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Australian Institute of Health and Welfare

PERINATAL STATISTICS SERIES
Number 35

Australia's mothers and babies 2017—in brief

Appendixes A to D

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Appendix A: About the National Perinatal Data Collection

The NPDC began in 1991 and collects national information on the pregnancy and childbirth of mothers, and the characteristics and outcomes of their babies. The NPDC supports a range of reports and products, including:

- *Australia's mothers and babies* annual report
- data visualisations, available at https://www.aihw.gov.au/reports/mothers-babies/australias-mothers-babies-data-visualisations/
- National Core Maternity Indicators reports and data visualisations, available at https://www.aihw.gov.au/reports/mothers-babies/ncmi
- *Indigenous mothers and their babies* reports
- other specialist reports, indicator-based reports and customised data requests.

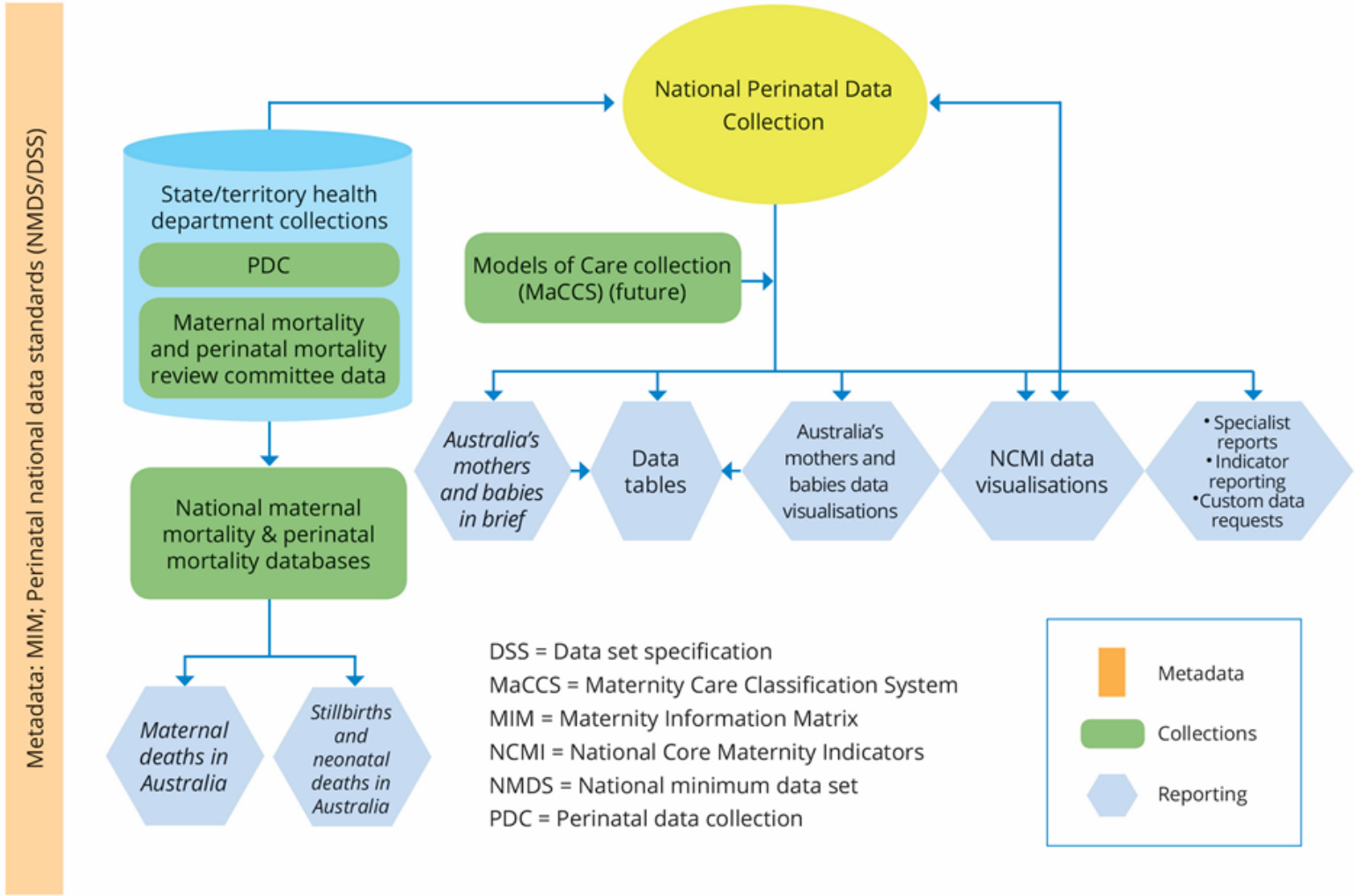
Collection of perinatal data by states and territories

Perinatal data are collected after each birth, usually by midwives or other birth attendants from clinical and administrative records and information systems, including records of antenatal care, the care provided during labour, and the delivery and care provided after the birth. Each state and territory has its own form and/or electronic system for collecting data, which are forwarded to the relevant state and territory health departments to form the state or territory perinatal data collection. See Appendix C for state and territory contact details and the most recent state and territory perinatal reports, which contain more detailed information about data collection in each jurisdiction. The Maternity Information Matrix summarises data items from Australian national and state and territory data collections relevant to maternal and perinatal health, and is available at http://maternitymatrix.aihw.gov.au.

Collation of national perinatal data

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

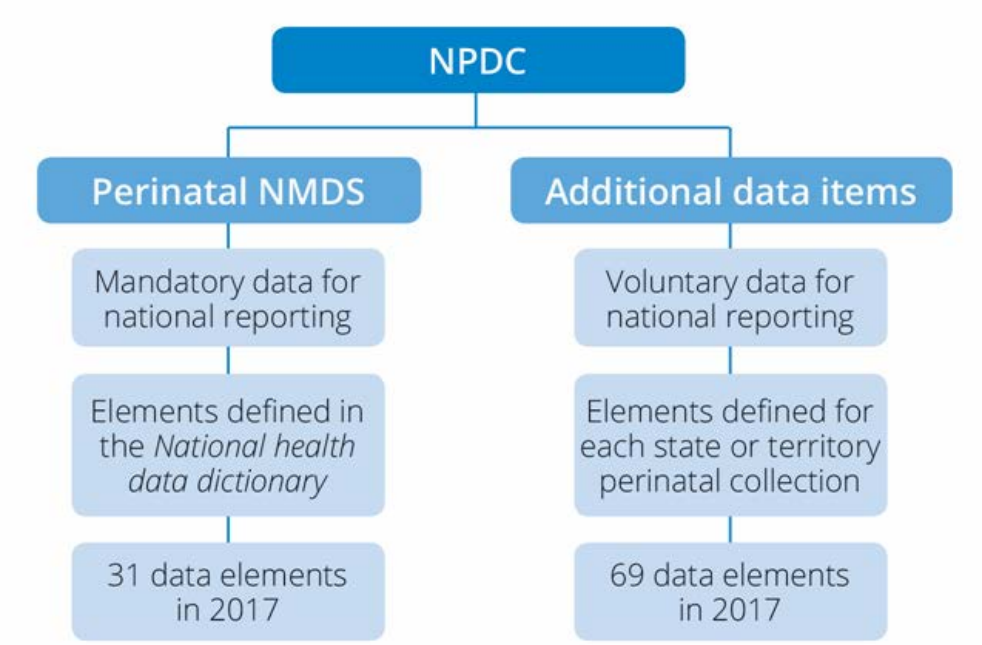
Overview of maternal and perinatal data collections and national reporting outputs



Structure of the National Perinatal Data Collection

Data supplied for the NPDC consist of the Perinatal national minimum data set (Perinatal NMDS) and additional data items.

Structure of the National Perinatal Data Collection



The Perinatal NMDS was first specified in 1997 and is an agreed data set for national reporting (COAG 2012). An NMDS is an agreed set of standardised data elements for mandatory supply by states and territories to support national reporting. Standardisation ensures that there is consistent meaning for data collected at different times or in different places. A list of the data items supplied for the NPDC from the Perinatal NMDS is at Appendix B.

Each state and territory collects more information than is specified in the Perinatal NMDS, and the AIHW requests some of these additional items. These data items are at different stages in the process of standardisation. Some items have had national data standards developed, but have not yet been included as data elements in the Perinatal NMDS because they could not be implemented immediately in all jurisdictions.

In contrast, there are other data items—for which there are, as yet, no common definitions or categories for collecting the data or which are not collected in all jurisdictions—that are also provided to inform the future development of nationally standardised data.

Which births are counted?

This report presents information from the NPDC about births in Australia, including births in hospitals, in birth centres and in the community. Freebirths may be included in the NPDC if they are in scope of the data collection, and the mother or baby present to hospital following birth or the birth is registered with the Registry of Births, Deaths and Marriages. However, this differs by state and territory.

The Australian *National health data dictionary* defines a 'live birth' as the complete expulsion or extraction from its mother of a baby, of any gestation, that shows signs of life; and a

‘stillbirth’ is the complete expulsion or extraction of a baby, of at least 20 weeks’ gestation or weighing at least 400 grams at birth (the weight expected of a baby at 20 weeks’ gestational age), which shows no signs of life.

The Perinatal NMDS and the NPDC require that either the birthweight or the gestational age conditions are met for both live births and stillbirths. This means that the very small number of live births occurring before 20 weeks’ gestation and weighing less than 400 grams are not included in the NPDC, although they may have been included in jurisdictional perinatal data collections. Data for babies whose gestational age and birthweight were not recorded are also not included in the NPDC, but may have been included in jurisdictional perinatal collections. Live births and stillbirths may include termination of pregnancy after 20 weeks. Stillbirths can include fetus papyraceous and fetus compressus (products of conception recognisable as a deceased fetus). In Victoria and Western Australia, data were included for both live births and stillbirths of at least 20 weeks’ gestation or, if gestation was unknown, the birthweight was at least 400 grams. South Australian data may not include all terminations of pregnancy for psychosocial reasons after 20 weeks’ gestation where birthweight was not recorded.

Care is needed when comparing Australian birth statistics with those from countries that have different gestational age or other criteria for defining live births and stillbirths. In many other countries, pregnancies must continue to 22, 24 or even 28 completed weeks of gestational age for a fetal death to be counted as a stillbirth. The inclusion in Australia of more births at lower gestations will affect the distributions of several key baby outcomes—in particular, rates of perinatal mortality, low birthweight, low Apgar scores (a measure of a baby’s wellbeing at birth) and admission to a special care nursery or neonatal intensive care unit. For live births, the Perinatal NMDS and NPDC definition is more restrictive than the World Health Organization (WHO) definition that specifies a live birth as a baby born showing signs of life irrespective of gestation (WHO 1992).

National Perinatal Data Development Committee

The National Perinatal Data Development Committee has a key role in improving data quality. The committee comprises representatives from each state and territory health authority and the AIHW, with temporary members invited as their expertise is required. The committee works in consultation with clinical reference groups. It improves data provision, revises existing Perinatal NMDS items, develops existing perinatal data items in METeOR (AIHW’s Metadata Online Registry) and contributes to the development of new perinatal data items.

Appendix B: Perinatal national minimum data set items

Table B1: Perinatal NMDS 2014–2018 data items

Data element name	METeOR identifier
Birth event—anaesthesia administered indicator, yes/no code N	495466
Birth event—analgesia administered indicator, yes/no code N	495381
Birth event—birth method, code N	295349
Birth event—birth plurality, code N	482409
Birth event—birth presentation, code N	299992
Birth event—labour onset type, code N	495690
Birth event—setting of birth (actual), code N	269937
Birth event—state/territory of birth, code N	270151
Birth event—type of anaesthesia administered, code N[N]	422383
Birth event—type of analgesia administered, code N[N]	471867
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
Episode of admitted patient care—separation date, DDMMYYYY	270025
Establishment—organisation identifier (Australian), NNX[X]NNNNN	269973
Female (mother)—postpartum perineal status, code N[N]	423659
Female (pregnant)—number of cigarettes smoked (per day after 20 weeks of pregnancy), number N[NN]	365445
Female (pregnant)—tobacco smoking indicator (after 20 weeks of pregnancy), yes/no code N	365417
Female (pregnant)—tobacco smoking indicator (first 20 weeks of pregnancy), yes/no code N	365404
Female—caesarean section at most recent previous birth indicator, code N	422187
Female (pregnant)—number of antenatal care visits, total N[N]	423828
Female—parity, total pregnancies N[N]	501710
Person—area of usual residence, statistical area level 2 (SA2) code (ASGS 2011) N(9) (from 2014 to 2016)	469909
Person—area of usual residence, statistical area level 2 (SA2) code (ASGS 2016) N(9) (from 2017 onwards)	659725
Person—country of birth, code (SACC 2011) NNNN (from 2014 to 2016)	459973
Person—country of birth, code (SACC 2016) NNNN (from 2017 onwards)	659454
Person—date of birth, DDMMYYYY	287007
Person—Indigenous status, code N	602543
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
Product of conception—gestational age, completed weeks N[N]	298105

Note: Implementation start date 1 July 2014; implementation end date 30 July 2018.

Source: http://meteor.aihw.gov.au/content/index.phtml/itemId/517456.

Appendix C: State and territory perinatal data collections

New South Wales

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Phone: (02) 9391 9142
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Website: www.health.nsw.gov.au/

Latest report

Centre for Epidemiology and Evidence 2018. New South Wales mothers and babies 2017. Sydney: NSW Ministry of Health.

Victoria

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Safer Care Victoria
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Melbourne Vic 3001

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Email: consultative.councils@safercare.vic.gov.au
Website: https://bettersafercare.vic.gov.au/about-us/about-scv/councils/ccopmm

Latest report

Consultative Council on Obstetric and Paediatric Mortality and Morbidity 2019. Victoria's mothers, babies and children 2017. Melbourne: Safer Care Victoria, Victorian Government.

Queensland

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Strategy, Policy and Planning Division
Queensland Health
Queensland Government
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Website: www.health.qld.gov.au/hsu

Latest report

Queensland Department of Health (Statistical Services Branch) 2019. Perinatal statistics Queensland 2017. Brisbane: Queensland Health.

Western Australia

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Manager
Maternal and Child Health Unit
Data Collections Directorate
Information Data & Standards
Purchasing & System Performance Division
Department of Health, Western Australia
189 Royal Street
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Phone: (08) 9222 2417
Fax: (08) 9222 4408
Email: maureen.hutchinson@health.wa.gov.au
Website: ww2.health.wa.gov.au/Articles/J_M/Midwives-Notification-System

Latest reports

Ballestas T (on behalf of the Perinatal and Infant Mortality Committee of Western Australia) 2017. The 15th report of the Perinatal and Infant Mortality Committee of Western Australia, 2011–2013. Perth: Department of Health, Western Australia.

Gee V 2013. Perinatal, infant and maternal mortality in Western Australia, 2006–2010. Perth: Department of Health, Western Australia.

Jennings B, Joyce A & Peirce A 2018. Western Australia's mothers and babies, 2014: 32nd Annual report of the Western Australian Midwives' Notification System. Perth: Department of Health, Western Australia.

South Australia

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SA Department for Health and Wellbeing
PO Box 6, Rundle Mall
Adelaide SA 5000

Phone: (08) 8226 6031
Fax: (08) 8226 6672
Email: pregnancy.stats@health.sa.gov.au
Website: www.sahealth.sa.gov.au/pregnancyoutcomes

Latest reports

Pregnancy Outcome Unit, SA Health 2018. Maternal and perinatal mortality in South Australia 2016. Adelaide: Pregnancy Outcome Unit, SA Health.

Pregnancy Outcome Unit, SA Health 2018. Pregnancy outcome in South Australia 2016. Adelaide: Pregnancy Outcome Unit, SA Health.

Tasmania

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Health Information Unit
Department of Health
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Website: www.dhhs.tas.gov.au

Latest report

Tasmania Council of Obstetric and Paediatric Mortality and Morbidity 2018. Annual report 2016. Hobart: Tasmanian Government Department of Health and Human Services.

Australian Capital Territory

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Canberra ACT 2601

Phone: (02) 5124 9478
Email: perinataldata@act.gov.au
Website: http://stats.health.act.gov.au

Latest report

Summary data from the ACT Maternal Perinatal Data Collection are available on HealthStats ACT http://stats.health.act.gov.au/

Northern Territory

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Casuarina NT 0811

Phone: (08) 8922 7673
Email: leanne.o'neil@nt.gov.au
Website: www.health.nt.gov.au

Latest report

Li L & O'Neil L 2018. Mothers and babies 2015: Northern Territory Midwives' Collection. Darwin: Northern Territory Department of Health.

Appendix D: Data quality and methods

Data quality, availability and interpretation

Detailed information on completeness, accuracy and other aspects of data quality for the National Perinatal Data Collection (NPDC) is in the data quality statement as a separate download at https://meteor.aihw.gov.au/content/index.phtml/itemId/716326.

This report presents perinatal data that can largely be compared with data in *Australia's mothers and babies 2016—in brief* (AIHW 2018). Tabulated data in this report are based on births in each state and territory in 2017 that meet the criteria for inclusion in the Perinatal national minimum data set (NMDS). Due to data editing, subsequent updates of state and territory databases, and differences in scope for inclusion, the numbers may differ slightly from those in reports published by the states and territories.

Unless otherwise stated, the data in this report and supplementary tables relate to the state or territory where births occurred in 2017 rather than to the state or territory of usual residence of the mother.

Due to rounding, percentage totals may not add to 100 and subtotals may not sum to the percentages for the categories.

Terminology

The terms 'mothers' or 'women who gave birth' have been used when referring to maternal characteristics, whereas 'births' refers to babies.

Quality of data for reporting Indigenous status

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

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

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

Table D1 shows the relationship between Indigenous status of the mother and Indigenous status of the baby in 2017. The vast majority of all babies (97.4%) had the same Indigenous status as their mother and only a small proportion had a different Indigenous status recorded (2.6%). However, of the 16,934 babies reported as Indigenous in the NPDC in 2017 (5.5% of all babies), almost one-third (31.8%) were born to non-Indigenous mothers.

Table D1: Births, by Indigenous status of the baby and mother, 2017

	Indigenous status of the baby			
Indigenous status of the mother	**Indigenous**	**Non-Indigenous**	**Not stated**	**Total**
Indigenous	12,840	823	94	**13,757**
	(4.2%)	(0.3%)	(0.0%)	**(4.5%)**
Non-Indigenous	4,084	284,395	2,641	**291,120**
	(1.3%)	(93.0%)	(0.9%)	**(95.2%)**
Not stated	10	348	432	**790**
	(0.0%)	(0.1%)	(0.1%)	**(0.3%)**
Total	**16,934**	**285,566**	**3,167**	**305,667**
	(5.5%)	**(93.4%)**	**(1.0%)**	**(100.0%)**

Availability of national data

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

- changes in definitions or data collection methods in a state and territory that mean the data item is not comparable over time (trend analyses only)
- data are not currently collected by a state and territory, or are not collected in a format that is comparable with the specifications for the NPDC
- data are not currently supplied by a state and territory for the NPDC (data items that are not part of the Perinatal NMDS are not mandatory for provision to the NPDC).

These exclusions are summarised in Table D2, and are also noted throughout the report where applicable. These exclusions apply to both the numerator and denominator for rate calculations, and the data presented are not representative of the jurisdictions excluded.

Table D2: Summary of state and territory exclusions in 2017, by topic

Topic	Exclusion
Antenatal care	
Number of antenatal visits	Victoria (excluded from trend analysis only due to data not being available for all years)
Maternal health	
Hypertension and diabetes[(a)]	Victoria (data not currently available according to specifications)
Place of birth	
Postnatal stay	Western Australia (data not provided on mother's mode of separation[(a)] from the birth hospital which is required for analysis of this topic)
Onset of labour	
Type of induction[(a)]	Western Australia (data not provided)
Reason for induction[(a)]	New South Wales (data not currently available according to specifications) Victoria (data not provided as data collection methods do not distinguish between main and additional reasons for induction) South Australia (data not currently available according to specifications)
Augmentation of labour[(a)]	Western Australia (data not provided)
Method of birth	
Main reason for caesarean section[(a)]	Victoria (data not provided as data collection methods do not distinguish between main and additional reasons for caesarean section) South Australia (data not currently available according to specifications)
Resuscitation[(a)]	Western Australia (data not provided)
Hospital births and length of stay	Western Australia (data not provided on baby's mode of separation[(a)] from the birth hospital which is required for analysis of this topic)
Admission to special care nursery/ neonatal intensive care unit[(a)]	Western Australia (data not provided) New South Wales (data not provided)
Cause of perinatal death[(a)]	New South Wales (data not provided) Western Australia (high proportion of missing data at the time of collection cut-off)

(a) These data items are not currently part of the Perinatal NMDS and are not mandated for provision to the NPDC.

Detailed information on completeness for all data items used in the data visualisations is available in the interactive data visualisation below at the national level for 2017. Note that this includes jurisdictions that provided data only.

Definitions for the terms used to quantify completeness:

- Stated: proportion of appropriate values supplied for the data item during the specified collection year
- Not stated: proportion of values supplied as not stated or missing, during the specified collection year.

Table D3: Summary of data item completeness, 2017

		Not stated		Stated			
Data item	**Scope**	**Number**	**Per cent**	**Number**	**Per cent**	**Total**	**Status**
Admission to special care nursery/ neonatal intensive care unit	Live births	1,876	1.1	172,091	98.9	173,967	Voluntary non-standard item
Anaesthesia	Women who gave birth and had caesarean section or instrumental vaginal deliveries	1,185	0.8	140,956	99.2	142,141	Perinatal NMDS
Analgesia	Women who gave birth and had onset of labour	289	0.1	234,918	99.9	235,207	Perinatal NMDS
Antenatal visits	Women who gave birth	5,103	1.7	295,992	98.3	301,095	Perinatal NMDS
Apgar (5 minutes)	Live births	815	0.3	302,663	99.7	303,478	Perinatal NMDS
Baby's length of stay in hospital	Liveborn births in hospital	661	0.3	248,986	99.7	249,647	Perinatal NMDS
Baby's mode of separation	Births in hospital	559	0.2	261,377	99.8	261,936	Voluntary non-standard item
Baby's outcome	Births	15	0.0	305,652	100.0	305,667	Voluntary non-standard item
Birth plurality	Women who gave birth	0	0.0	301,095	100.0	301,095	Perinatal NMDS
Birthweight	Births	124	0.0	305,543	100.0	305,667	Perinatal NMDS
Body mass index	Women who gave birth	8,209	2.7	292,886	97.3	301,095	Perinatal NBEDS
Diabetes during pregnancy	Woman who gave birth	Not applicable: it is not possible to distinguish between no diabetes and not stated for all jurisdictions.					Perinatal NBEDS
Diabetes type during pregnancy	Woman who gave birth and had diabetes during pregnancy						Perinatal NBEDS
Duration of pregnancy at first antenatal visit	Women who gave birth	4,306	1.4	296,789	98.6	301,095	Perinatal NMDS
Gestational age	Births	104	0.0	305,563	100.0	305,667	Perinatal NMDS
Hospital sector	Women who gave birth in hospital	0	0.0	291,052	100.0	291,052	Perinatal NMDS
Hypertension during pregnancy	Woman who gave birth	Not applicable: it is not possible to distinguish between no hypertension and not stated for all jurisdictions.					Perinatal NBEDS
Hypertension type during pregnancy	Woman who gave birth and had hypertension during pregnancy						Perinatal NBEDS
Indigenous status (baby)	Births	3,167	1.0	302,500	99.0	305,667	Perinatal NMDS

(continued)

Table D3 (continued): Summary of data item completeness, 2017

		Not stated		Stated			
Data item	**Scope**	**Number**	**Per cent**	**Number**	**Per cent**	**Total**	**Status**
Indigenous status (mother)	Women who gave birth	782	0.3	300,313	99.7	301,095	Perinatal NMDS
Maternal age at delivery	Women who gave birth	28	0.0	301,067	100.0	301,095	Perinatal NMDS
Maternal country of birth	Women who gave birth	1316	0.4	299,779	99.6	301,095	Perinatal NMDS
Method of birth	Births	26	0.0	305,641	100.0	305,667	Perinatal NMDS
Mother's mode of separation	Women who gave birth in hospital	455	0.2	257,470	99.8	257,925	Voluntary non-standard item
Onset of labour	Women who gave birth	89	0.0	301,006	100.0	301,095	Perinatal NMDS
Parity	Women who gave birth	848	0.3	300,247	99.7	301,095	Perinatal NMDS
Patient election status	Women who gave birth in hospital	764	0.3	290,288	99.7	291,052	Voluntary non-standard item
Perineal status	Women who gave birth vaginally	65	0.0	196,767	100.0	196,832	Perinatal NMDS
Place of birth	Women who gave birth	16	0.0	301,079	100.0	301,095	Perinatal NMDS
Presentation at birth	Births	462	0.2	305,205	99.8	305,667	Perinatal NMDS
Previous caesarean sections	Multiparous women who gave birth	3,612	2.1	169,291	97.9	172,903	Voluntary non-standard item
Resuscitation of baby	Live births	291	0.1	268,880	99.9	269,171	Voluntary non-standard item
SA2 of usual residence	Women who gave birth	4,322	1.4	296,773	98.6	301,095	Perinatal NMDS
Sex	Births	8	0.0	305,659	100.0	305,667	Perinatal NMDS
Smoking status	Women who gave birth	4,438	1.5	296,657	98.5	301,095	Perinatal NMDS
Smoking status: after twenty weeks of pregnancy	Women who gave birth	7,839	2.6	293,256	97.4	301,095	Perinatal NMDS
Smoking status: first twenty weeks of pregnancy	Women who gave birth	1,509	0.5	299,586	99.5	301,095	Perinatal NMDS
State/territory of usual residence	Women who gave birth	5	0.0	301,090	100.0	301,095	Perinatal NMDS
Status of the baby	Births	15	0.0	305,652	100.0	305,667	Perinatal NMDS

(a) Data excludes Western Australia.

(b) Data item used to derive Remoteness area, socioeconomic status, Primary Health Network and Statistical Area Level 3.

Australian Capital Territory births

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 mothers who gave birth in the Australian Capital Territory who were residents elsewhere was 14.4% in 2017.

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. This is because women with high risk pregnancies may be more likely to be transferred from smaller centres in New South Wales (that do not have the facilities to manage such births safely) to the Australian Capital Territory to give birth.

Therefore, percentages or rates such as those for pre-term births 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 helps to address this issue.

Methods

Crude rates

A crude rate is defined as the number of events over a specified period (for example, a year) divided by the total population exposed to the event.

Age-specific rates

An age-specific rate is defined as the number of events for a specified age group over a specified period (for example, a year) divided by the total population exposed to the event in that age group.

Age-standardised rates

Age-standardised rates enable comparisons to be made between populations that have different age structures. Direct standardisation, in which the age-specific rates are multiplied by a constant population, was used in this report. This effectively removes the influence of the age structure on the summary rate. The report states where age-standardised rates have been used.

All age-standardised rates in this report have used the June 2001 Australian female estimated resident population aged 15–44 years as the standard population:

$$\text{SR} = \frac{\sum(r_i P_i)}{\sum P_i}$$

where:

SR is the age-standardised rate for the population being studied

r_i is the age-group specific rate for age group *i* in the population being studied

P_i is the population of age group *i* in the standard population.

Rate ratio

Rate ratios are calculated by dividing the proportion of the study population (for example, Indigenous Australians) with a particular characteristic by the proportion of the standard population (for example, non-Indigenous Australians) with the same characteristic.

A rate ratio of 1 indicates that the prevalence of the characteristic is the same in the study and standard populations. Rate ratios of greater than 1 indicate higher prevalence in the study population; rate ratios of less than 1 indicate higher prevalence in the standard population.

Time trends

Linear regression has been used to determine changes in the observed rates over specified time periods. Regression modelling analyses the series of rates jointly rather than individually, thus accounting for volatility in observed rates over time and resulting in narrower confidence intervals around the set of predicted values than if the confidence limits were calculated around the rates separately.

Annual change

The average annual change (slope estimate) is calculated using the ordinary least squares method of linear regression. The method calculates a straight line that best fits the data (the fitted linear regression line) and returns an equation that best describes the line. The form of the straight-line equation is:

$Y = a + bX$

where:

b is the average annual change or 'slope' over the period

X is the independent or predictor variable (in the case of time trend analysis, this is the year)

a is the y-intercept

Y is the predicted value of the rate based on the fitted linear regression line.

Per cent change

Per cent change is determined by multiplying the average annual change (slope estimate) over the period by the number of data points less 1. This is then divided by the Y value calculated for the first year in the series (based on the fitted linear regression line) and multiplied by 100.

Statistical significance of trend data

For trend analyses, the 95% confidence intervals (CIs) for the standard error of the slope estimate (average annual change) were used to determine whether the apparent increases or decreases in the data are statistically significant at the p <0.05 level. The formula used to calculate the CIs for the standard error of the slope estimate is:

95% CI(x) = x ± 1.96 x SE(x)

where x is the average annual change (slope estimate). If the upper and lower 95% confidence intervals do not include zero, then it can be concluded that there is statistical evidence of an increasing or decreasing trend in the data over the study period.

Significant changes are denoted with a '*' against the per cent change statistics included in relevant tables.

Geography

Geographic data are based on the usual residence of the mother. In 2017, the usual residence of the mother is based on Statistical Area Level 2 (SA2) of the Australian Bureau of Statistics Australian Statistical Geography Standard Edition 2016 for all states and territories.

Remoteness

This report uses the Australian Statistical Geography Standard Remoteness Structure which groups geographic areas into 6 classes of Remoteness Area based on their relative access to services using the Accessibility/Remoteness Index of Australia.

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

Socioeconomic status

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

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

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

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

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

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

Primary Health Network

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

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

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

Statistical Area Level 3

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

Small numbers

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

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

Australian national birthweight percentiles by gestational age

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

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

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

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

Robson 10 group classification system

The Robson 10 group classification system (Robson classification) categorises women who gave birth into 10 mutually exclusive groups (Table D4). In addition, groups 2 and 4 can be further broken down into subgroups. These subgroups are used to differentiate between women who were induced and who had a caesarean section before labour onset.

Table D4: Robson 10 group classification system

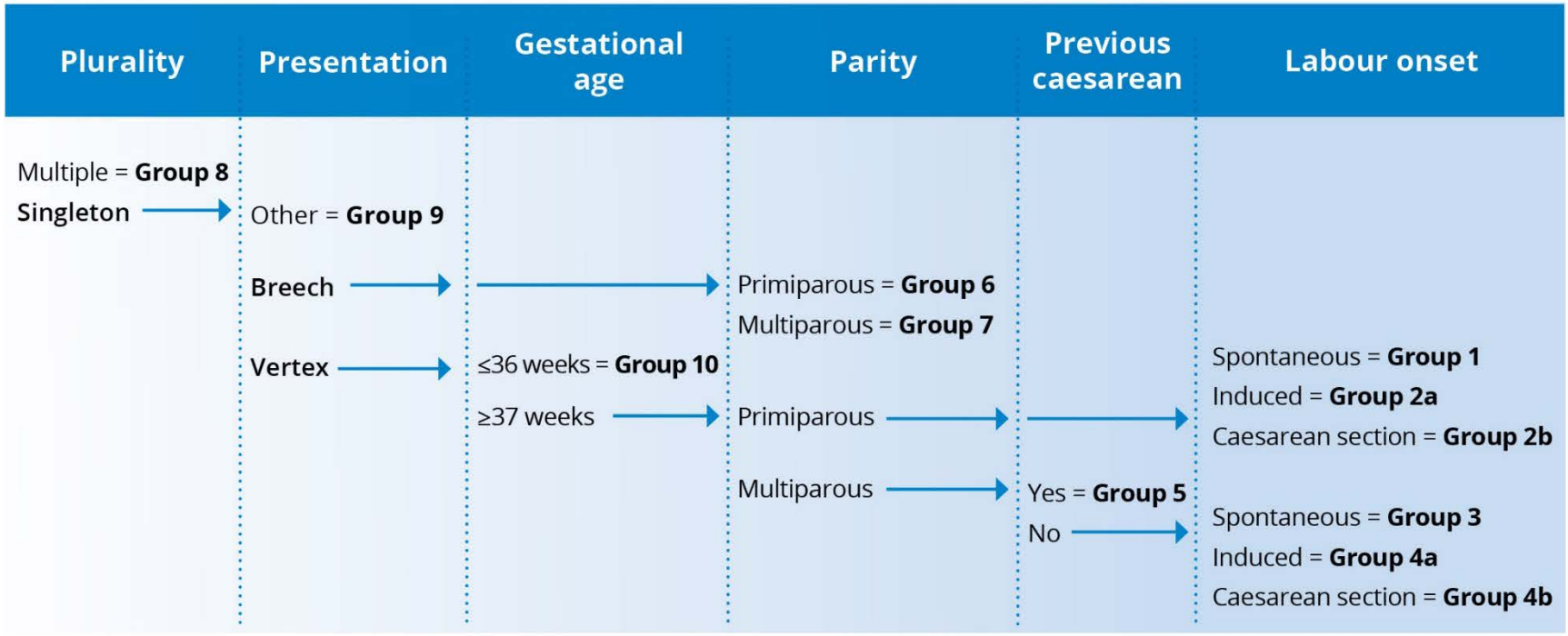
Group	Definition
1	First-time mother, singleton pregnancy, baby in cephalic (head first) presentation, ≥37 weeks gestation, spontaneous labour (not induced)
2	First-time mother, singleton pregnancy, baby in cephalic (head first) presentation, ≥37 weeks gestation, induced labour or caesarean section before labour
2a	*First-time mother, singleton pregnancy, baby in cephalic (head first) presentation, ≥37 weeks gestation, induced labour*
2b	*First-time mother, singleton pregnancy, baby in cephalic (head first) presentation, ≥37 weeks gestation, caesarean section before labour*
3	Mother has previously given birth without a previous caesarean scar, singleton pregnancy, baby in cephalic (head first) presentation, ≥37 weeks gestation, spontaneous labour (not induced)
4	Mother has previously given birth without a previous caesarean scar, singleton pregnancy, baby in cephalic (head first) presentation, ≥37 weeks gestation, induced labour or caesarean section before labour
4a	*Mother has previously given birth without a previous caesarean scar, singleton pregnancy, baby in cephalic (head first) presentation, ≥37 weeks gestation, induced labour*
4b	*Mother has previously given birth without a previous caesarean scar, singleton pregnancy, baby in cephalic (head first) presentation, ≥37 weeks gestation, caesarean section before labour*
5	Mother has previously given birth with a previous caesarean scar, singleton pregnancy, baby in cephalic (head first) presentation, ≥37 weeks gestation, induced labour or caesarean section before labour
6	First-time mother, singleton pregnancy, baby in breech (feet first) presentation
7	Mother has previously given birth with current singleton baby in breech (feet first) presentation
8	Multiple pregnancy, including women with previous caesarean scars
9	All women with a singleton pregnancy, baby in transverse (side on) or oblique lie, including women with previous caesarean scars
10	All women with a singleton pregnancy, baby in cephalic (head first) presentation, ≤36 weeks gestation, including women with previous caesarean scars

The Robson classification groups and subgroups were calculated from data on all women who gave birth in Australia for 2017. Data elements used for calculation of the groups and subgroups were parity, previous caesarean sections, onset of labour, birth plurality, gestational age, presentation at birth and method of birth.

Records for whom 1 or more of the following variables were not stated: parity, previous caesarean sections, onset of labour, birth plurality, gestational age and presentation at birth; were grouped into the ‘Not applicable’ category. The denominator of ‘Number of women who gave birth’ includes women with a ‘not stated’ method of birth.

The figure describes the process of categorising all women who gave birth into the 10 groups and the additional subgroups.

Process flow of classification using the Robson 10 group classification system



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