was recorded at the first antenatal visit. Mother's tobacco smoking status during pregnancy is self-reported.

(c) Percentages have been calculated within each method of birth (column) group.

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

Table 5.2 shows that, of women who had forceps deliveries, 6.6% had pregnancy-induced hypertension and 4.8% had gestational diabetes. For women who had vacuum extraction deliveries, these rates were 5.8% and 4.5% respectively.

Larger proportions of women who had forceps or vacuum extraction deliveries had been induced (37.2% and 35.8%, respectively) compared with women who had non-instrumental

vaginal births (27.5%). Episiotomies were reported for two-thirds of women who had forceps deliveries (65.3%) and 40.4% of women who had vacuum extractions. The third or fourth degree tear rate for forceps was also higher (7.9%) than for vacuum extractions (4.3%) (Table 5.2).

Table 5.2: Selected labour and birth characteristics and outcomes of women who had vaginal births, 2006–2008^(a)

	Forceps	Vacuum extraction	Other vaginal	Total vaginal births
Total number	30,730	63,974	491,672	586,376
	Number			
Pregnancy-induced hypertension	2,032	3,714	18,081	23,827
Gestational diabetes	1,486	2,874	20,340	24,700
Induction of labour	11,422	22,928	135,156	169,506
Perineal status				
Episiotomy	20,059	25,842	40,102	86,003
3 rd /4 th degree tears	2,441	2,749	7,094	12,284
Combined episiotomy and 3 rd /4 th degree tears	1,365	1,033	889	3,287
Median postnatal length of stay (days) ^(b)	4.0	4.0	2.0	3.0
	Per cent^(c)			
Pregnancy-induced hypertension	6.6	5.8	3.7	4.1
Gestational diabetes	4.8	4.5	4.1	4.2
Induction of labour	37.2	35.8	27.5	28.9
Perineal status				
Episiotomy	65.3	40.4	8.2	14.7
3 rd /4 th degree tears	7.9	4.3	1.4	2.1
Combined episiotomy and 3 rd /4 th degree tears	4.4	1.6	0.2	0.6

(a) Includes mothers of babies with vertex presentations only.

(b) Only includes mothers who were discharged home.

(c) Percentages have been calculated within each method of birth (column) group.

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

Of babies born following an instrumental birth in 2006–2008, 1.9% were multiple births. Instrumental delivery occurred for 16.1% of singletons and 26.5% of multiples in 2006–2008. Of singleton births, 5.3% were preterm and 94.7% were term. Overall rates of instrumental delivery for singletons were higher in term babies (16.3%) than in preterm babies (11.7%).

Term singletons born using forceps and vacuum extraction had longer lengths of stay in hospital (four days) than other vaginal births (two days). Admission to a special care nursery (SCN) or neonatal intensive care unit (NICU) occurred for a higher proportion of forceps (13.4%) and vacuum extraction (13.2%) births than for other vaginal births (7.2%) (Table 5.3).

The crude fetal and perinatal death rates for instrumental vaginal births were higher in forceps births when compared with vacuum extraction births. These rates are not adjusted for maternal risk and pregnancy factors, and are not able to take into account antepartum deaths or deaths from lethal congenital anomalies.

Table 5.3: Selected perinatal outcomes for term singleton babies of women who had vaginal births, 2006–2008^(a)

	Forceps	Vacuum extraction	Other vaginal ^(a)	Total vaginal births
Total number	28,902	61,731	463,803	554,436
Median length of stay (days) ^(b)	4.0	4.0	2.0	3.0
Birthweight (grams)^(c)	Number			
Less than 2,500	304	857	7,341	8,502
2,500–4,499	27,817	59,633	445,286	532,736
4,500 and over	518	857	7,933	9,308
Apgar score at 5 minutes^(c)				
Less than 4	45	81	419	545
Less than 7	423	1,057	3,434	4,914
High level of resuscitation ^{(c)(d)}	185	367	1,212	1,764
NICU/SCN^(c)				
Admitted to NICU/SCN	3,839	8,117	33,100	45,056
Length of stay of >5 days in NICU/SCN	2,216	4,889	15,660	22,765
Mortality for all cause of death^(e)				
Fetal	62	43	744	849
Neonatal	17	35	199	251
Perinatal	79	78	943	1,100

(continued)

Table 5.3 (continued): Selected perinatal outcomes for term singleton babies of women who had vaginal births, 2006–2008^(a)

	Forceps	Vacuum extraction	Other vaginal	Total vaginal births
	Per cent			
Birthweight (grams)^(c)				
Less than 2,500	1.1	1.4	1.6	1.5
2,500–4,499	96.9	97.1	96.5	96.6
4,500 and over	1.8	1.4	1.7	1.7
Apgar score at 5 minutes^(c)				
Less than 4	0.2	0.1	0.1	0.1
Less than 7	1.5	1.7	0.7	0.9
High level of resuscitation ^{(c)(d)}	0.6	0.6	0.3	0.3
NICU/SCN^(c)				
Admitted to NICU/SCN	13.4	13.2	7.2	8.2
Length of stay of >5 days in NICU/SCN	7.7	8.0	3.4	4.1
	Rate per 1,000 births			
Mortality for all cause of death^(e)				
Fetal	2.2	0.7	1.6	1.5
Neonatal	0.6	0.6	0.4	0.5
Perinatal	2.8	1.3	2.0	2.0

(a) Includes babies with vertex presentations only.

(b) Only babies who were discharged home are included.

(c) Live births only.

(d) Includes endotracheal intubation and/or external cardiac massage and ventilation.

(e) Caution must be taken when interpreting mortality rates. Data on the timing of fetal death were not available and data on cause of death, particularly congenital anomalies, were incomplete.

When only multiple births were examined (Table 5.4), data showed that around half of forceps and other vaginal births were low birthweight, compared with 34.4% in babies born by vacuum extraction. Admission to an SCN or NICU was most common in the forceps group (67.4%), as well as length of stay of more than five days in an SCN or NICU (60.6%).

Table 5.4: Selected perinatal outcomes for multiple babies of women who had vaginal births, 2006–2008^(a)

	Forceps	Vacuum extraction	Other vaginal	Total vaginal births
Total number	779	1,075	5,382	7,236
Median length of stay (days) ^(b)	7.0	6.0	5.0	5.0
Number				
Gestational age (weeks)				
Less than 37	430	386	2,714	3,530
37 and over	323	673	2,312	3,308
Birthweight (grams)^(c)				
Less than 2,500	392	364	2,399	3,155
2,500 and over	356	691	2,382	3,429
Apgar score at 5 minutes^(c)				
Less than 4	<5	n.p.	160	169
Less than 7	25	27	238	290
High level of resuscitation ^{(c)(d)}	23	9	142	174
NICU/SCN^(c)				
Admitted to NICU/SCN	505	493	2,424	3,422
Length of stay of >5 days in NICU/SCN	454	524	2,156	3,134
Per cent				
Gestational age (weeks)				
Less than 37	57.1	36.4	54.0	51.6
37 and over	42.9	63.6	46.0	48.4
Birthweight (grams)^(c)				
Less than 2,500	52.1	34.4	47.7	46.1
2,500 and over	47.3	65.3	47.4	50.1
Apgar score at 5 minutes^(c)				
Less than 4	n.p.	n.p.	3.3	2.6
Less than 7	3.3	2.6	5.0	4.4
High level of resuscitation ^{(c)(d)}	3.1	0.9	3.0	2.6
NICU/SCN^(c)				
Admitted to NICU/SCN	67.4	46.7	50.6	51.9
Length of stay of >5 days in NICU/SCN	60.6	49.6	45.0	47.5

(a) Includes babies with vertex presentations only.

(b) Only babies who were discharged home are included.

(c) Live births only.

(d) Includes endotracheal intubation and/or external cardiac massage and ventilation.

n.p. Data not published to maintain confidentiality of small numbers.

Table 5.5 presents outcome data for the 4,020 babies with non-vertex presentations at birth. Of these babies, 24.1% were breech, 20.3% had a face or brow presentation and over half had an 'other' type of presentation, including shoulder, transverse and compound presentations (55.6%).

Low birthweight occurred in 14.8% of forceps births for non-vertex babies, 6.5% for vacuum extractions and 18.8% of other vaginal deliveries. A high level of resuscitation was recorded for a greater proportion of other vaginal births (4.3%). Admission to an SCN or NICU was most common among non-vertex babies delivered using forceps (Table 5.5).

Table 5.5: Selected perinatal outcomes for non-vertex babies of women who had vaginal births, 2006–2008

	Forceps	Vacuum extraction	Other vaginal	Total vaginal births
Total number	247	360	3,413	4,020
Median length of stay (days) ^(a)	4.0	3.0	2.0	2.0
Number				
Gestational age (weeks)				
Less than 37	46	31	1,072	1,149
37–41	201	324	2,320	2,845
42 and over	—	5	20	25
Presentation				
Breech	29	12	926	967
Face	50	43	475	568
Brow	52	77	120	249
Other	116	228	1,891	2,235
Birthweight (grams)^(b)				
Less than 2,500	35	23	543	601
2,500–4,499	193	327	2,306	2,826
4,500 and over	9	5	39	53
High level of resuscitation ^{(b)(c)}	n.p.	<5	123	129
NICU/SCN^(b)				
Admitted to NICU/SCN	65	56	619	740
Length of stay of >5 days in NICU/SCN	48	44	400	492

(continued)

Table 5.5 (continued): Selected perinatal outcomes for non-vertex babies of women who had vaginal births, 2006–2008

	Forceps	Vacuum extraction	Other vaginal	Total vaginal births
	Per cent			
Gestational age (weeks)				
Less than 37	18.6	8.6	31.4	28.6
37–41	81.4	90.0	68.0	70.8
42 and over	—	1.4	0.6	0.6
Presentation				
Breech	11.7	3.3	27.1	24.1
Face	20.2	11.9	13.9	14.1
Brow	21.1	21.4	3.5	6.2
Other	47.0	63.3	55.4	55.6
Birthweight (grams)^(b)				
Less than 2,500	14.8	6.5	18.8	17.3
2,500–4,499	81.4	92.1	79.8	81.1
4,500 and over	3.8	1.4	1.3	1.5
High level of resuscitation ^{(b)(c)}	n.p.	n.p.	4.3	3.7
NICU/SCN^(b)				
Admitted to NICU/SCN	27.4	15.8	21.4	21.2
Length of stay of >5 days in NICU/SCN	20.3	12.4	13.8	14.1

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

(b) Live births only.

(c) Includes endotracheal intubation and/or external cardiac massage and ventilation.

n.p. Data not published to maintain confidentiality of small numbers.

There were some limitations to the analyses which could be conducted for this chapter. For example, there is no information in the NPDC on indication or urgency of operative delivery. Data on the timing of fetal death is not available and data on cause of death, particularly congenital anomalies, is incomplete.

6 Perinatal mortality

Definitions

There are different definitions in Australia for reporting and registering perinatal deaths (Figure 6.1). The NPDC uses a definition of perinatal deaths to include all fetal and neonatal deaths of at least 400 grams birthweight or at least 20 weeks gestation.

In Australia, all fetal and neonatal deaths of at least 400 grams birthweight or, if birthweight is unavailable, a gestational age of at least 20 weeks should be registered (ABS 2010). Further information on these definitions and the issues surrounding the collection of data on perinatal deaths can be found in a previous edition of this report (Laws & Sullivan 2004).

Figure 6.1: Definitions of perinatal mortality

Institution	Perinatal deaths		
	Fetal deaths		Neonatal deaths
	Birthweight	Gestational age	
WHO – International comparisons	1,000 grams	28 weeks (only if birthweight is unavailable)	<7 days
– National reporting	500 grams	22 weeks (only if birthweight is unavailable)	<7 days
ABS	400 grams	20 weeks (only if birthweight is unavailable)	<28 days
NHDD & NPSU	400 grams	20 weeks	<28 days

Figure 6.2 shows the definitions of periods of perinatal and infant deaths used by the NPSU. Neonatal deaths are those occurring in live births up to 28 completed days after birth. Infant deaths are those occurring in live births at less than one year of age.

Figure 6.2: Perinatal and infant death periods

Labour		Birth	7 days	28 days	1 year
At least 20 weeks or 400 grams					
Antepartum fetal deaths	Intrapartum fetal deaths	0–6 days Early neonatal deaths	7–27 days Late neonatal deaths	28 days–<1 year Postneonatal deaths	
Fetal deaths		Neonatal deaths			
Perinatal deaths					
		Infant deaths			

The ABS definition of a perinatal death includes birthweight of at least 400 grams or, where birthweight is unknown, a gestational age of at least 20 weeks. Deaths where both the birthweight and gestational age are unknown, are included. The data on perinatal deaths published by the ABS are based on the year of registration of the death rather than on the year of birth or death. Data are presented in the *Perinatal deaths, Australia* report (e.g. ABS 2010).

This report presents data on perinatal deaths from the NPDC. For vital statistics, refer to ABS data at: <www.abs.gov.au>.

Fetal deaths

As noted previously, fetal deaths are included in the NPDC if the birthweight is at least 400 grams or the gestational age is 20 weeks or more.

In 2008, there were 2,188 fetal deaths reported to the NPDC, resulting in a fetal death rate of 7.4 per 1,000 births. The state and territory fetal death rates ranged from 6.1 per 1,000 births in New South Wales to 9.7 per 1,000 births in Victoria (Table 6.1).

Table 6.1: Fetal, neonatal and perinatal deaths by state and territory, 2008

	State/territory of birth								Total
	NSW	Vic ^(a)	Qld	WA	SA	Tas	ACT ^(b)	NT ^(c)	
	Number								
Live births ^(d)	95,752	71,843	61,016	30,449	19,818	6,397	5,650	3,812	294,737
Fetal deaths	584	703	384	225	151	58	55	28	2,188
Neonatal deaths ^(e)	253	215	204	58	50	12	25	15	832
<i>Perinatal deaths</i>	<i>837</i>	<i>918</i>	<i>588</i>	<i>283</i>	<i>201</i>	<i>70</i>	<i>80</i>	<i>43</i>	<i>3,020</i>
Total births	96,336	72,546	61,400	30,674	19,969	6,455	5,705	3,840	296,925
	Rate per 1,000 births^(f)								
Fetal deaths	6.1	9.7	6.3	7.3	7.6	9.0	9.6	7.3	7.4
Neonatal deaths ^(e)	2.6	3.0	3.3	1.9	2.5	1.9	4.4	3.9	2.8
<i>Perinatal deaths</i>	<i>8.7</i>	<i>12.7</i>	<i>9.6</i>	<i>9.2</i>	<i>10.1</i>	<i>10.8</i>	<i>14.0</i>	<i>11.2</i>	<i>10.2</i>

(a) Death rates may be higher as the majority of late terminations for psychosocial indications are undertaken in Vic.

(b) 15.7% of women who gave birth in the ACT were non-ACT residents. Care must be taken when interpreting rates. For example, for ACT residents who gave birth in the ACT, there were 8.6 fetal deaths per 1,000 births, 3.4 neonatal deaths per 1,000 live births and 11.9 perinatal deaths per 1,000 births.

(c) Neonatal deaths for NT may be an underestimate as deaths which occurred interstate are not included.

(d) Includes neonatal deaths.

(e) Except in WA, these may exclude neonatal deaths within 28 days of birth for babies transferred to another hospital or readmitted to hospital and those dying at home.

(f) Fetal and perinatal death rates were calculated using all births (live births and stillbirths). Neonatal death rates were calculated using all live births.

Table 6.2 presents fetal, neonatal and perinatal deaths by state or territory of the mother's usual residence, excluding women who were usually resident overseas. It shows that for 2008, the state and territory fetal death rates ranged from 6.5 per 1,000 births for babies of mothers who resided in New South Wales, to 9.4 per 1,000 births to mothers who resided in Tasmania (Table 6.2). For Victoria, the rate of fetal death declined by 1.5 deaths per 1,000 births, from 9.7 per 1,000 births occurring in Victoria (Table 6.1) to 8.2 per 1,000 births for women who resided in Victoria (Table 6.2). For the Australian Capital Territory, where 15.7% of women who gave birth were non-residents, the fetal death rate changed from 9.6 per 1,000 births by territory of birth (Table 6.1) to 8.5 per 1,000 births by territory of mother's usual residence (Table 6.2).

Table 6.2: Fetal, neonatal and perinatal deaths by state and territory of mother's usual residence, 2008

	State/territory of usual residence								Total
	NSW	Vic	Qld	WA	SA ^(a)	Tas	ACT	NT ^(b)	
	Number								
Live births ^(c)	97,252	70,665	61,242	30,481	19,719	6,407	4,800	3,813	294,379
Fetal deaths	639	582	413	234	154	61	41	30	2,154
Neonatal deaths ^(d)	265	208	196	57	49	12	18	18	823
Perinatal deaths	904	790	609	291	203	73	59	48	2,977
Total births	97,891	71,247	61,655	30,715	19,873	6,468	4,841	3,843	296,533
	Rate per 1,000 births ^(e)								
Fetal deaths	6.5	8.2	6.7	7.6	7.7	9.4	8.5	7.8	7.3
Neonatal deaths ^(d)	2.7	2.9	3.2	1.9	2.5	1.9	3.8	4.7	2.8
Perinatal deaths	9.2	11.1	9.9	9.5	10.2	11.3	12.2	12.5	10.0

(a) In SA, there was one perinatal death for which it is not known whether it was a stillbirth or a live birth (neonatal death).

(b) Neonatal deaths for NT may be an underestimate as deaths which occurred interstate are not included.

(c) Includes neonatal deaths.

(d) These may exclude neonatal deaths within 28 days of birth for babies transferred to another hospital or readmitted to hospital and those dying at home.

(e) Fetal and perinatal death rates were calculated using all births (live births and stillbirths). Neonatal death rates were calculated using all live births.

Note: Excludes babies of mothers not usually resident in Australia and those whose state or territory of usual residence was 'Not stated'.

Fetal and neonatal death data were stratified by a number of demographic, pregnancy and risk factors in Table 6.3. Data did not include timing of fetal death (antepartum or intrapartum) or cause of death. Therefore data does not adjust for or discriminate between deaths due to lethal congenital anomalies or the underlying population risk profile for perinatal death.

There was variation in fetal and perinatal death rates according to maternal age with higher rates reported for teenage mothers. The age-group specific fetal death rates ranged from 6.2 per 1,000 births for babies of mothers aged 25–29 years to 15.7 per 1,000 births for babies of mothers aged less than 20 years (Table 6.3).

The fetal death rate of babies born to Aboriginal or Torres Strait Islander mothers was 11.2 per 1,000 births. The fetal death rate was 7.0 per 1,000 births for non-Indigenous mothers. For Australian-born mothers the fetal death rate was 7.1 per 1,000 births, compared with 7.9 per 1,000 births for mothers born overseas (Table 6.3). For the five jurisdictions

where data were available on whether the mother received ART treatment, the fetal death rate was 8.7 per 1,000 births for women giving birth after ART.

Fetal death rates were higher among babies of first-time mothers (8.5 per 1,000 births) than among babies whose mothers had at least one previous birth (6.5 per 1,000 births) (Table 6.3). However, for grand multiparous women (women who have had four or more previous pregnancies resulting in a live birth or stillbirth), the rate was higher at 10.3 per 1,000 births.

Fetal death rates were higher for babies of mothers who gave birth in public hospitals than in private hospitals (8.1 per 1,000 births and 5.9 per 1,000 births respectively), and fetal deaths occurred more frequently in the lowest gestational age and birthweight groups (Table 6.3).

The fetal death rate of twins (20.2 per 1,000 births) and higher order multiples (51.5 per 1,000 births) was higher than that of singleton babies (6.9 per 1,000 births) (Table 6.3). For singleton term babies the fetal death rate was 1.4 per 1,000 births.

Table 6.3: Rates of fetal, neonatal and perinatal deaths by selected characteristics, 2008

Characteristic	Fetal deaths	Neonatal deaths ^(a)	Perinatal deaths ^(a)
Rate per 1,000 births ^(b)			
Maternal age			
Less than 20	15.7	4.0	19.6
20–24	9.1	3.4	12.5
25–29	6.2	2.9	9.0
30–34	6.3	2.4	8.6
35–39	7.1	2.6	9.7
40 and over	9.6	4.2	13.8
Maternal Indigenous status			
Aboriginal or Torres Strait Islander	11.2	6.2	17.3
Non-Indigenous	7.0	2.7	9.7
Maternal country of birth			
Australia	7.1	2.9	10.0
Other	7.9	2.8	10.7
Hospital sector for hospital births			
Public	8.1	3.5	11.6
Private	5.9	1.1	7.0
Parity			
Primipara	8.5	3.1	11.7
Multipara	6.5	2.6	9.1

(continued)

Table 6.3 (continued): Rates of fetal, neonatal and perinatal deaths by selected characteristics, 2008

Characteristic	Fetal deaths	Neonatal deaths ^(a)	Perinatal deaths ^(a)
Rate per 1,000 births ^(b)			
Plurality			
Singletons	6.9	2.4	9.3
Twins	20.2	16.3	36.1
Higher order multiples	51.5	43.5	92.8
Gestational age			
20–27 ^(c)	491.9	408.7	699.5
28–31	81.7	26.8	106.3
32–36	14.9	3.9	18.7
37–41	1.5	0.5	2.0
42 and over	2.7	1.2	3.8
Birthweight			
Less than 1,500	326.3	197.6	459.4
1,500–2,499	16.3	5.4	21.7
2,500–2,999	3.6	1.2	4.8
3,000–3,999	1.1	0.4	1.5
4,000 and over	1.2	0.4	1.6

(a) Except in WA, these may exclude neonatal deaths within 28 days of birth for babies transferred to another hospital or readmitted to hospital, and those dying at home.

(b) Fetal and perinatal death rates were calculated using all births (live births and fetal deaths). Neonatal death rates were calculated using all live births.

(c) Includes 2 babies of less than 20 weeks gestation.

Neonatal deaths

There were 832 neonatal deaths reported to the NPDC for 2008, giving a rate of 2.8 per 1,000 live births (Table 6.1). Ascertainment of neonatal deaths within 28 days of birth is likely to be incomplete. In particular, deaths occurring among babies transferred to another hospital, readmitted to hospital or dying at home may not be known to midwives who collect these data or staff who compile state and territory data. Neonatal deaths occurring in a different state or territory to which the birth occurred may also not be included.

The Perinatal NMDS did not include neonatal death or perinatal death data items. However, this information is collected as part of the NPDC. Neonatal death rates based on NPDC data varied among the states and territories. The variation in rates may reflect differences in ascertainment practices of deaths by states and territories as well as absolute differences in mortality in the state or territory. The neonatal death rates ranged from 1.9 per 1,000 live births in both Western Australia and Tasmania, to 4.4 per 1,000 live births in the Australian Capital Territory (Table 6.1).

Note that a significant proportion of women who gave birth in the Australian Capital Territory were New South Wales residents (15.7% in 2008). Many women from southern New South Wales with high-risk pregnancies gave birth in the Australian Capital Territory (Table 3.4), so death rates are likely to appear higher than for those based on births to residents of the Australian Capital Territory. Presenting the deaths by state or territory of usual residence of the mother addresses this issue. The neonatal death rate for mothers usually resident in the Australian Capital Territory was 3.8 per 1,000 live births (Table 6.2) compared with 4.4 per 1,000 live births to women who gave birth in this territory (Table 6.1).

Higher neonatal death rates were reported for younger and older mothers. The age-group specific neonatal death rate was 4.0 per 1,000 live births for babies of teenage mothers (aged less than 20 years) and 4.2 per 1,000 live births for babies of mothers aged 40 years and over (Table 6.3).

The neonatal death rate of babies born to Aboriginal or Torres Strait Islander mothers was 6.2 per 1,000 live births for 2008. The neonatal death rate for babies of non-Indigenous mothers was 2.7 per 1,000 live births (Table 6.3). The neonatal death rate was 6.4 per 1,000 births for women giving birth after ART treatment, where data were available.

Neonatal death rates were higher for babies of mothers who gave birth in public hospitals (3.5 per 1,000 live births) than for those of mothers who gave birth in private hospitals (1.1 per 1,000 live births) (Table 6.3).

The neonatal death rate of twins (16.3 per 1,000 births) and higher order multiples (43.5 per 1,000 births) was higher than that of singleton babies (2.4 per 1,000 births) (Table 6.3). For singleton term babies the neonatal death rate was 0.5 per 1,000 live births.

Neonatal death rates decreased with increasing gestational age, from 408.7 per 1,000 live births for those born at 20–27 weeks gestation, to 0.5 per 1,000 live births for those born at term. Post-term babies had a higher rate of 1.2 per 1,000 live births. For babies of less than 1,500 grams birthweight the neonatal death rate was 197.6 per 1,000 live births compared with 0.4 per 1,000 live births for babies both 3,000–3,999 grams and 4,000 grams or more (Table 6.3).

Perinatal deaths

In the NPDC there were 3,020 reported perinatal deaths in 2008, resulting in a perinatal death rate of 10.2 deaths per 1,000 births (Table 6.1). Of these perinatal deaths, 72.5% were fetal deaths.

For the Australian Capital Territory, where 15.7% of women who gave birth were non-residents, the crude rate of perinatal mortality changed from 14.0 per 1,000 births by territory of birth (Table 6.1) to 12.2 per 1,000 births by territory of mother's usual residence (Table 6.2).

Perinatal death data were stratified by a number of demographic, pregnancy and risk factors in Table 6.3. Perinatal death rates were highest in babies of teenage mothers (19.6 per 1,000 births), followed by babies of mothers aged 40 years and over (13.8 per 1,000 births). The perinatal death rate of babies born to Aboriginal or Torres Strait Islander mothers was 17.3 per 1,000 births. The rate was 9.7 per 1,000 births in babies born to non-Indigenous mothers (Table 6.3). The perinatal death rate was 15.1 per 1,000 births for women giving birth after ART treatment, compared with 11.2 per 1,000 births for non-ART women, where data available.

Perinatal death rates were higher among babies of first-time mothers (11.7 per 1,000 births) than among babies whose mothers had at least one previous birth (9.1 per 1,000 births). Perinatal death rates were higher for babies of mothers who gave birth in public hospitals (11.6 per 1,000 births) than for those of mothers who gave birth in private hospitals (7.0 per 1,000 births) (Table 6.3).

Table 6.3 shows that perinatal death rates were higher for babies in the 20–27 week gestational age group (699.5 per 1,000 births) and lowest at 37–41 weeks (2.0 per 1,000 births). Babies weighing less than 1,500 grams at birth had the highest perinatal death rate (459.4 per 1,000 births).

Causes of perinatal deaths

The majority of states and territories have implemented the Perinatal Society of Australia and New Zealand Perinatal Death Classification (PSANZ-PDC) to classify causes of perinatal deaths. Further details on these classifications can be found at <http://www.psanz.com.au/special-interest-groups/pnm.aspx/>.

For the 2008 data, four jurisdictions provided causes of death according to the PSANZ-PDC: Victoria, Western Australia, South Australia and Tasmania. The main causes of perinatal deaths in these jurisdictions for 2008 were congenital abnormalities (anomalies) (24.9%), spontaneous preterm birth (15.4%) and maternal conditions (14.5%). These three groups of causes accounted for over half of all perinatal deaths in these states (54.8%) and the rates were 2.8, 1.7 and 1.7 respectively per 1,000 births in the four jurisdictions. Unexplained antepartum death (12.1%) was also a commonly reported cause of perinatal death, with a rate of 1.4 per 1,000 births (Table 6.4).

Applying these classifications reveals variability by jurisdiction in the leading causes of perinatal death. The largest apparent difference relates to the category of 'maternal conditions'. This category includes late terminations undertaken for psychosocial indications. Differences in the rates of termination of pregnancy may reflect different provision of services, with the majority undertaken in Victoria (CCOPMM 2010). There may also be some differential assignment of the ranking related to jurisdictional differences in applying the classifications as well as small numbers in some categories.

Table 6.4: Perinatal deaths by Perinatal Society of Australia and New Zealand Perinatal Death Classification and state and territory, 2008

Cause of death	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total	Rate ^(a)
Number										
Congenital abnormality	n.a.	211	n.a.	76	60	19	n.a.	n.a.	366	2.8
Perinatal infection	n.a.	21	n.a.	17	n.p.	<5	n.a.	n.a.	53	0.4
Hypertension	n.a.	19	n.a.	10	<5	<5	n.a.	n.a.	35	0.3
Antepartum haemorrhage (APH)	n.a.	75	n.a.	9	16	5	n.a.	n.a.	105	0.8
Maternal conditions	n.a.	^(b) 199	n.a.	10	<5	<5	n.a.	n.a.	214	1.7
Specific perinatal conditions	n.a.	89	n.a.	n.p.	29	<5	n.a.	n.a.	139	1.1
Hypoxic peripartum death	n.a.	20	n.a.	11	5	5	n.a.	n.a.	41	0.3
Fetal growth restriction (FGR)	n.a.	42	n.a.	26	16	12	n.a.	n.a.	96	0.7
Spontaneous preterm	n.a.	113	n.a.	73	31	9	n.a.	n.a.	226	1.7
Unexplained antepartum death	n.a.	121	n.a.	25	22	10	n.a.	n.a.	178	1.4
No obstetric antecedent	n.a.	6	n.a.	n.p.	<5	—	n.a.	n.a.	14	0.1
Not stated	n.a.	2	n.a.	3	—	—	n.a.	n.a.	5	0.0
Total	n.a.	918	n.a.	283	201	70	n.a.	n.a.	1,472	11.4
Per cent										
Congenital abnormality	n.a.	23.0	n.a.	26.9	29.9	27.1	n.a.	n.a.	24.9	—
Perinatal infection	n.a.	2.3	n.a.	6.0	n.p.	n.p.	n.a.	n.a.	3.6	—
Hypertension	n.a.	2.1	n.a.	3.5	n.p.	n.p.	n.a.	n.a.	2.4	—
Antepartum haemorrhage (APH)	n.a.	8.2	n.a.	3.2	8.0	7.1	n.a.	n.a.	7.1	—
Maternal conditions	n.a.	^(b) 21.7	n.a.	3.5	n.p.	n.p.	n.a.	n.a.	14.5	—
Specific perinatal conditions	n.a.	9.7	n.a.	n.p.	14.4	n.p.	n.a.	n.a.	9.4	—
Hypoxic peripartum death	n.a.	2.2	n.a.	3.9	2.5	7.1	n.a.	n.a.	2.8	—
Fetal growth restriction (FGR)	n.a.	4.6	n.a.	9.2	8.0	17.1	n.a.	n.a.	6.5	—
Spontaneous preterm	n.a.	12.3	n.a.	25.8	15.4	12.9	n.a.	n.a.	15.4	—
Unexplained antepartum death	n.a.	13.2	n.a.	8.8	10.9	14.3	n.a.	n.a.	12.1	—
No obstetric antecedent	n.a.	0.7	n.a.	n.p.	n.p.	—	n.a.	n.a.	1.0	—
Not stated	n.a.	0.2	n.a.	1.1	—	—	n.a.	n.a.	0.3	—
Total	n.a.	100.0	n.a.	100.0	100.0	100.0	n.a.	n.a.	100.0	—

(a) Rate per 1,000 births in Vic, WA, SA and Tas. The total number of births in the four jurisdictions was 129,644 in 2008.

(b) Includes 178 terminations of pregnancy for psychosocial indications.

n.a. Data not available.

n.p. Data not published to maintain confidentiality of small numbers.

Note: Data are based on state/territory of birth rather than the state/territory of the mother's usual residence.

Table 6.5 presents causes of perinatal deaths by gestational age group for four states. The main cause of perinatal death was congenital abnormalities at 20–21 weeks gestation (38.2%). The leading cause of death at 22–27 weeks gestation was the category of maternal conditions (23.9%). Perinatal deaths of babies at 32–36 weeks and 37–41 weeks were most commonly due to unexplained antepartum death.

Table 6.5: Perinatal deaths by Perinatal Society of Australia and New Zealand Perinatal Death Classification and gestational age, 2008

Cause of death	Gestational age (weeks)							Total
	20–21	22–27	28–31	32–36	37–41	42 and over	Not stated	
	Number							
Congenital abnormality	134	136	n.p.	26	45	<5	—	366
Perinatal infection	<5	15	6	<5	23	<5	—	53
Hypertension	<5	n.p.	6	8	7	—	—	35
Antepartum haemorrhage (APH)	24	38	11	17	14	—	1	105
Maternal conditions	48	140	<5	7	n.p.	—	3	214
Specific perinatal conditions	37	48	15	16	23	—	—	139
Hypoxic peripartum death	—	<5	<5	<5	34	—	—	41
Fetal growth restriction (FGR)	n.p.	26	19	22	22	<5	—	96
Spontaneous preterm	78	136	n.p.	<5	—	—	—	226
Unexplained antepartum death	19	29	19	43	67	—	1	178
No obstetric antecedent	—	—	—	<5	n.p.	—	1	14
Not stated	—	2	—	1	2	—	—	5
Total	351	585	n.p.	152	261	n.p.	6	1,472
	Per cent							
Congenital abnormality	38.2	23.2	n.p.	17.1	17.2	n.p.	—	24.9
Perinatal infection	n.p.	2.6	5.3	n.p.	8.8	n.p.	—	3.6
Hypertension	n.p.	n.p.	5.3	5.3	2.7	—	—	2.4
Antepartum haemorrhage (APH)	6.8	6.5	9.7	11.2	5.4	—	16.7	7.1
Maternal conditions	13.7	23.9	n.p.	4.6	n.p.	—	50.0	14.5
Specific perinatal conditions	10.5	8.2	13.3	10.5	8.8	—	—	9.4
Hypoxic peripartum death	—	n.p.	n.p.	n.p.	13.0	—	—	2.8
Fetal growth restriction (FGR)	n.p.	4.4	16.8	14.5	8.4	n.p.	—	6.5
Spontaneous preterm	22.2	23.2	n.p.	n.p.	—	—	—	15.4
Unexplained antepartum death	5.4	5.0	16.8	28.3	25.7	—	16.7	12.1
No obstetric antecedent	—	—	—	n.p.	n.p.	—	16.7	1.0
Not stated	—	0.3	—	0.7	0.8	—	—	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes

1. Excludes NSW, Qld, ACT and NT.

2. The total number of births in the four jurisdictions included in the table was 129,644 in 2008.

n.p. Data not published to maintain confidentiality of small numbers.

The causes of death differed for fetal and neonatal deaths. Congenital abnormality was the leading cause of neonatal deaths (34.0%) and fetal deaths (22.2%). Among neonatal deaths, congenital abnormalities accounted for 70.4% of babies at 32–36 weeks and 48.6% of babies at 37 weeks or more. The second most common cause of fetal deaths was maternal conditions (18.4%) and the proportion was highest among babies of 20–27 weeks (25.2%). Spontaneous preterm birth was a common cause of neonatal death for babies born at 20–27 weeks (46.9%) (Table 6.6).

Table 6.6: Fetal and neonatal deaths by Perinatal Society of Australia and New Zealand Perinatal Death Classification and gestational age, 2008

Cause of death	Fetal deaths					Total
	20–27	28–31	32–36	37 and over	Not stated	
	Number					
Congenital abnormality	221	14	7	10	—	252
Perinatal infection	n.p.	6	<5	21	—	41
Hypertension	8	5	8	5	—	26
Antepartum haemorrhage (APH)	45	7	17	13	—	82
Maternal conditions	183	<5	n.p.	13	3	209
Specific perinatal conditions	63	13	15	20	—	111
Hypoxic peripartum death	<5	<5	<5	19	—	23
Fetal growth restriction (FGR)	29	17	21	21	—	88
Spontaneous preterm	116	n.p.	<5	—	—	123
Unexplained antepartum death	48	19	43	67	1	178
No obstetric antecedent	—	—	—	—	—	—
Not stated	1	—	1	2	—	4
Total	727	90	125	191	4	1,137
	Per cent					
Congenital abnormality	30.4	15.6	5.6	5.2	—	22.2
Perinatal infection	n.p.	6.7	n.p.	11.0	—	3.6
Hypertension	1.1	5.6	6.4	2.6	—	2.3
Antepartum haemorrhage (APH)	6.2	7.8	13.6	6.8	—	7.2
Maternal conditions	25.2	n.p.	n.p.	6.8	75.0	18.4
Specific perinatal conditions	8.7	14.4	12.0	10.5	—	9.8
Hypoxic peripartum death	n.p.	n.p.	n.p.	9.9	—	2.0
Fetal growth restriction (FGR)	4.0	18.9	16.8	11.0	—	7.7
Spontaneous preterm	16.0	n.p.	n.p.	—	—	10.8
Unexplained antepartum death	6.6	21.1	34.4	35.1	25.0	15.7
No obstetric antecedent	—	—	—	—	—	—
Not stated	0.1	—	0.8	1.0	—	0.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

(continued)

Table 6.6 (continued): Fetal and neonatal deaths by Perinatal Society of Australia and New Zealand Perinatal Death Classification and gestational age, 2008

Cause of death	Neonatal deaths					Total
	20–27	28–31	32–36	37 and over	Not stated	
	Number					
Congenital abnormality	49	10	19	36	—	114
Perinatal infection	7	—	<5	<5	—	12
Hypertension	6	<5	—	<5	—	9
Antepartum haemorrhage (APH)	17	<5	—	<5	1	23
Maternal conditions	5	—	—	—	—	5
Specific perinatal conditions	22	<5	<5	<5	—	28
Hypoxic peripartum death	<5	—	<5	15	—	18
Fetal growth restriction (FGR)	<5	<5	<5	<5	—	8
Spontaneous preterm	98	<5	<5	—	—	103
Unexplained antepartum death	—	—	—	—	—	—
No obstetric antecedent	—	—	<5	n.p.	1	14
Not stated	1	—	—	—	—	1
Total	209	23	27	74	2	335
	Per cent					
Congenital abnormality	23.4	43.5	70.4	48.6	—	34.0
Perinatal infection	3.3	—	n.p.	n.p.	—	3.6
Hypertension	2.9	n.p.	—	n.p.	—	2.7
Antepartum haemorrhage (APH)	8.1	n.p.	—	n.p.	50.0	6.9
Maternal conditions	2.4	—	—	—	—	1.5
Specific perinatal conditions	10.5	n.p.	n.p.	n.p.	—	8.4
Hypoxic peripartum death	n.p.	—	n.p.	20.3	—	5.4
Fetal growth restriction (FGR)	n.p.	n.p.	n.p.	n.p.	—	2.4
Spontaneous preterm	46.9	n.p.	n.p.	—	—	30.7
Unexplained antepartum death	—	—	—	—	—	—
No obstetric antecedent	—	—	n.p.	n.p.	50.0	4.2
Not stated	0.5	—	—	—	—	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

Notes

1. Excludes NSW, Qld, ACT and NT.

2. The total number of births in the four jurisdictions included in the table was 129,644 in 2008.

n.p. Data not published to maintain confidentiality of small numbers.

The most common cause of perinatal death in singletons was congenital abnormalities (26.3%). Deaths of twins and higher order multiples were mostly due to specific perinatal conditions and spontaneous preterm birth (Table 6.7).

Table 6.7: Perinatal deaths by Perinatal Society of Australia and New Zealand Perinatal Death Classification and plurality, 2008

Cause of death	Singletons	Twins and higher order multiples	Total
		Number	
Congenital abnormality	348	18	366
Perinatal infection	n.p.	<5	53
Hypertension	n.p.	<5	35
Antepartum haemorrhage (APH)	100	5	105
Maternal conditions	207	7	214
Specific perinatal conditions	80	59	139
Hypoxic peripartum death	n.p.	<5	41
Fetal growth restriction (FGR)	n.p.	<5	96
Spontaneous preterm	182	44	226
Unexplained antepartum death	n.p.	<5	178
No obstetric antecedent	14	—	14
Not stated	3	2	5
Total	1,325	147	1,472
Cause of death	Singletons	Twins and higher order multiples	Total
		Per cent	
Congenital abnormality	26.3	12.2	24.9
Perinatal infection	n.p.	n.p.	3.6
Hypertension	n.p.	n.p.	2.4
Antepartum haemorrhage (APH)	7.5	3.4	7.1
Maternal conditions	15.6	4.8	14.5
Specific perinatal conditions	6.0	40.1	9.4
Hypoxic peripartum death	n.p.	n.p.	2.8
Fetal growth restriction (FGR)	n.p.	n.p.	6.5
Spontaneous preterm	13.7	29.9	15.4
Unexplained antepartum death	n.p.	n.p.	12.1
No obstetric antecedent	1.1	—	1.0
Not stated	0.2	1.4	0.3
Total	100.0	100.0	100.0

Notes

1. Excludes NSW, Qld, ACT and NT.

2. The total number of births in the four jurisdictions included in the table was 129,644 in 2008.

n.p. Data not published to maintain confidentiality of small numbers.

Causes of death for singletons were examined by gestational age. This showed that 41.0% of 20–21 week babies had congenital abnormalities. The most common cause of death for 22–27 week babies was maternal conditions (26.6%), while the most common cause for babies of 32–36 weeks was explained antepartum death (31.6%). For term singletons the leading categories were unexplained antepartum death (26.8%), congenital abnormality (16.4%) and hypoxic peripartum death (13.2%) (Table 6.8).

Table 6.8: Singleton perinatal deaths by Perinatal Society of Australia and New Zealand Perinatal Death Classification and gestational age, 2008

Cause of death	Gestational age (weeks)						Not stated	Total
	20–21	22–27	28–31	32–36	37–41	42 and over		
	Number							
Congenital abnormality	134	131	n.p.	21	41	<5	—	348
Perinatal infection	<5	14	5	<5	23	<5	—	51
Hypertension	<5	n.p.	6	8	7	—	—	32
Antepartum haemorrhage (APH)	22	37	11	15	14	—	1	100
Maternal conditions	48	136	<5	5	n.p.	—	3	207
Specific perinatal conditions	23	22	<5	n.p.	21	—	—	80
Hypoxic peripartum death	—	<5	—	<5	33	—	—	39
Fetal growth restriction (FGR)	n.p.	25	19	21	21	<5	—	93
Spontaneous preterm	70	104	n.p.	<5	—	—	—	182
Unexplained antepartum death	19	29	18	42	67	—	1	176
No obstetric antecedent	—	—	—	<5	n.p.	—	1	14
Not stated	—	2	—	1	—	—	—	3
Total	327	512	n.p.	133	250	<5	6	1,325
	Per cent							
Congenital abnormality	41.0	25.6	n.p.	15.8	16.4	n.p.	—	26.3
Perinatal infection	n.p.	2.7	5.4	n.p.	9.2	n.p.	—	3.8
Hypertension	n.p.	n.p.	6.5	6.0	2.8	—	—	2.4
Antepartum haemorrhage (APH)	6.7	7.2	11.8	11.3	5.6	—	16.7	7.5
Maternal conditions	14.7	26.6	n.p.	3.8	n.p.	—	50.0	15.6
Specific perinatal conditions	7.0	4.3	n.p.	n.p.	8.4	—	—	6.0
Hypoxic peripartum death	—	n.p.	—	n.p.	13.2	—	—	2.9
Fetal growth restriction (FGR)	n.p.	4.9	20.4	15.8	8.4	n.p.	—	7.0
Spontaneous preterm	21.4	20.3	n.p.	n.p.	—	—	—	13.7
Unexplained antepartum death	5.8	5.7	19.4	31.6	26.8	—	16.7	13.3
No obstetric antecedent	—	—	—	n.p.	n.p.	—	16.7	1.1
Not stated	—	0.4	—	0.8	—	—	—	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes

1. Excludes NSW, Qld, ACT and NT.

2. The total number of births in the four jurisdictions included in the table was 129,644 in 2008.

n.p. Data not published to maintain confidentiality of small numbers.

Of perinatal deaths to mothers aged less than 20 years, half were due to maternal conditions (50.0%). In mothers aged 40 years and over, 33.7% of perinatal deaths were caused by congenital abnormalities. This figure was 32.4% in the 35–39 year group (Table 6.9).

Table 6.9: Perinatal deaths by Perinatal Society of Australia and New Zealand Perinatal Death Classification and maternal age, 2008

Cause of death	Maternal age (years)							Total
	Less than 20	20–24	25–29	30–34	35–39	40 and over	Not stated	
Number								
Congenital abnormality	13	55	99	88	83	28	—	366
Perinatal infection	<5	9	15	17	5	<5	—	53
Hypertension	<5	7	8	12	n.p.	<5	—	35
Antepartum haemorrhage (APH)	10	15	n.p.	28	24	<5	—	105
Maternal conditions	69	57	32	24	19	7	6	214
Specific perinatal conditions	5	23	31	45	23	12	—	139
Hypoxic peripartum death	—	<5	12	n.p.	10	6	—	41
Fetal growth restriction (FGR)	n.p.	17	24	25	20	<5	—	96
Spontaneous preterm	19	41	67	51	39	9	—	226
Unexplained antepartum death	6	36	44	56	27	8	1	178
No obstetric antecedent	<5	<5	<5	<5	<5	<5	1	14
Not stated	—	2	1	2	—	—	—	5
Total	138	268	359	360	256	83	8	1,472
Per cent								
Congenital abnormality	9.4	20.5	27.6	24.4	32.4	33.7	—	24.9
Perinatal infection	n.p.	3.4	4.2	4.7	2.0	n.p.	—	3.6
Hypertension	n.p.	2.6	2.2	3.3	n.p.	n.p.	—	2.4
Antepartum haemorrhage (APH)	7.2	5.6	n.p.	7.8	9.4	n.p.	—	7.1
Maternal conditions	50.0	21.3	8.9	6.7	7.4	8.4	75.0	14.5
Specific perinatal conditions	3.6	8.6	8.6	12.5	9.0	14.5	—	9.4
Hypoxic peripartum death	—	n.p.	3.3	n.p.	3.9	7.2	—	2.8
Fetal growth restriction (FGR)	n.p.	6.3	6.7	6.9	7.8	n.p.	—	6.5
Spontaneous preterm	13.8	15.3	18.7	14.2	15.2	10.8	—	15.4
Unexplained antepartum death	4.3	13.4	12.3	15.6	10.5	9.6	12.5	12.1
No obstetric antecedent	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	12.5	1.0
Not stated	—	0.7	0.3	0.6	—	—	—	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes

1. Excludes NSW, Qld, ACT and NT.

2. The total number of births in the four jurisdictions included in the table was 129,644 in 2008.

n.p. Data not published to maintain confidentiality of small numbers.

Of perinatal deaths to women who gave birth in hospital, 25.3% were due to congenital abnormalities and this proportion was higher in public (30.1%) than in private hospitals (12.5%). Maternal conditions occurred in 46.8% of perinatal deaths to women in private hospitals, compared with 2.8% in public hospitals (Table 6.10). Of all perinatal deaths in hospitals at 32 weeks gestation or more, 26.6% were unexplained antepartum deaths (28.6% in private hospitals and 26.1% in public hospitals), and 17.5% were due to congenital abnormalities (8.3% in private hospitals and 19.9% in public hospitals).

Table 6.10: Perinatal deaths to women who gave birth in hospital by Perinatal Society of Australia and New Zealand Perinatal Death Classification and hospital sector, 2008

Cause of death	Public	Private	Total
Number			
Congenital abnormality	316	49	365
Perinatal infection	42	8	50
Hypertension	n.p.	n.p.	35
Antepartum haemorrhage (APH)	90	13	103
Maternal conditions	29	184	213
Specific perinatal conditions	91	44	135
Hypoxic peripartum death	29	9	38
Fetal growth restriction (FGR)	82	14	96
Spontaneous preterm	192	25	217
Unexplained antepartum death	139	36	175
No obstetric antecedent	n.p.	<5	12
Not stated	2	1	3
Total	1,049	393	1,442
Per cent			
Congenital abnormality	30.1	12.5	25.3
Perinatal infection	4.0	2.0	3.5
Hypertension	n.p.	n.p.	2.4
Antepartum haemorrhage (APH)	8.6	3.3	7.1
Maternal conditions	2.8	46.8	14.8
Specific perinatal conditions	8.7	11.2	9.4
Hypoxic peripartum death	2.8	2.3	2.6
Fetal growth restriction (FGR)	7.8	3.6	6.7
Spontaneous preterm	18.3	6.4	15.0
Unexplained antepartum death	13.3	9.2	12.1
No obstetric antecedent	n.p.	n.p.	0.8
Not stated	0.2	0.3	0.2
Total	100.0	100.0	100.0

Notes

1. Excludes NSW, Qld, ACT and NT.

2. The total number of births in the four jurisdictions included in the table was 129,644 in 2008.

n.p. Data not published to maintain confidentiality of small numbers.

Appendix 1: State and territory perinatal reports

Individual state and territory health authorities publish reports based on their state or territory perinatal collection either annually or periodically. For the 2008 data, the following state and territory reports have been published:

Queensland

Queensland Health 2010. Perinatal statistics Queensland 2008. Brisbane: Queensland Health.

South Australia

Chan A, Scott J, Nguyen A-M & Sage L 2009. Pregnancy outcome in South Australia 2008. Adelaide: SA Health.

Maternal, Perinatal and Infant Mortality Committee 2009. Maternal, perinatal and infant mortality in South Australia 2008, including the South Australian protocol for investigation of stillbirths. Adelaide: SA Health.

Tasmania

Council of Obstetric and Paediatric Mortality and Morbidity 2010. Annual report 2008. Hobart: Department of Health and Human Services.

Appendix 2: State and territory perinatal data collection contacts

New South Wales

Dr Lee Taylor
Manager
Surveillance Methods
Centre for Epidemiology and Research
NSW Department of Health
Locked Bag No. 961
North Sydney NSW 2059

Phone: 02 9391 9223
Fax: 02 9391 9232
Email: ltayl@doh.health.nsw.gov.au
Website: <www.health.nsw.gov.au/topics/maternal.asp>

Victoria

Ms Anna Cooper
Clinical Councils Unit
Department of Health
GPO Box 4003
Melbourne Vic 3001

Phone: 03 9096 2693
Fax: 03 9096 2700
Email: perinatal.data@health.vic.gov.au
Website: <www.health.vic.gov.au/perinatal>

Queensland

Ms Sue Cornes
Senior Director
Health Statistics Centre
Queensland Health
GPO Box 48
Brisbane Qld 4001

Phone: 07 3234 0921
Fax: 07 3234 0564
Email: suzanne_cornes@health.qld.gov.au
Website: <www.health.qld.gov.au/hic>

Western Australia

Mr Tony Satti
Program Manager
Data Collection & Analysis
Data Integrity Directorate
Performance Activity and Quality Division
Department of Health, Western Australia
189 Royal Street
East Perth WA 6004

Phone: 08 9222 2321

Fax: 08 9222 4236

Email: tony.satti@health.wa.gov.au

Website: <www.health.wa.gov.au>

South Australia

Dr Wendy Scheil
Medical Epidemiologist
Pregnancy Outcome Statistics Unit
Department of Health
PO Box 6, Rundle Mall
Adelaide SA 5000

Phone: 08 8226 6031

Fax: 08 8226 6291

Email: Wendy.Scheil@health.sa.gov.au

Website: <www.dh.sa.gov.au/pehs/pregnancyoutcome.htm>

Tasmania

Mr Peter Mansfield
Manager
Clinical Data Services
Resources and Health System Performance
Health Services
Department of Health and Human Services
Level 2, 10 Murray Street
Hobart Tas 7000

Phone: 03 6233 2173

Fax: 03 6233 3550

Email: peter.mansfield@dhhs.tas.gov.au

Website: <www.dhhs.tas.gov.au>

Australian Capital Territory

Ms Rosalind Sexton
Senior Research Officer
Epidemiology Branch
ACT Health
Building 5, Level 1
The Canberra Hospital
PO Box 11
Woden ACT 2606

Phone: 02 6207 4032
Fax: 02 6244 4138
Email: perinataldata@act.gov.au
Website: <www.health.act.gov.au/healthinfo>

Northern Territory

Ms Lee O'Neil
Perinatal Data Business Analyst
Acute Care Information Systems
Department of Health and Families
Building 6, Royal Darwin Hospital
PO Box 41326
Casuarina NT 0810

Phone: 08 8922 7673
Fax: 08 8922 7787
Email: leanne.o'neil@nt.gov.au
Website: <www.health.nt.gov.au>

Appendix 3: Perinatal National Minimum Data Set items

Data element name	METeOR identifier
Birth—Apgar score (at 5 minutes), code NN	289360
Birth—birth order, code N	269992
Birth—birth status, code N	269949
Birth—birth weight, total grams NNNN	269938
Birth event—birth method, code N	295349
Birth event—birth plurality, code N	269994
Birth event—birth presentation, code N	299992
Birth event—labour onset type, code N	269942
Birth event—setting of birth (actual), code N	269937
Birth event—state/territory of birth, code N	270151
Episode of admitted patient care—separation date, DDMMYYYY	270025
Establishment—organisation identifier (Australian), NN[X]NNNNN	269973
Female (pregnant)—estimated gestational age, total weeks NN	269965
Female (pregnant)—number of cigarettes smoked (per day after 20 weeks of pregnancy), number N[NN]	365445
Female (pregnant)—tobacco smoking indicator (after twenty weeks of pregnancy), yes/no code N	365417
Female (pregnant)—tobacco smoking indicator (first twenty weeks of pregnancy), yes/no code N	365404
Person—area of usual residence, geographical location code (ASGC 2007) NNNNN	362291
Person—country of birth, code (SACC 1998) NNNN	270277
Person—date of birth, DDMMYYYY	287007
Person—Indigenous status, code N	291036
Person—person identifier, XXXXXX[X(14)]	290046
Person—sex, code N	287316
Pregnancy— estimated duration (at the first visit for antenatal care), completed weeks N[N]	379597

Note: Includes Perinatal NMDS items current at November 2010.

Source: < <http://meteor.aihw.gov.au/content/index.phtml/itemId/363256> >.

Appendix 4: Data used in figures

Table A4.1: Number of births, 1999 to 2008

Year	Births
1999	257,430
2000	257,245
2001	254,326
2002	255,095
2003	256,925
2004	257,205
2005	272,419
2006	282,169
2007	294,205
2008	296,925

Table A4.2: Rates of women giving birth in the population, 1999 to 2008

Rate	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Crude	60.4	60.0	58.9	58.7	58.7	58.5	61.5	63.1	64.9	64.4
Age-adjusted	59.8	59.6	58.8	58.7	58.9	58.7	61.8	63.6	65.5	64.6

Table A4.3: Primiparous women who gave birth by maternal age, 1999 and 2008 (per cent)

Maternal age (years)	1999	2008
Less than 20	82.1	83.2
20–24	54.0	55.1
25–29	44.5	47.2
30–34	32.0	36.3
35–39	24.0	26.6
40 and over	22.4	25.3

Table A4.4: Women who gave birth by onset of labour, 1999 to 2008 (per cent)

Onset of labour	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Spontaneous	61.9	61.5	59.0	57.9	57.3	57.6	56.5	56.6	56.6	57.0
Induced	26.0	25.6	26.7	26.6	26.1	25.3	25.6	25.1	25.3	24.8
No labour	12.1	12.9	14.3	15.5	16.5	17.1	17.9	18.3	18.1	18.2

Table A4.5: Women who gave birth by caesarean section and instrumental birth, 1999 to 2008 (per cent)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Caesarean section	21.8	23.3	25.4	27.0	28.5	29.4	30.3	30.8	30.9	31.1
Instrumental	11.1	11.2	10.9	10.8	10.7	11.0	10.8	10.7	11.2	11.4

Table A4.6: Women who gave birth by caesarean section by maternal age and hospital sector, 2008 (per cent)

Maternal age (years)	Public	Private
Less than 20	17.0	19.7
20–24	21.6	29.5
25–29	25.9	35.2
30–34	31.0	40.4
35–39	36.3	46.6
40 and over	41.9	57.1

Table A4.7: Length of stay of five days or more for babies born in hospital, 1999 to 2008 (per cent)

Length of stay	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
5 days and over	36.6	34.6	33.8	32.6	31.5	30.3	28.2	27.0	25.3	24.1

Note: Only babies who were discharged home are included.

Table A4.8: Instrumental vaginal births, 1999 to 2008 (per cent)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Forceps	5.6	5.1	4.6	4.2	3.9	3.9	3.5	3.5	3.6	3.7
Vacuum extraction	5.4	6.1	6.3	6.6	6.8	7.1	7.2	7.2	7.5	7.7

Table A4.9: Instrumental vaginal births by gestational age, 2006–2008 (per cent)

Gestational age (weeks)	Forceps	Vacuum extraction
20	1.0	0.4
21	3.6	0.5
22	4.2	0.4
23	4.2	0.7
24	4.5	0.6
25	3.4	0.4
26	1.5	0.2
27	1.8	0.1
28	1.0	0.1
29	2.0	0.4
30	2.1	0.2
31	3.0	0.5
32	3.2	0.5
33	2.8	1.2
34	3.8	2.3
35	3.0	4.4
36	2.7	5.8
37	2.5	5.8
38	2.3	5.3
39	3.2	7.1
40	4.4	9.4
41	5.2	10.1
42	5.8	9.3
43	4.1	8.3

Note: Percentages have been calculated within each gestational age group.

Glossary

Age standardisation: a method of removing the influence of age when comparing populations with different age structures.

Antepartum fetal death: fetal death occurring before the onset of labour.

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

Assisted reproductive technology: treatments or procedures that involve the in vitro handling of human oocytes (eggs) and sperm or embryos for the purposes of establishing a pregnancy.

Augmentation of labour: intervention after the onset of labour to assist the progress of labour.

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

Birth status: status of the baby immediately after birth.

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

Caesarean section: operative birth by surgical incision through the abdominal wall and uterus.

Chorioamnionitis: an inflammation, usually from an infection, of the membranes surrounding the fetus.

Early neonatal death: death of a liveborn baby within seven days of birth.

Epidural: injection of anaesthetic agent into the epidural space of the spinal cord.

Episiotomy: an incision of the perineum and vagina to enlarge the vulval orifice.

Extremely low birthweight: birthweight of less than 1,000 grams.

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

Forceps: assisted birth using a metallic obstetric instrument.

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

Grand multipara: pregnant woman who has had four or more previous pregnancies resulting in a live birth or stillbirth.

Induction of labour: intervention to stimulate the onset of labour.

Instrumental delivery: vaginal delivery using forceps or vacuum extraction.

Intrapartum fetal death: fetal death occurring during labour.

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

Isoimmunisation: development of antibodies directed at the red blood cells of the baby in utero. This occurs when there is an incompatibility between the baby's blood type and that of its mother.

Late neonatal death: death of a liveborn baby after 7 completed days and before 28 completed days.

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

Low birthweight: birthweight of less than 2,500 grams.

Maternal age: mother's age in completed years at the birth of her baby.

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

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

Multipara: pregnant woman who has had at least one previous pregnancy resulting in a live birth or stillbirth.

Neonatal care levels: Level I care is for normal healthy term babies, some of whom may need short-term observation during the first few hours of life.

Level II refers to a nursery that generally has babies born at 32–36 weeks gestation weighing around 1,500 to 2,500 grams at birth. It includes care for babies who require intravenous therapy or antibiotics, and/or those who are convalescing after intensive care, and/or those who need their heart rate or breathing monitored, and/or those who need short-term oxygen therapy.

Level III or intensive care refers to the care of newborn infants who require more specialised care and treatment. It includes most babies born at less than 32 weeks gestation or less than 1,500 grams birthweight, and others who may require such interventions as intravenous feeding, and/or surgery, and/or cardiorespiratory monitoring for management of apnoea or seizures, and/or require assisted ventilation, and/or supplemental oxygen over 40% or long-term oxygen (ANZNN 2009).

Neonatal death: death of a liveborn baby within 28 days of birth.

Neonatal morbidity: any condition or disease of the baby diagnosed after birth and before separation from care.

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

Perinatal death: a fetal or neonatal death of at least 20 weeks gestation or at least 400 grams birthweight.

Perineal status: status of the perineum after the birth. It may involve surgical suturing of perineal laceration or episiotomy incision.

Plurality: the number of births resulting from a pregnancy.

Postneonatal death: death of a liveborn baby after 28 days and within one year of birth.

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

Presentation at birth: presenting part of the fetus at birth.

Preterm birth: birth before 37 completed weeks of gestation.

Primary caesarean section: caesarean section to mother with no previous history of caesarean section.

Primipara: pregnant woman who has had no previous pregnancy resulting in a live birth or stillbirth.

Pudendal: local anaesthetic to block the pudendal nerves.

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

Sex ratio: number of male liveborn babies per 100 female liveborn babies.

Spontaneous vaginal: birth without intervention in which the baby's head is the presenting part.

Stillbirth: see Fetal death (stillbirth).

Teenage mother: mother aged less than 20 years at the birth of her baby.

Vacuum extraction: assisted birth using a suction cap applied to the baby's head.

Vaginal breech: vaginal birth in which the baby's buttocks is the presenting part.

Very low birthweight: birthweight of less than 1,500 grams.

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