



Pregnancy Outcome in South Australia 2017

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Pregnancy Outcome Unit,
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Abbreviations and symbols

Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ARM	artificial rupture of membranes
ASFR	age-specific fertility rate
APH	ante-partum haemorrhage
BMI	body mass index
CTG	cardiotocography
ENMR	early neonatal mortality rate
IPPV	intermittent positive pressure ventilation
IUGR	intrauterine growth restriction
LSCS	lower segment caesarean section
PPH	post-partum haemorrhage
SA	South Australia
SACC	Standard Australian Classification of Countries
SBR	Supplementary Birth Record
VBAC	vaginal birth after caesarean
WHO	World Health Organization

Symbols

..	not applicable
n/a	not available
n/p	not published due to low cell count

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Executive Summary

Number of births and fertility rates

The number of births notified in South Australia in 2017 was 19,485 which was 584 less births than in 2016. The number of women who gave birth was 19,195. The total fertility rate was 1.71 live births per woman, slightly lower than the rate of 1.75 in 2016. Fertility rates increased slightly in the 30-34, 35-39 and 40-44 year age groups.

Aboriginal mothers and babies

Seven hundred and thirty six Aboriginal women gave birth in South Australia in 2017, accounting for 3.8% of all women who gave birth in the state. In 2017, 10.9% of Aboriginal women who gave birth were teenagers (compared with 2.1% of Caucasian women).

Of the Aboriginal women for whom week of gestation at the first antenatal visit was reported, 63.3% attended for antenatal care within the first 14 weeks of pregnancy (compared with 84.1% of non-Aboriginal women).

Of the Aboriginal women for whom the number of antenatal visits was reported, 64.5% attended at least seven antenatal visits during pregnancy (compared with 84.5% of Caucasian women).

In 2017, at the first antenatal visit, 41.6 % of Aboriginal women reported that they smoked, a slight decrease from 43.9% in 2016, while in non-Aboriginal women this proportion was 7.1%.

In 2017, the proportion of preterm births (<37 weeks gestation) was 19.1% among babies of Aboriginal women compared with 9.6% among babies of Caucasian women. The proportion of low birthweight babies was 17.2% among babies of Aboriginal women compared with 6.9% among babies of non-Aboriginal women.

The perinatal mortality rate of babies of Aboriginal women was 22.7 per 1,000 births in 2017 compared with 7.5 per 1,000 births for births to Caucasian women.

The Aboriginal status of the baby was also collected independently of the mother. There were 962 Aboriginal babies, representing 4.9% of all babies born in South Australia in 2017.

Teenage women

Four hundred and six teenage women gave birth in 2017; accounting for 2.1% of women who gave birth in South Australia. The teenage pregnancy rate has been steadily declining from 2002, with a low in 2016 of 17.1 per 1,000 women. In 2017 this rate remained relatively stable at 17.6 per 1,000 women. A further 386 teenage women had medical terminations of pregnancy, accounting for 8.9% of terminations in South Australia.

Women aged 35 and over

The proportion of women aged 35 years and over who gave birth remained relatively stable at 21.8% in 2017. The mean age of women giving birth has been increasing over the previous decade, and reached its highest at 30.8 in 2016, plateauing at 30.4 in 2017. As with previous years, more women gave birth in the 30-34 year age group than in the 25-29 year age group.

Place of birth

Compared with 2016, the total number of births remained relatively stable at the three metropolitan teaching hospitals. The total number of births in metropolitan private hospitals decreased slightly from 20.7% of all births in 2016, to 19.9% in 2017. There were 78 women (0.4%) who gave birth at home (78 babies), and among these women 74 (94.9%) had planned home births.

Country of birth

Seventy-two percent of women who gave birth in 2017 were Australian-born. Of women born overseas who gave birth, the largest proportions came from India (5.0% of women), China (2.9%) and the United Kingdom (1.9%).

Smoking during pregnancy and Body Mass Index

The proportion of women smoking at their first antenatal visit has declined steadily and was 8.5% in 2017. Additionally, 2.8% of women quit smoking before their first antenatal visit.

Statistics on Body Mass Index were available for 95.1% of women who gave birth in 2017. They indicated that 52.0% of all women giving birth were overweight. Of the overweight women giving birth, 14.2% were classified as obese and 10.4% severely or morbidly obese.

Antenatal care and length of stay

Eighty-three percent of women attended antenatal care within the first 14 weeks of pregnancy. Of the women for whom the number of antenatal visits was reported, 82.4% attended seven or more antenatal visits. Many women had more than one type of antenatal care; however the most common types used were public hospital clinics (40.3%), obstetricians in private practice (21.6%) and GP and public hospital shared care (12.7%).

The median length of stay in hospital for all women after a birth was three days; the median length of stay was two days for women who had a vaginal birth and four days for women who had a caesarean section. Amongst private patients, the median length of stay was two days longer for vaginal births and one day longer for caesarean sections.

Procedures

At least one ultrasound examination was performed for 99.4% of women who gave birth in 2017. Over a third of all labours were induced (35.9%) and 16.7% of women giving birth had labour augmented. The main reasons for induction of labour were diabetes or gestational diabetes (15.9%), hypertension (11.7%) and prolonged pregnancies (11.5%). Fifty one percent of inductions of labour were performed for other than defined indications. Epidurals were used for pain relief during labour for 31.1% of women. Of women who gave birth vaginally, 24.0% had an episiotomy.

Method of birth

In 2017, 53.2% of women had normal spontaneous vaginal births, a further 5.9% were delivered by forceps and 5.7% were delivered by ventouse. The proportion of women giving birth by caesarean section was 34.9%, similar to the proportion in 2016 (35.3%). The main reasons given for caesarean section were previous caesarean section (39.1%), failure to progress in labour or cephalopelvic disproportion (25.1%) and fetal compromise (15.3%).

Plurality

In 2017 multiple births accounted for 2.9% of all births, while women with twins or triplets accounted for 1.5% of all women who gave birth.

Perinatal mortality

The perinatal mortality rate for all births of at least 400g birthweight or 20 weeks gestation in 2017 was 9.0 per 1,000 births. The perinatal mortality rate includes terminations of pregnancy and their exclusion would have resulted in a perinatal mortality rate of 6.3 deaths per 1,000 births. The stillbirth rate was 6.6 per 1,000 births and the neonatal mortality rate was 2.4 per 1,000 live births.

Terminations of pregnancy

There were 4,349 terminations of pregnancy recorded, compared with 4,346 terminations in 2016. The termination of pregnancy rate has been declining steadily since 2008. The termination rate was 13.2 per 1,000 women aged 15-44 years, the same as the rate in 2016. In 2017, 95.7% of terminations were performed in metropolitan public hospitals, including the Pregnancy Advisory Centre, and 69.4% were performed by medical practitioners in family advisory clinics.

Ninety-one percent of terminations were performed within the first 14 weeks of pregnancy and 2.6% were performed at or after 20 weeks gestation. Of the terminations performed at or after 20 weeks gestation; 47.7% were for congenital anomalies.

Background

Data collection

The *South Australian Health Care Regulations 2008 – Part 5 Pregnancy Outcome Data and Statistics* require the notification of all births occurring in South Australia to the Minister for Health and Wellbeing. This includes births to women who normally reside interstate. Births of South Australian residents which occur in other states are not included. The perinatal data have been collected since 1981, with some changes to the data items collected over the years.

The perinatal data are compiled from notifications submitted by hospital midwives, privately practising midwives attending homebirths, and neonatal nurses using either the Supplementary Birth Record (SBR) data collection form (Appendix 1), or its electronic equivalent. For a more complete picture of pregnancy outcome in South Australia, data from the Medical Termination of Pregnancy collection are also included.

The *Criminal Law Consolidation (Medical Termination of Pregnancy) Regulations 2011* require the notification of medical terminations of pregnancy to the Chief Executive of the Department for Health and Wellbeing. It is from these notifications that the medical termination of pregnancy statistics are collated each year.

This annual report also includes data on perinatal mortality, as supplied to the South Australian Perinatal Statistics Collection. All maternal and perinatal deaths in South Australia are subsequently reviewed by the Maternal and Perinatal Mortality Committee, using the perinatal data statistics in addition to death certificates, pathology reports, autopsy reports and findings from the State Coroner. Recommendations made by the Maternal and Perinatal Mortality Committee are released annually to inform practice and reduce maternal and perinatal mortality in South Australia¹.

Data on congenital abnormalities detected at birth or in the neonatal period (within 28 days of birth) are also provided as part of the Perinatal Statistics Collection using the Congenital Abnormality Form (Appendix 2) or its electronic equivalent. Limited statistics on birth defects are included in this report as these are reported annually by the South Australian Birth Defects Register at the Women's and Children's Hospital². The Register complements statistics on birth defects from the perinatal and medical termination collections with statistics on birth defects detected and notified after discharge from the birth hospital, up to the child's fifth birthday.

In addition to this annual report, Pregnancy and Neonatal Care Bulletins, comparing selected pregnancy characteristics and outcomes are also provided to all South Australian hospitals with at least 100 births per year and aggregate reports are provided for hospitals with smaller numbers of births. Comparisons of maternity performance indicators are also provided to hospitals with at least 550 births per year.

Annual report

The births described in this report include live births, stillbirths and terminations of pregnancy of at least 400g birthweight or 20 weeks gestation. Fifty-seven births of less than 400g birthweight have been included, consisting of 52 stillbirths and 5 live births. The 5 live births were born at 20-27 weeks gestation and died in the neonatal period. The 19,485 births in South Australia in 2017 comprised of 19,356 live births and 129 stillbirths. The number of women who gave birth was 19,195 (570 fewer women than in 2016). Definitions used in this report are provided in the Methods and Terminology section.

The term Aboriginal is used respectfully in this report as an all-encompassing term for Aboriginal or Torres Strait Islander mothers or babies living in South Australia. Data relating to Aboriginal mothers and babies have been italicised for easy identification in response to the request of the Aboriginal Health Council of South Australia.

Mothers

1.1 Place of residence

This table uses the ABS Australian Statistical Geography Standard boundaries (ASGS 2016)¹, with Statistical Area Level 4 boundaries for the four Adelaide metropolitan regions, and Statistical Area Level 3 boundaries to present the nine non-metropolitan regions in South Australia. The distribution of births according to the mother's place of residence by these regions is provided in Table 1 together with the estimated resident population and crude birth rate. The crude birth rate in 2017 for South Australia was 11.2 per 1,000 population. It was lowest in the Fleurieu - Kangaroo Island and highest in the Outback - North and East.

Table 1: Births and crude birth rate by ABS Statistical Geographical Boundaries (ASGS 2016), South Australia, 2017

ASGS 2017 (Mother's residence)	Total births		Live births	Estimated resident population, June 30, 2016 ⁺	Crude birth rate per 1,000 population
	Number	Percent	Number	Number	
Adelaide - Central and Hills	2,866	14.7	2,847	299,889	9.5
Adelaide - North	5,876	30.2	5,840	434,292	13.4
Adelaide - South	3,887	20.0	3,865	365,060	10.6
Adelaide - West	2,784	14.3	2,759	234,926	11.7
Barossa	359	1.8	358	36,755	9.7
Eyre Peninsula and South West	696	3.6	692	58,072	11.9
Fleurieu - Kangaroo Island	393	2.0	391	52,171	7.5
Limestone Coast	680	3.5	674	66,698	10.1
Lower North	219	1.1	216	23,116	9.3
Mid North	291	1.5	288	27,776	10.4
Murray and Mallee	679	3.5	675	71,925	9.4
Outback - North and East	370	1.9	370	27,060	13.7
Yorke Peninsula	257	1.3	256	25,931	9.9
Interstate	128	0.7	125		na
Total	19,485	100.0	19,356	1,723,671	11.2

+ Australian Bureau of Statistics. Population estimates by age and sex, Regions of South Australia, 2016. Canberra: ABS, 2016 (Catalogue No 3235.0).

1.2 Maternal ethnicity

The distribution of women who gave birth, by ethnicity is provided in Table 2. *In 2017 there were 736 births to Aboriginal mothers which represented 3.8% of all women. The Aboriginal status of the baby was also collected independently of the mother. There were 962 Aboriginal babies, representing 4.9% of all babies born in South Australia in 2017. They comprised 933 (96.9%) Aboriginal, 12 (1.3%) Torres Strait Islander and 17(1.4%) Aboriginal and Torres Strait Islander babies.*

Table 2: Ethnicity of women who gave birth, South Australia, 2017

Ethnicity	Number of women	% Women
Caucasian	14,094	73.4
<i>Aboriginal</i>	736	3.8
Asian	3,066	16.0
Other	1,299	6.8
Total	19,195	100.0

1.3 Maternal age

Table 3 shows the age and ethnicity distribution of women who gave birth in South Australia in 2017. The largest number of women who gave birth were in the 30-34 year age group. The proportion of women in this age group (35.9%) has exceeded that of the 25-29 years age group (28.1%) since 2001. Teenage women accounted for 2.1% of women who gave birth and women aged 35 years or more accounted for 21.8%. *Aboriginal women were generally younger than non-Aboriginal women: 10.9% were teenagers and only 8.2% were 35 years or older.* Among Asian women, 0.3% of women who gave birth were teenagers and 25.2% were aged 35 years or older.

Table 3: Age and ethnicity of women who gave birth, South Australia, 2017

Age	Caucasian		Aboriginal		Asian		Other		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
<19	294	2.1	80	10.9	9	0.3	23	1.8	406	2.1
20-24	1,727	12.3	225	30.6	173	5.6	208	16.0	2,333	12.2
25-29	3,942	28.0	242	32.9	815	26.6	390	30.0	5,389	28.1
30-34	5,083	36.1	128	17.4	1,296	42.3	379	29.2	6,886	35.9
35-39	2,529	17.9	48	6.5	646	21.1	232	17.9	3,455	18.0
40-44	481	3.4	12	1.6	120	3.9	58	4.5	671	3.5
45+	38	0.3	1	0.1	7	0.2	9	0.7	55	0.3
Total	14,094	100.0	736	100.0	3,066	100.0	1,299	100.0	19,195	100.0

The five year age-specific fertility rate was highest in the 30-34 year age group (118.8 per 1,000 women), followed by the 25-29 year age group (94.7 per 1,000 women, Table 4). When compared with the age-specific fertility rates for 2016, the only slight increases were in the 20-24 and 40-44 year age groups (41.0 and 12.6 per 1,000 women respectively in 2016). The general fertility rate (see Methods and Terminology) was 58.9 per 1,000 women aged 15-44 years, which is lower than the general fertility rate in 2016 (58.4 per 1,000 women). The total fertility rate in 2017 was 1.71 live births per woman, which remains below replacement level of 2.1 children per woman³.

Table 4: Age-specific fertility rates (ASFR), South Australia, 2017

Age (years)	Number of live births	Estimated resident female population ⁺	Age-specific fertility rate per 1,000 women (ASFR) ^{#‡}
15-19	406	50,495	8.0
20-24	2,335	56,172	41.6
25-29	5,438	57,412	94.7
30-34	6,931	58,332	118.8
35-39	3,502	53,441	65.5
40-44	679	52,844	12.8
45+	60	na	na
Total	19,351	328,696	58.9

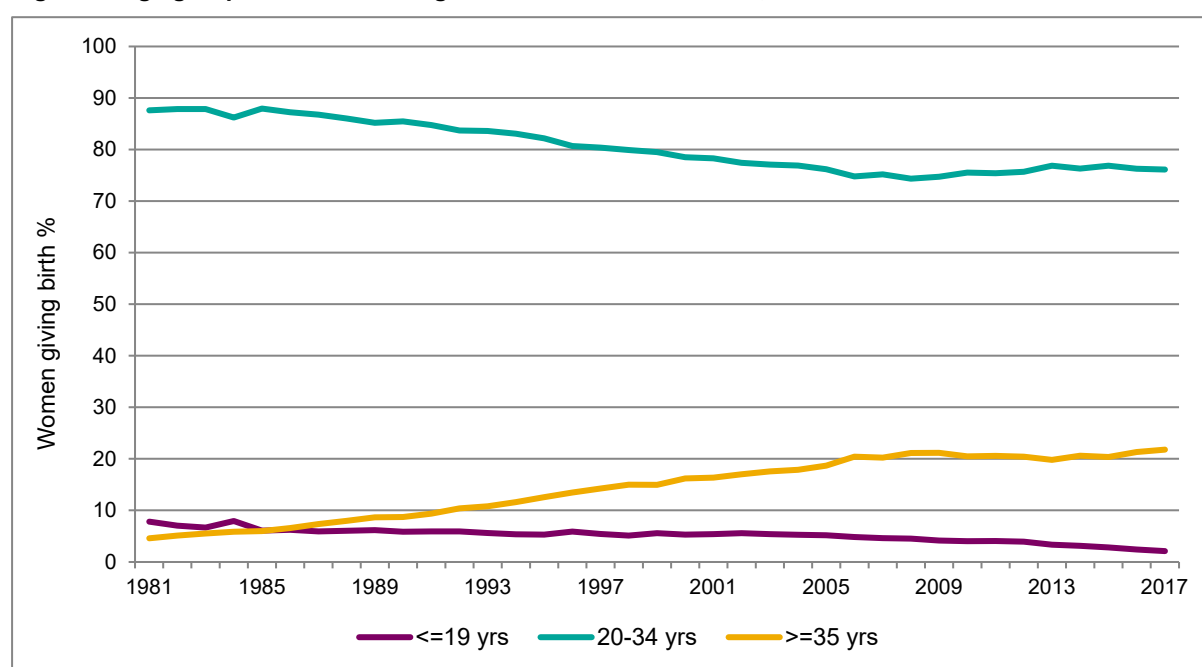
+ Australian Bureau of Statistics. Population estimates by age and sex, Regions of South Australia, 2017. Canberra: ABS, 2017 (Catalogue No 3235.0).

the number of live births and fertility rate for women aged 15-19 years include live births for younger ages, and the number and rate for women aged 40-44 years include live births for older ages. The total number and rate include all live births and excludes terminations of pregnancy.

‡Sum of 5-year ASFRs = 341.5 per 1,000 women. Total fertility rate = 341.5 x 5 = 1,708 live births per 1,000 women = 1.71 live births per woman.

Figure 1 presents the proportion of women giving birth by age group, since 1981. The proportion of women aged 35 years or older has increased each year from 4.6% in 1981 to 21.8% in 2017.

Figure 1: Age groups of women who gave birth in South Australia, 1981-2017



1.4 Country of birth

The distribution of mother's country of birth is provided in Table 5 by group, and in Table 6 by specified country. Of the 27.5% of women born outside of Australia, the largest proportion were born in India (5.0%) and China (2.9%) and the United Kingdom (2.1%).

Table 5: Country of birth group* for women who gave birth, South Australia, 2017

	Country of birth group	Number	%
1	Oceania	13,925	72.5
2	North-West Europe	856	4.5
3	Southern and Eastern Europe	397	2.1
4	North Africa and Middle East	937	4.9
5	South-East Asia	753	3.9
6	North-East Asia	1,680	8.8
7	Southern and Central Asia	110	0.6
8	Americas	100	0.5
9	Sub-Saharan Africa	415	2.2
	Unknown	22	0.1
	Total	19,195	100.0

* Australian Bureau of Statistics. Standard Australian Classification of Countries 2008 (SACC). Cat No. 1269.0. Canberra: ABS

Table 6: Specified country of birth* for women who gave birth, South Australia, 2017

	Specified country of birth	Number	% of women	% of migrant women who gave birth (n=5,471)
1100	Australia	13,724	71.5	
6104	India	958	5.0	17.5
5101	China	564	2.9	10.3
2101	United Kingdom	404	2.1	7.4
4107	Philippines	263	1.4	4.8
6101	Afghanistan	247	1.3	4.5
4110	Vietnam	243	1.3	4.4
1301	New Zealand	164	0.9	3.0
6107	Pakistan	164	0.9	3.0
4105	Malaysia	142	0.7	2.6
6106	Nepal	124	0.7	2.3
3207	Sudan	122	0.6	2.2
3103	Iran	93	0.5	1.7
9220	South Africa	91	0.5	1.7
6108	Sri Lanka	82	0.4	1.5
6102	Bangladesh	74	0.4	1.4
4102	Cambodia	70	0.4	1.3
4109	Thailand	70	0.4	1.3
5105	Korea South	66	0.3	1.2
4106	Myanmar	63	0.3	1.2
7104	USA North America	63	0.3	1.2
9106	Congo	61	0.3	1.1
5103	Japan	57	0.3	1.0
2305	Germany	49	0.3	0.9
4103	Indonesia	48	0.3	0.9
7102	Canada	47	0.2	0.9
3111	Saudi Arabia	43	0.2	0.8
3104	Iraq	40	0.2	0.7
	All other countries	1,059	5.5	19.4
	Total	19,195	100.0	100.0

* Australian Bureau of Statistics. Standard Australian Classification of Countries 2008 (SACC). Cat No. 1269.0. Canberra: ABS

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1.5 Occupation of father and mother

The distribution of occupations for both mothers giving birth in 2017, and fathers is presented in Table 7. The most common occupation type for mothers were home duties (20.2%), professionals (19.0%), salespersons and personal service workers (15.9%). The most common occupations for fathers were tradespersons (18.7%), professionals (15.4%) and managers and administrators (13.5%).

Table 7: Occupation* of father and mother, South Australia, 2017

Occupation		Father		Mother	
		Number	%	Number	%
1	Managers and administrators	2,581	13.4	1,386	7.2
2	Professionals	2,948	15.4	3,649	19.0
3	Para professionals	1,143	6.0	1,440	7.5
4	Tradespersons	3,592	18.7	555	2.9
5	Clerks	523	2.7	1,970	10.3
6	Salespersons and personal service workers	1,079	5.6	3,051	15.9
7	Plant and machine operators and drivers	1,112	5.8	54	0.3
8	Labourers and related workers	2,349	12.2	537	2.8
9	Students	424	2.2	762	4.0
	Invalid pensioner	20	0.1	8	0.0
	Pensioners	28	0.1	14	0.1
	Home duties	80	0.4	3,884	20.2
	Unemployed	1,022	5.3	1,088	5.7
	Other	345	1.8	305	1.6
	Unknown	1,949	10.2	492	2.6
Total		19,195	100.0	19,195	100.0

* Australian Bureau of Statistics. ASCO. First Edition. Occupation Definitions. Canberra: ABS,1990. (Catalogue No. 1223.0)

1.6 Body mass index (BMI)

Reported height and weight at the first antenatal visit were used to calculate the Body Mass Index (BMI) for women who gave birth. This was considered valid only for women who attended the first antenatal visit before 20 weeks gestation. Among these 17,756 women (92.5% of all women who gave birth), height and weight were not reported for 877 women (4.9%). Therefore BMI could only be calculated for 16,879 women who gave birth in 2017 (95.1% of women who attended the first antenatal visit before 20 weeks gestation). Table 8 shows that 52.0% of these women recorded a BMI of 25 or higher, which is above the normal weight range.

Table 8: BMI of women at the first antenatal visit, South Australia, 2017

BMI*		Number	%	Adjusted % (excluding unknown n=16,879)
<18.5	underweight	389	2.2	2.3
18.5 – 24.9	normal	7,712	43.4	45.7
25.0 – 29.9	overweight	4,620	26.0	27.4
30.0 – 34.9	obese	2,397	13.5	14.2
35.0 – 39.9	severely obese	1,081	6.1	6.4
>40	morbidly obese	680	3.8	4.0
Unknown		877	4.9	
Total		17,756	100.0	100.0

* based on height and weight at first antenatal visit, where gestation at first antenatal visit was <20 weeks

1.7 Tobacco smoking status

In 2017, 8.5% of all women were reported to be tobacco smokers at their first antenatal visit, and 2.8% had quit smoking before their first visit (Table 9). Smoking status was unknown for 0.6% of women. The proportion of all women smoking during pregnancy has been declining in South Australia, from 21.9% in 2001 to 8.5% in 2017.

The proportion of Aboriginal women who reported that they smoked at the first antenatal visit has decreased slightly from 43.9% in 2016 to 41.6% in 2017. This was considerably higher than the proportion of non-Aboriginal women smoking at first antenatal visit in 2017 (7.1%). Additionally, 5.3% of Aboriginal women reported that they quit smoking in pregnancy prior to their first antenatal visit, compared to 2.6% of non-Aboriginal women.

Table 9: Tobacco smoking status at first antenatal visit by Aboriginal status, South Australia, 2017

Smoking status	Non-Aboriginal		Aboriginal		Total	
	Number	%	Number	%	Number	%
Smoker	1,317	7.1	306	41.6	1,623	8.5
Quit before 1st visit	488	2.6	39	5.3	527	2.8
Non-smoker	16,544	89.6	380	51.6	16,924	88.2
Unknown smoking status	110	0.6	11	1.5	121	0.6
Total	18,459	100.0	736	100.0	19,195	100.0

The highest rates of smoking at the first antenatal visit were among teenagers (21.4%) and women aged 20-24 years (17.3%). *Smoking rates were high among all age groups of Aboriginal women especially among women aged 35-39 years (58.3%, Table 10).*

Table 10: Tobacco smoking status at first antenatal visit by age and Aboriginal status, South Australia, 2017

Age	Smoker		Quit before 1st visit		Non-smoker		Unknown smoking status		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
Total										
≤20	87	21.4	26	6.4	289	71.2	4	1.0	406	100.0
20-24	404	17.3	110	4.7	1,802	77.2	17	0.7	2,333	100.0
25-29	462	8.6	175	3.3	4,724	87.7	28	0.5	5,389	100.0
30-34	408	5.9	145	2.1	6,297	91.5	36	0.5	6,886	100.0
35-39	213	6.2	57	1.7	3,155	91.3	30	0.9	3,455	100.0
≥40	49	6.8	14	1.9	657	90.5	6	0.8	726	100.0
Total	1,623	8.5	527	2.8	16,924	88.2	121	0.6	19,195	100.0
Non-Aboriginal										
≤20	60	18.4	18	5.5	245	75.2	3	0.9	326	100.0
20-24	318	15.1	104	4.9	1,673	79.4	13	0.6	2,108	100.0
25-29	362	7.0	159	3.1	4,601	89.4	25	0.5	5,147	100.0
30-34	348	5.2	140	2.1	6,234	92.3	36	0.5	6,758	100.0
35-39	185	5.4	54	1.6	3,140	92.2	28	0.8	3,407	100.0
≥40	44	6.2	13	1.8	651	91.3	5	0.7	713	100.0
Total	1,317	7.1	488	2.6	16,544	89.6	110	0.6	18,459	100.0
Aboriginal										
≤20	27	33.8	0	0.0	44	55.0	1	1.3	80	100.0
20-24	86	38.2	0	0.0	129	57.3	4	1.8	225	100.0
25-29	100	41.3	0	0.0	123	50.8	3	1.2	242	100.0
30-34	60	46.9	0	0.0	63	49.2	0	0.0	128	100.0
35-39	28	58.3	0	0.0	15	31.3	2	4.2	48	100.0
≥40	5	38.5	0	0.0	6	46.2	1	7.7	13	100.0
Total	306	41.6	0	0.0	380	51.6	11	1.5	736	100.0

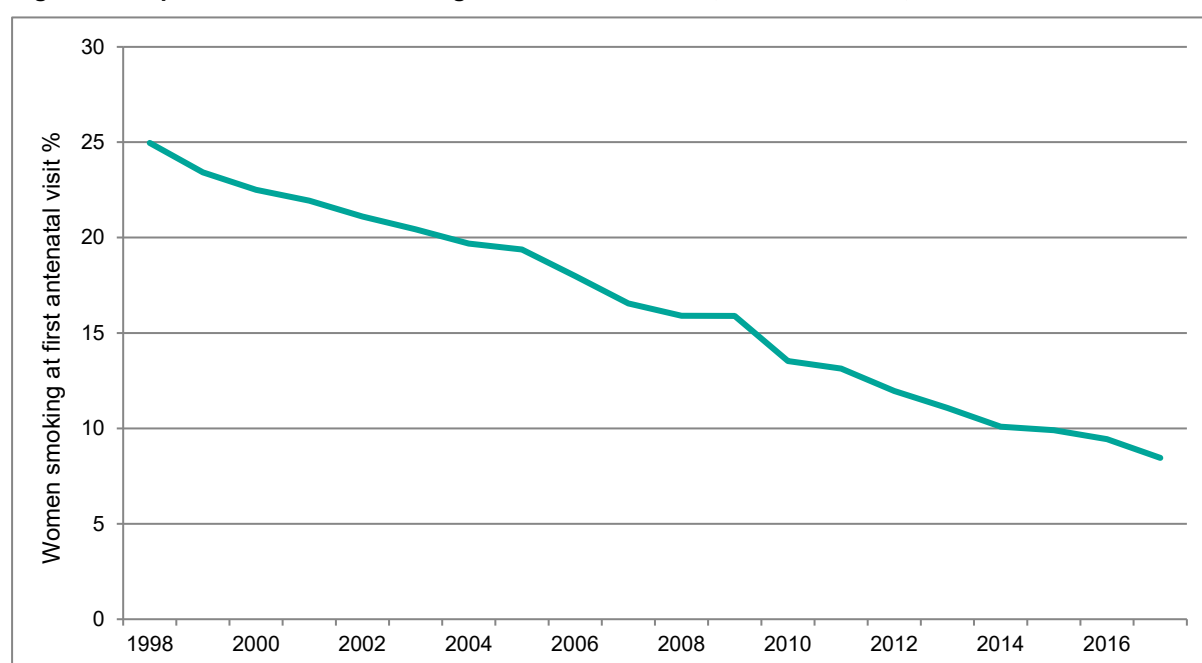
In the second half of pregnancy, 9.1% of women were reported to be smokers and 0.2% of those women smoked more than 20 cigarettes per day. *In the second half of pregnancy, 33.8% of Aboriginal women smoked, compared with 5.6% of non-Aboriginal women. A higher proportion of Aboriginal women (1.9% compared with 0.1%) smoked more than 20 cigarettes per day, although the numbers are small (Table 11). In 2017 the proportion of women who ceased smoking from the first to second half of their pregnancy was higher for Aboriginal women (7.7%) than non-Aboriginal women (1.5%).*

Table 11: Tobacco smoking status in second half of pregnancy by Aboriginal status, South Australia, 2017

Average number of tobacco cigarettes	Non-Aboriginal		Aboriginal		Total	
	Number	%	Number	%	Number	%
None	17,198	93.2	434	59	17,632	91.9
Occasional (<1)	24	0.1	3	0.4	27	0.1
1-20	994	5.4	232	32	1,226	6.4
≥21	26	0.1	14	1.9	40	0.2
Unknown number	217	1.2	53	7.2	270	1.4
Total	18,459	100.0	736	100.0	19,195	100.0

The proportion of women who reported smoking at the first antenatal visit has declined consistently since 1998 from 25.0% to its lowest in 2017 at 8.5% (Figure 2).

Figure 2: Proportion of women smoking at first antenatal visit, South Australia, 1998-2017



Pregnancy Profile

2.1 Parity and previous pregnancy outcomes

In 2017, 42.0% of women who gave birth had no previous births and 30.6% were pregnant for the first time. Among Aboriginal women, 32.0% who gave birth had no previous births, and 23.2% were pregnant for the first time (Table 12).

The proportion of women with a parity of 4 or greater was higher among Aboriginal women (13.9%) than among Caucasian women (2.6%) and Asian women (1.1%).

Table 12: Parity by ethnicity of women who gave birth, South Australia, 2017

Parity*	Ethnicity of women									
	Caucasian		Aboriginal		Asian		Other		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
0-primigravida	4,301	30.5	171	23.2	1,076	35.1	322	24.8	5,870	30.6
0-multigravida	1,640	11.6	65	8.8	356	11.6	119	9.2	2,180	11.4
1	5,002	35.5	184	25	1,239	40.4	416	32	6,841	35.6
2	2,092	14.8	142	19.3	302	9.9	220	16.9	2,756	14.4
3	704	5	72	9.8	60	2	87	6.7	923	4.8
4	219	1.6	47	6.4	25	0.8	45	3.5	336	1.8
≥5	136	1.0	55	7.5	8	0.3	90	6.9	289	1.5
Total	14,094	100	736	100	3,066	100	1,299	100	19,195	100

* Number of previous pregnancies reaching 20 weeks gestational age (including live birth and stillbirth)

Among women with previous pregnancies (multigravid women), the proportions who had previous specified adverse pregnancy outcomes are shown in Table 13. In total, 60.5% of the multigravidae women had experienced a previous adverse pregnancy outcome. Over a third of the women (36.5%) had a previous miscarriage and almost a fifth (19.7%) a termination of pregnancy.

Table 13: Previous adverse pregnancy outcomes, multigravid women, South Australia, 2017 (n= 13,325)

Previous adverse pregnancy outcome	Number	%
Miscarriage	4,862	36.5
Termination of pregnancy	2,623	19.7
Stillbirth	183	1.4
Neonatal death	72	0.5
Ectopic pregnancy	328	2.5

2.2 Antenatal visits

Women who gave birth are grouped in Table 14 according to their number of reported antenatal visits. However, for 5.5% of women (6.1% of Aboriginal women), the number of antenatal visits attended was not reported. *If women for whom the number of antenatal visits was not reported are excluded, 68.7% of Aboriginal women compared with 89.6% of Caucasian women attended at least seven antenatal visits during pregnancy.*

A low frequency of antenatal visits may be taken, particularly in term births, as an indication of inadequate antenatal care. Although the exact number of antenatal visits was reported for 18,144 (94.5%) women, 18,096 (99.7% out of 18,144) women report having attended at least one antenatal visit.

Table 14: Antenatal visits by ethnicity, women who gave birth, South Australia, 2017

Antenatal visits	Ethnicity of women									
	Caucasian		Aboriginal		Asian		Other		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
None	29	0.2	13	1.8	2	0.1	4	0.3	48	0.3
1-6	1,347	9.6	203	27.6	477	15.6	249	19.2	2,276	11.9
≥7	11,909	84.5	475	64.5	2,434	79.4	1,002	77.1	15,820	82.4
Unknown number of visits	809	5.7	45	6.1	153	5.0	44	3.4	1,051	5.5
Total	14,094	100.0	736	100.0	3,066	100.0	1,299	100.0	19,195	100.0

2.3 Gestation at first antenatal visit

Of the women for whom week of gestation at the first antenatal visit was reported, 83.4% attended antenatal care within the first 14 weeks of pregnancy. *Of the Aboriginal women for whom week of gestation at the first antenatal visit was reported, 63.3% attended antenatal care within the first 14 weeks of pregnancy (compared with 84.1% of non-Aboriginal women).* Gestation at the first antenatal visit was reported as unknown for 2.7% of all women (Table 15).

Table 15: Gestation at first antenatal visit, women who gave birth by Aboriginal status, South Australia, 2017

Gestation at first antenatal visit	Non-Aboriginal			Aboriginal			Total		
	Number	%	Adjusted % excluding unknown (n=18,408)	Number	%	Adjusted % excluding unknown (n=716)	Number	%	Adjusted % excluding unknown (n=19,124)
<14 weeks gestation	15,136	82.0	84.1	438	59.5	63.3	15,574	81.1	83.4
14 weeks or greater*	2,857	15.5	15.9	254	34.5	36.7	3,111	16.2	16.7
Unknown	466	2.5		44	6.0		510	2.7	
Total	18,459	100.0	100.0	736	100.0	100.0	19,195	100.0	100.0

* includes 58 women with no antenatal care

2.4 Type of antenatal care

Table 16 describes the main types of antenatal care used in South Australia. The most common types of antenatal care were specialist led public hospital clinics (40.3%), obstetricians in private practice (21.6%), general practitioners and public hospital shared care (12.7%, Table 17). There were 63 women (0.3%) who had no antenatal care.

Table 16: Type of antenatal care, women who gave birth, South Australia, 2017

Type of care*	Number	% of antenatal care
Public clinic (Specialist led)	8,497	40.3
Obstetrician +/- midwife in private practice	4,552	21.6
GP and public hospital (shared care)	2,673	12.7
Midwifery group practice at birth hospital	2,481	11.8
GP led	1,406	6.7
Birth Unit/Centre	1,036	4.9
Aboriginal Family Birthing Program (includes metropolitan and rural locations)	194	0.9
Eligible midwife in private practice	108	0.5
Other	87	0.4
No care	58	0.3
Not stated	1	0.0

* Individual women may have used more than one type of antenatal care

2.5 Medical conditions

Medical conditions were recorded in the current pregnancy for 10,608 women (55.3%). The frequencies of specified medical conditions are provided in Table 17. Multiple conditions can be reported for each pregnancy.

Table 17: Medical conditions in current pregnancy, women who gave birth, South Australia, 2017

	Medical condition	Number	% of women (n = 19,195)
1	None	8,587	44.7
2	Anaemia	3,471	18.1
3	Urinary tract infection	420	2.2
4	Hypertension (pre-existing)	221	1.2
5	Diabetes (pre-existing)	217	1.1
6	Epilepsy	130	0.7
7	Asthma	1,805	9.4
8	Other	7,823	40.8

2.6 Obstetric complications

Obstetric complications were recorded for 10,806 women who gave birth (56.3%). The reported frequencies of the most common complications are presented in Table 18. Multiple complications can be reported for each pregnancy.

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Table 18: Most common obstetric complications in current pregnancy, women who gave birth, South Australia, 2017

Obstetric complication	Number	% of women (n= 19,195)
No complication	10,806	56.3
Threatened miscarriage	174	0.9
Ante-partum haemorrhage (APH) - abruption	87	0.5
APH - placenta praevia	113	0.6
APH – other & unknown causes	490	2.6
Pregnancy hypertension	1,371	7.1
Intrauterine growth restriction (suspected)	1,010	5.3
Gestational diabetes	2,638	13.7
Other complications	4,825	25.1

2.7 Procedures performed in current pregnancy

Procedures performed in the current pregnancy that are collected on the Supplementary Birth Record are presented in Table 19. At least one ultrasound examination was performed for 99.4% of women in 2017. Amniocentesis was performed for 1.4%, and chorion villus sampling for 0.4% of women who gave birth. Multiple procedures can be reported for each pregnancy.

Table 19: Procedures performed in current pregnancy, women who gave birth, South Australia, 2017

Procedure	Number	% of women (n= 19,195)
First trimester anomaly screen (ultrasound & biochemical)	15,390	80.2
Second trimester anomaly screen (biochemical only)	2,754	14.4
Ultrasound dating scan	11,918	62.1
Ultrasound morphology scan	17,370	90.5
Other ultrasound scan	10,565	55.0
Amniocentesis	274	1.4
Chorion villus biopsy	84	0.4
Antenatal fetal blood sampling	18	0.1
Other surgical procedure	97	0.5

Labour

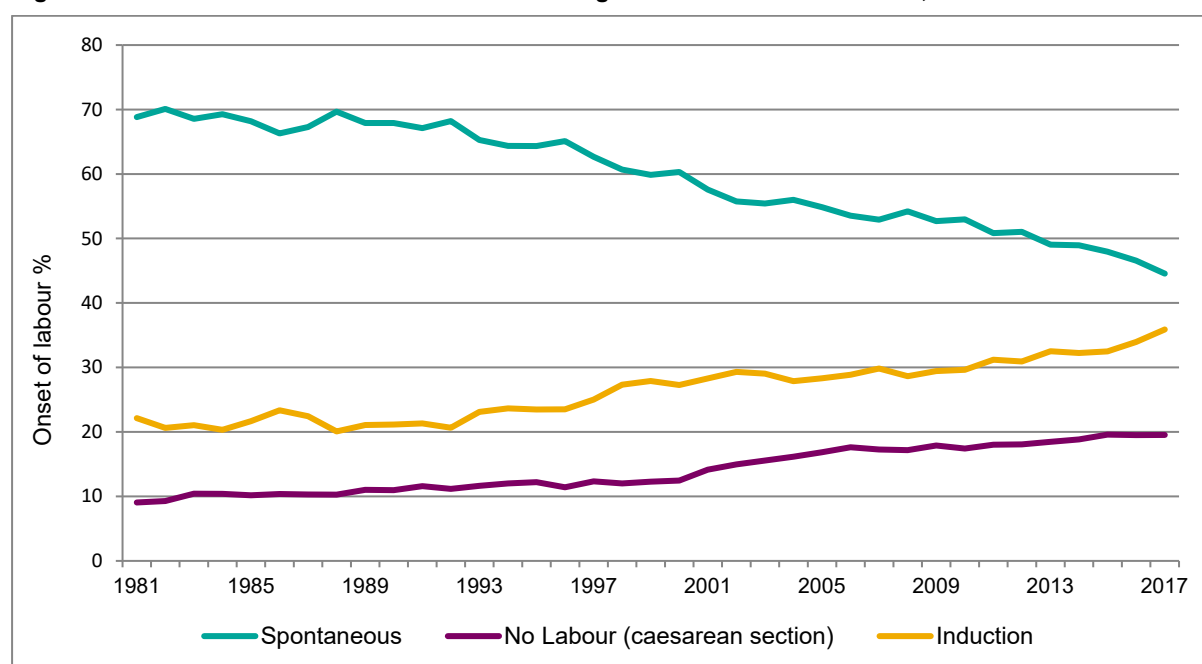
3.1 Onset of labour

Labour occurred spontaneously in 44.6% of women who gave birth in 2017 (Table 20), which has been decreasing over time since 1982 (Figure 3). Induction of labour has increased over this same time period from 20.6% in 1982 to 35.9% in 2017. The proportion of women with no labour due to caesarean sections has increased from 9.3% to 19.5%, over the same time period.

Table 20: Onset of labour, women who gave birth, South Australia, 2017

Onset of labour	Number	%
Spontaneous	8,557	44.6
No labour – caesarean section	3,749	19.5
Induction	6,889	35.9
Total	19,195	100.0

Figure 3: Trend for onset of labour for women who gave birth in South Australia, 1981-2017



3.2 Induction of labour

Labour was induced for 35.9% of women who gave birth in 2017. The methods of induction used were artificial rupture of membranes in 74.9% of inductions, oxytocics in 61.0%, prostaglandins in 46.1% and other methods (for example Cook's Catheter) in 13.0% of inductions (Table 21). Up to four methods of induction can be reported on the Supplementary Birth Record. Multiple methods can be reported for each pregnancy, and in many cases more than one method was used.

Table 21: Method of induction of labour, women who gave birth, South Australia, 2017

Method of induction	Number	% of women (n =19,195)	% of inductions (n =6,889)
Any induction	6,889	35.9	
Artificial rupture of membranes	5,159	26.9	74.9
Oxytocics	4,203	21.9	61.0
Prostaglandins	3,176	16.6	46.1
Other	897	4.7	13.0

The most common reasons for induction are presented in Table 22. Multiple reasons can be reported for each pregnancy. In 2017, 15.9% of women were induced for diabetes (including diabetes mellitus, gestational diabetes, 11.7% for hypertension, 11.5% for prolonged pregnancy (41 or more completed weeks), and 8.2% for premature or prolonged rupture of membranes.

Table 22: Reasons for induction of labour, South Australia, 2017 (n=6,889)

Reason for induction	Number	% of women (n=6,889)
Other	3,476	50.5
Diabetes*	1,096	15.9
Hypertension	809	11.7
Prolonged pregnancy	795	11.5
Premature or prolonged rupture of membranes	567	8.2
IUGR	551	8.0
Large for dates	97	1.4
Maternal choice	92	1.3
Other obstetric or medical condition	86	1.3
Fetal death	42	0.6

*includes diabetes mellitus and gestational diabetes

3.3 Augmentation of labour

The proportion of women giving birth who had labour augmented after spontaneous labour onset was 16.7% (Table 23). Of the 8,557 women who went into spontaneous labour, augmentation was used for 3,202 (37.4%). Methods used in augmentation were artificial rupture of membranes (75.0%), oxytocics (41.2%) and prostaglandins (0.7%). Up to three methods of augmentation can be reported on the Supplementary Birth Record. In some cases more than one method was used.

Table 23: Augmentation after spontaneous labour onset, women who gave birth, South Australia, 2017

Method of augmentation	Number	% of women (n=8,557)	% of augmentations (n=3,202)
Any augmentation	3,202	16.7	
Artificial rupture of membranes	2,400	12.5	75.0
Oxytocics	1,318	6.9	41.2
Prostaglandins	23	0.1	0.7
Other	3	0.0	0.1

3.4 Method of birth and fetal presentation

Of the women who gave birth, 53.2% had normal spontaneous vaginal births (Table 24). Caesarean section was performed for 34.9% of women, with 16.8% of women having elective section. Forceps and ventouse were used for 5.9% and 5.7% of births, respectively. The method of birth reported for women who had multiple births is that of the first birth.

Table 24: Method of birth, women who gave birth, South Australia, 2017

Method of birth	Number	% of women
Normal spontaneous	10,205	53.2
Caesarean (emergency)	3,465	18.1
Caesarean (elective)	3,223	16.8
Forceps (vaginal)	1,140	5.9
Ventouse	1,089	5.7
Breech spontaneous	48	0.3
Assisted Breech (no forceps)	22	0.1
Breech (with forceps for head)	2	0.0
Breech extraction	1	0.0
Total	19,195	100.0

* Birth method is for the singleton infant or first infant of a multiple birth

Fetal presentation is presented in Table 25, and the method of birth by presentation is provided in Table 26. Caesarean section was the method of birth for 88.6% of breech presentations (Table 27).

Table 25: Fetal presentation, all births, South Australia, 2017

Fetal presentation	Number	% of births
Vertex	18,414	94.5
Breech	852	4.4
Face	26	0.1
Brow	22	0.1
Other	159	0.8
Unknown	12	0.1
Total	19,485	100.0

Table 26: Method of birth by fetal presentation, all births, South Australia 2017

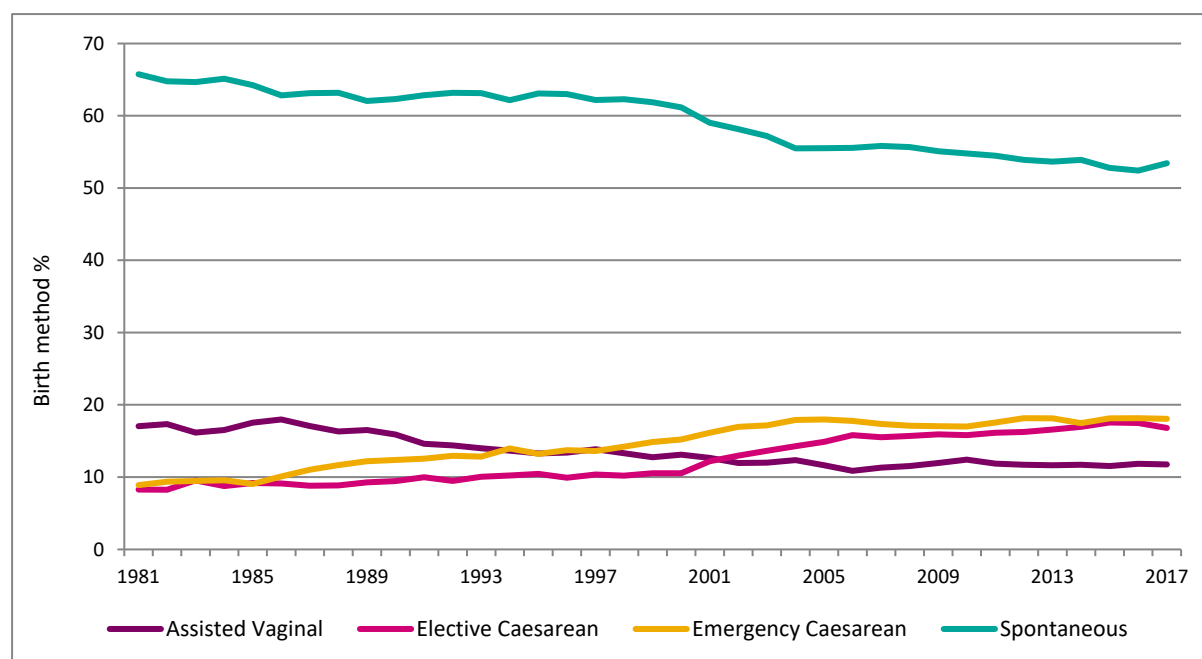
Method of birth	Fetal presentation								Total	
	Vertex		Breech		Other		Unknown			
	Number	%	Number	%	Number	%	Number	%	Number	%
Normal spontaneous	10,192	55.35	0	0.0	55	26.6	6	50.0	10,253	52.6
Forceps	1,136	6.2	0	0.0	15	7.3	0	0.0	1,151	5.9
Assisted breech (no forceps)	0	0.0	25	2.9	1	0.5	0	0.0	26	0.1
Elective caesarean	2,824	15.3	451	52.9	24	11.6	3	25.0	3,302	17.0
Emergency caesarean	3,174	17.2	304	35.7	109	52.7	3	25.0	3,590	18.4
Ventouse	1,088	5.9	0	0.0	3	1.5	0	0.0	1,091	5.6
Breech extraction	0	0.0	12	1.4	0	0.0	0	0.0	12	0.1
Breech spontaneous	0	0.0	56	6.6	0	0.0	0	0.0	56	0.3
Assisted breech (forceps)	0	0.0	4	0.5	0	0.0	0	0.0	4	0.0
Total	18,414	100.0	852	100.0	207	100.0	12	100.0	19,485	100.0

Table 27: Method of birth by plurality, breech births, South Australia, 2017

Method of birth	Plurality							
	Singleton		Twins		Triplets		Total	
	Number	%	Number	%	Number	%	Number	%
Assisted breech (no forceps)	21	3.0	4	2.7	0	0.0	25	2.9
LSCS (elective)	394	56.1	57	39.0	0	0.0	451	52.9
LSCS (emergency)	238	33.9	63	43.2	3	100.0	304	35.7
Breech extraction	1	0.1	11	7.5	0	0.0	12	1.4
Breech spontaneous	47	6.7	9	6.2	0	0.0	56	6.6
Assisted breech (forceps)	2	0.3	2	1.4	0	0.0	4	0.5
Total	703	100.0	146	100.0	3	100.0	852	100.0

Figure 4 shows the trend in methods of birth in South Australia over time. The proportion of elective caesarean sections has been over 15% of all births since 2006. In the past 3 years both elective and emergency caesarean sections have plateaued at 16.8% and 18.1% of all births, respectively.

Figure 4: Method of birth for all births in South Australia, 1981-2017



3.5 Analgesia for labour and anaesthesia for birth

Analgesia for labour was used by 62.8% of women who gave birth in South Australia in 2017. The most commonly used methods for analgesia were nitrous oxide and oxygen (40.2%), epidurals (31.1%) and narcotics (13.8%, Table 28). Anaesthesia for birth was used by 62% of women who gave birth in South Australia in 2017. The most common methods were epidurals (28.2%), spinal anaesthetic (25.6%) and local anaesthesia (6.2%, Table 29). The proportion of women who had an epidural for either analgesia or anaesthesia was 33.7% (6,468 women). General anaesthesia was used for 2.2% of births, and 6% of all caesarean sections. Multiple methods for analgesia and anaesthesia can be reported for each pregnancy.

Table 28: Analgesia for labour, women who gave birth, South Australia, 2017

Analgesia	Number	% of women (n=19,195)
None	7,140	37.2
Nitrous oxide and oxygen	8,099	40.2
Epidural (lumbar/caudal)	6,286	31.1
Narcotic (parenteral)	2,671	13.8
Other	514	2.9
Spinal	111	1.0
Combined spinal-epidural	15	0.1

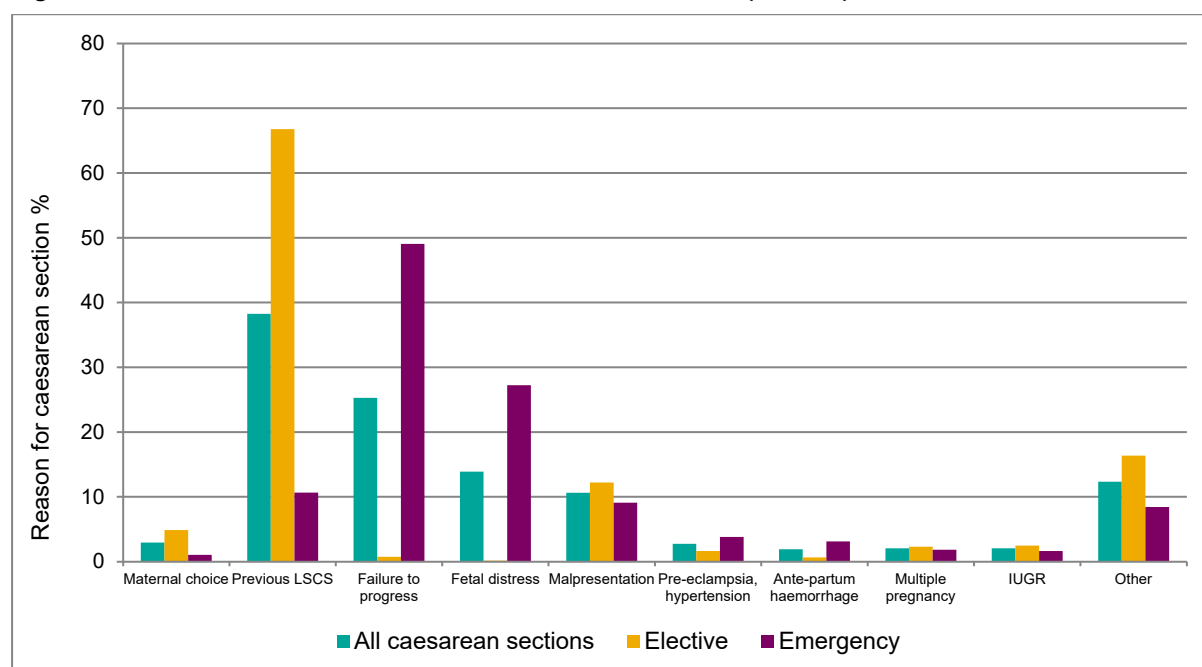
Table 29: Anaesthesia for birth, women who gave birth, South Australia, 2017

Anaesthesia	Number	% of women (n=19,195)
None	7,346	38.3
Epidural (lumbar/caudal)	5,419	28.2
Spinal	4,904	25.6
Local anaesthesia	1,183	6.2
General anaesthesia	418	2.2
Pudendal	149	0.8
Combined spinal-epidural	107	0.6
Other	54	0.3

3.6 Reason for caesarean section

Multiple reasons for caesarean section can be recorded on the Supplementary Birth Record. In 2017 the most common reasons for caesarean section were previous caesarean section (39.1%), failure to progress or cephalopelvic disproportion (25.1%), fetal compromise (15.3%) and malpresentation (10.3%, Figure 5). Maternal choice accounted for 1.3% of all caesarean sections (a reduction from 2016 (2.9%).

The main reasons for elective caesarean sections were previous caesarean section (66.8%), malpresentation (12.1%) and hypertensive disease (5.6%). The main reasons given for emergency caesarean sections were fetal distress (29.3%), Failure to progress (14.2%) and previous caesarean section (13.3%).

Figure 5: Reason for caesarean section in South Australia, 2017 (n=6,688)

3.7 Caesarean section by maternity service

Just over a third of all women in South Australia gave birth by caesarean section in 2017 (35.0%, Table 30). The proportion of emergency caesarean section births were similar across all levels of maternity services ranging from 16.6% to 20.3%. However, the metropolitan private hospitals had much higher proportion of elective caesarean section births (26.8%) compared to the other maternity services, leading to a higher overall proportion of caesarean births at metropolitan private hospitals (47.1%).

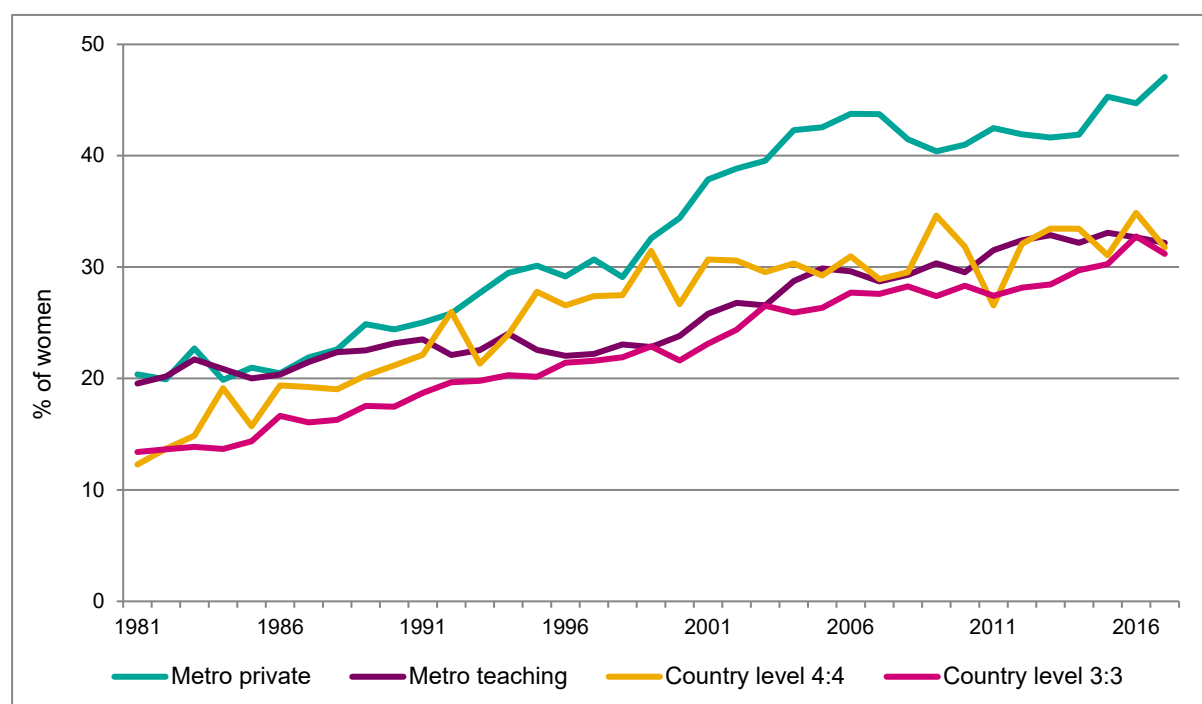
Table 30: Caesarean section by maternity service* in South Australia, 2017

Maternity Service	Total women	Elective caesarean		Emergency caesarean		Elective & emergency caesarean	
	Number	Number	%	Number	%	Number	%
Metro teaching hospitals	11,741	1,721	14.7	2057	17.5	3778	32.2
Metro private hospitals	3,812	1,020	26.8	774	20.3	1794	47.1
Country hospitals level 4:4	803	122	15.2	133	16.6	255	31.8
Country hospitals level 3:3	2,761	360	13.0	501	18.2	861	31.2
Total	19,117	3,223	16.9	3465	18.1	6688	35.0

* Excludes home births (n=78)

The proportion of women having a caesarean section has been increasing since the early 1980s, across all maternity services. The largest increase is within metropolitan private hospitals (20.3% in 1981 to 47.1% of women in 2017, Figure 6). The proportion of women having a caesarean section at metropolitan teaching hospitals and both country hospital service categories has also increased over time, but remain lower than the proportion of women at metropolitan private hospitals.

Figure 6: Caesarean section by maternity service in South Australia, 1981-2017



3.8 Complications of labour and birth

Complications of labour or birth were recorded for 9,032 women who gave birth (53.0%). Multiple complications can be recorded. The most common complications are presented in Table 31. The main complications of labour and birth were primary post-partum haemorrhage (PPH, 18.8%), fetal distress (13.6%) and failure to progress (11.8%).

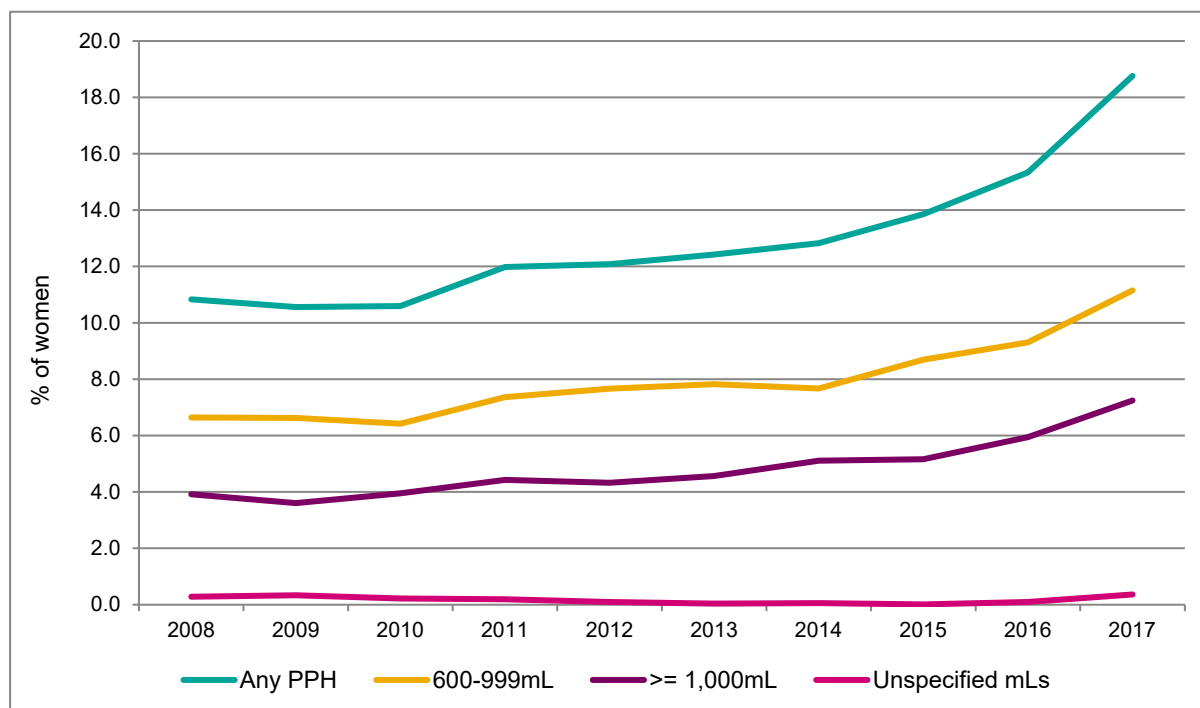
Table 31: Most common complications of labour and birth, women who gave birth, South Australia, 2017

Complication	Number of women	% of women (n=19,195)
None	10,163	53.0
Primary post-partum haemorrhage		
600-999ml	2,141	11.2
1,000 ml or more	1,391	7.2
>600ml but unspecified mls	70	0.4
Fetal distress	2,619	13.6
Retained placenta	312	1.6
Prolonged labour	154	0.8
Cord prolapse	32	0.2
Wound infection	46	0.2
Failure to progress	2,262	11.8
Third degree tear or fourth degree tear	389	2.0
Other	4,948	25.8

3.9 Primary post-partum haemorrhage (PPH)

Primary PPH is reported if the blood loss within 24 hours of birth was at least 600 mls. In 2017 the proportion of women with a PPH of 600mls or more was 18.8% (Table 31) compared to 15.3% in 2016. The proportion of women who had a PPH has increased from 10.8% in 2008 to 18.8% in 2017. Data are presented below in Figure 7 from 2008 onwards, when more precise data began being collected on PPH volume.

Figure 7: Primary post-partum haemorrhage for women who gave birth in South Australia, 2008-2017



3.10 Perineal status after birth

Of the 19,195 women who gave birth, episiotomy was performed for 2,997 women (15.6% of all women and 24.0% of women who gave birth vaginally, Table 32). Among the 12,507 women who gave birth vaginally 23.4% had an intact perineum after birth, 54.5% had a first or second degree tear, and 3.5% of women had a third or a fourth degree tear. Forceps births had the highest proportion of third and fourth degree tears (12.0%). Among women who had an episiotomy, 22.2% (n=665) had a tear that extended the episiotomy. In total, 5,425 women (43.4% of vaginal births and 74.7% of births with a tear) had a repair of a perineal tear.

Table 32: Method of birth* and perineal status for women gave birth vaginally in South Australia, 2017

Method of birth*	Total Births	Perineal status							
		Intact		1-2 degree tear†		3-4 degree tear†		Episiotomy	
		Number	% of method	Number	% of method	Number	% of method	Number	% of method
Spontaneous	10,205	2,757	27.0	6,066	59.4	241	2.4	1,380	13.5
Ventouse	1,089	94	8.6	457	42.0	55	5.1	599	55.0
Forceps	1,142	25	2.2	281	24.6	137	12.0	1,008	88.3
Breech	71	49	69.0	13	18.3	0	0.0	10	14.1
Total	12,507	2,926	23.4	6,817	54.5	433	3.5	2,997	24.0

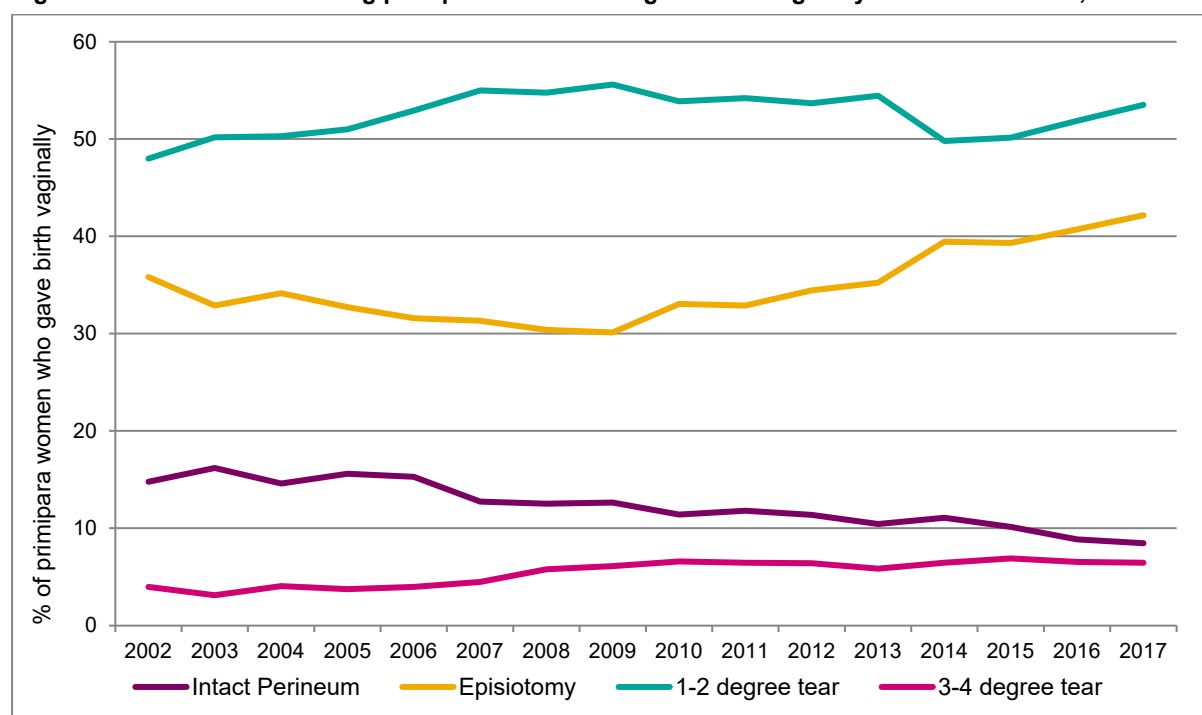
* Birth method is for the singleton infant or first infant of a multiple birth. Forceps includes cases of assisted breech with forceps for head (n=2).

† Including cases with extended tear after episiotomy

The trend in perineal status among primipara women who gave birth vaginally are shown in Figure 8. The proportion of primipara women who gave birth vaginally and had an episiotomy had been decreasing over time, to a low of 30.1% in 2009. Since 2009 this proportion has been increasing, and

in 2017 was 42.2%. The proportion of women with third or fourth degree tears has increased gradually from 4.0% in 2002 to 6.5% in 2017, but has remained relatively stable since 2010.

Figure 8: Perineal status among primipara women who gave birth vaginally in South Australia, 2002-2017



3.11 Fetal monitoring during labour

Cardiotocography (CTG) was performed during labour for 64.8% of women who gave birth. The majority of these were external CTGs (47.1%) while a scalp clip was used for 17.7% of women who gave birth (Table 33). A fetal scalp pH was taken during labour in 143 women who gave birth (0.7%, Table 34).

Table 33: Cardiotocography performed during labour, women who gave birth, South Australia, 2017

CTG during labour	Number of women	% of women (n=19,195)
None	6,750	35.2
External	9,047	47.1
Scalp clip	3,398	17.7
Total	19,195	100.0

Table 34: Fetal scalp pH taken during labour, women who gave birth, South Australia, 2017

Fetal scalp pH taken	Number of women	% of women (n=19,195)
No	19,052	99.3
Yes	143	0.7
Total	19,195	100.0

3.12 Postnatal length of stay

The distribution of length of stay for women who gave birth in hospitals are presented in Table 35 for public and private patients. The median duration for all women was three days (interquartile range (IQR, 2-4 days). Homebirths have been excluded from postnatal length of stay statistics (Table 36).

Table 35: Postnatal length of stay by patient type, women who gave birth in South Australian hospitals*, 2017

Length of stay (days)	Public		Private		Total	
	Number	%	Number	%	Number	%
<1	680	4.7	12	0.3	692	3.6
1	3,145	21.7	77	1.7	3,222	16.9
2	4,100	28.2	194	4.2	4,294	22.5
3	3,123	21.5	461	10.0	3,584	18.8
4	1,727	11.9	1,327	28.9	3,054	16.0
5	807	5.6	1,658	36.1	2,465	12.9
6	384	2.6	566	12.3	950	5.0
7 or more	553	3.8	303	6.6	856	4.5
Total	14,519	100.0	4,598	100.0	19,117	100.0

* Excludes homebirths (n=78)

The median length of stay for all hospital births was two days for vaginal births, and four days for caesarean section (Table 36). Among private patients, the median length of stay was two days longer for vaginal births and one day longer for caesarean births.

Table 36: Postnatal length of stay by patient and birth type, women who gave birth in South Australian hospitals*, 2017

Length of stay (days)	Public			Private			Total		
	Vaginal	Caesarean	Total	Vaginal	Caesarean	Total	Vaginal	Caesarean	Total
Number of women	9,936	4,583	14,519	2,493	2,105	4,598	12,429	6,688	19,117
Mean	2.2	4.0	2.8	4.2	5.4	4.8	2.6	4.4	3.3
Standard deviation	1.9	4.2	2.9	1.7	3.5	2.7	2.0	4.0	3.0
Median	2.0	3.0	2.0	4.0	5.0	5.0	2.0	4.0	3.0
IQR	1-3	2-4	1-3	4-5	5-6	4-5	1-4	3-5	2-4

* Excludes homebirths (n=78)

Babies

4.1 Crude birth rate

In 2017 there were 19,485 births in South Australia, 584 fewer births than in 2016. Of the births in 2017, 99.3% were live births and 0.7% were stillbirths (Table 37). The crude birth rate has generally been declining since the early 1980s to a low of 11.4 per 1000 population in 2004. The crude birth rate increased slightly between 2005 to 2008, and has been declining since to the rate of 11.2 per 1,000 population in 2017.

Table 37: Crude birth rate for infants born in South Australia, 2008-2017

Year	Live Birth		Stillbirth		Total		Total Population†	Crude Birth Rate‡
	Number	%	Number	%	Number	%		
1981	18,905	99.23	147	0.77	19052.0	100	1,318,769	14.3
1982	19,004	99.35	124	0.65	19128.0	100	1,331,108	14.3
1983	19,652	99.26	146	0.74	19798.0	100	1,345,775	14.6
1984	20,140	99.33	135	0.67	20275.0	100	1,360,048	14.8
1985	19,656	99.14	171	0.86	19827.0	100	1,371,197	14.3
1986	19,650	99.25	149	0.75	19799.0	100	1,382,550	14.2
1987	19,272	99.37	123	0.63	19395.0	100	1,392,764	13.8
1988	19,400	99.33	131	0.67	19531.0	100	1,404,909	13.8
1989	19,653	99.14	170	0.86	19823.0	100	1,419,029	13.8
1990	19,855	99.33	133	0.67	19988.0	100	1,432,056	13.9
1991	19,622	99.36	127	0.64	19749.0	100	1,446,299	13.6
1992	20,004	99.27	148	0.73	20152.0	100	1,455,442	13.7
1993	19,844	99.38	123	0.62	19967.0	100	1,458,632	13.6
1994	19,673	99.35	128	0.65	19801.0	100	1,463,089	13.4
1995	19,472	99.25	148	0.75	19620.0	100	1,465,340	13.3
1996	18,979	99.31	132	0.69	19111.0	100	1,469,079	12.9
1997	18,535	99.26	139	0.74	18674.0	100	1,475,658	12.6
1998	18,613	99.35	121	0.65	18734.0	100	1,483,270	12.5
1999	18,403	99.38	115	0.62	18518.0	100	1,490,934	12.3
2000	17,766	99.41	106	0.59	17872.0	100	1,497,503	11.9
2001	17,584	99.32	120	0.68	17704.0	100	1,503,461	11.7
2002	17,623	99.31	122	0.69	17745.0	100	1,511,567	11.7
2003	17,707	99.25	134	0.75	17841.0	100	1,520,399	11.6
2004	17,408	99.36	113	0.64	17521.0	100	1,528,189	11.4
2005	18,067	99.29	129	0.71	18196.0	100	1,538,804	11.7
2006	18,660	99.26	140	0.74	18800.0	100	1,552,529	12.0
2007	19,623	99.33	140	0.67	18800.0	100	1,570,619	12.5
2008	19,819	99.24	151	0.76	19970.0	100	1,588,665	12.5
2009	19,761	99.3	140	0.7	19901.0	100	1,608,902	12.3
2010	19,883	99.41	119	0.59	20002.0	100	1,627,322	12.2
2011	20,194	99.26	150	0.74	20344.0	100	1,639,614	12.3
2012	20,527	99.33	138	0.67	20665.0	100	1,656,035	12.4
2013	20,124	99.32	138	0.68	20262.0	100	1,670,689	12.0
2014	20,604	99.3	145	0.7	20749.0	100	1,685,550	12.2
2015	20,001	99.24	153	0.76	20154.0	100	1,698,921	11.8
2016	19,933	99.32	136	0.68	20069.0	100	1,708,183	11.7
2017	19,356	99.34	129	0.66	19485.0	100	1,723,671	11.2

† ABS Estimated Resident Populations (ERP) for South Australia

‡ Crude birth rate per 1,000 population

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4.2 Place of birth

Of the 19,485 births notified in 2017, 78 (0.5%) were home births and of those, 74 were planned homebirths. The remaining 19,407 births occurred in hospitals, including 114 births born before arrival at hospitals into which the women had been booked. The 'Born Before Arrival' births have been included in the statistics for the booked birthing hospital. The distribution of all births by place of birth (home or hospital) and plurality is provided in Table 38.

Table 38: Total births notified by place of birth and plurality, South Australia, 2017

Condition at birth	Home births		Hospital births			Total births
	Singleton	Twin	Singleton	Twin	Triplet	
Live birth	77	0	19,241	582	12	19,356
Stillbirth	1	0	128	8	0	129
Total births	78	0	19,369	590	12	19,485

4.3 Place of birth by ethnicity of mother

Of all births, 61.4% occurred in metropolitan teaching hospitals, 19.9% in metropolitan private hospitals and 18.3% in country hospitals (Table 39). In 2017 there were 78 homebirths accounting for 0.4% of all births in South Australia. *Aboriginal women had the highest percentage of births in country hospitals (36.5%), and Caucasian women had the highest percentage of homebirths (0.5%).*

Table 39: Place of birth by ethnicity of mother who gave birth, South Australia, 2017

Place of birth	Ethnicity of mother									
	Caucasian		Aboriginal		Asian		Other		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
Metropolitan teaching hospital	7,806	54.5	462	61.8	2,537	81.8	1,159	88.6	11,964	61.4
Metropolitan private hospital	3,388	23.7	10	1.3	410	13.2	61	4.7	3,869	19.9
Country hospital	3,060	21.4	273	36.5	155	5.0	86	6.6	3,574	18.3
Home	72	0.5	3	0.4	1	0.0	2	0.2	78	0.4
Total	14,326	100.0	748	100.0	3,103	100.0	1,308	100.0	19,485	100.0

4.4 Hospital birth by perinatal service

Among the 19,407 hospital births in South Australia in 2017, 61.6% occurred in metropolitan teaching hospitals, 19.9% in metropolitan private hospitals and 18.3% in country hospitals (Table 40).

Table 40: Hospital births by perinatal service delineation, South Australia, 2017

Hospital category	Number of births	Percent of hospital births
Metropolitan teaching	11,964	61.4
Women's & Children's Hospital (WCH)	4,831	24.9
Lyell McEwin Hospital (LMH)	3,732	19.2
Flinders Medical Centre (FMC)	3,401	17.5
Other		
Metropolitan private	3,869	19.9
Country	3,574	18.4
Level 4:4	810	4.2
Level 3:3 ≥ 100 births	2,214	11.4
Level 3:3 < 100 births	550	2.8
Total	19,407	100.0

The numbers of births in individual hospitals by ethnicity of women are detailed in Table 41. Maternity and neonatal services at SA hospitals are delineated according to six levels of service, as defined in the Standards for Maternal and Neonatal Services in South Australia policy document⁴. In 2017, the Women's and Children's Hospital was defined as providing Level 5 maternity services and Level 6 neonatal services, as it provided a high risk pregnancy service and neonatal intensive care, but had no maternity intensive care facility on site. In 2017, the Lyell McEwin Hospital provided Level 6 maternity services and Level 5 neonatal services with maternity intensive care services and special care neonatal services. In 2017 the Flinders Medical Centre provided Level 6 maternity and neonatal services with both maternity and neonatal intensive care services. All the metropolitan private maternity hospitals had special care nurseries, as did Mount Gambier and Port Augusta hospitals.

Compared with 2016, the total number of births increased at the Women's and Children's Hospital and decreased at the remaining two metropolitan teaching hospitals – Lyell McEwin Hospital and Flinders Medical Centre (Table 40). The total number of births in metropolitan private hospitals decreased. The total number of births in country hospitals decreased slightly (3,684 in 2016).

Table 41 describes hospital births in 2017 by perinatal service delineation in detail, and ethnicity.

Table 41: Hospital births by perinatal service delineation and ethnicity, South Australia, 2017

Hospital	Caucasian	Aboriginal	Asian	Other	Total births	Total women
Metropolitan teaching						
Women's & Children's Hospital	2717	204	1462	448	4831	4,709
Lyell McEwin Hospital	2439	157	660	476	3732	3,689
Flinders Medical Centre	2650	101	415	235	3401	3,343
Total	7,806	462	2,537	1,159	11,964	11,741
Metropolitan private						
Ashford Hospital	1,125	6	158	20	1,309	1,286
Burnside War Memorial Hospital	818	1	110	13	942	929
Calvary Healthcare Adelaide	631	1	72	6	710	700
North Eastern Community Hospital	477	1	40	16	534	529
Flinders Private Hospital	337	1	30	6	374	368
Total	3,388	10	410	61	3,869	3,812
Country						
Level 4:4* Country						
Mount Gambier & District Health Service	444	16	18	18	496	492
Port Augusta Hospital & Reg Health Service	191	108	6	9	314	311
Subtotal	635	124	24	27	810	803
Level 3:3* Country ≥100 births per annum						
Gawler Health Service‡	468	18	20	4	510	510
Mount Barker District Soldiers' Memorial Hosp	462	8	19	5	494	494
Port Lincoln Health Service	249	23	11	7	290	290
Murray Bridge Soldiers' Memorial Hospital	150	17	30	12	209	209
Whyalla Hospital & Health Services	142	24	11	4	181	179
Naracoorte Health Service	122	4	5	8	139	139
Riverland General Hospital(Berri)	113	12	9	4	138	138
Northern Yorke Peninsula Reg Health Service	121	8	3	2	134	134
Port Pirie Regional Health Service	102	11	3	3	119	118
Subtotal	1,929	125	111	49	2,214	2,211
Level 3:3* Country <100 births per annum						
South Coast District Hospital (Victor Harbor)	89	3	2	2	96	96
Loxton Hospital	66	3	2	1	72	72
Barossa Health (Tanunda Centre)	63	1	4	2	70	70
Lower North Health Centre (Clare)	68	1	0	1	70	70
Sthn Flinders Health Service (Crystal Brook)	47	2	0	2	51	51
Kapunda Hospital	41	0	2	0	43	43
Kangaroo Island Health Service	36	0	6	0	42	42
Mid North Health (Jamestown)	36	3	0	1	40	40
Waikerie Health Service	24	2	4	1	31	31
Ceduna Hospital	22	8	0	0	30	30
Southern Yorke Peninsula Health Service	2	0	0	0	2	2
Kingston Sold Mem	1	0	0	0	1	1
Tumby Bay	1	0	0	0	1	1
Ernabella Clinic	0	1	0	0	1	1
Subtotal	496	24	20	10	550	550
Total (Country)	3,060	273	155	86	3,574	3,564
Grand total	14,254	745	3,102	1,306	19,407	19,117

* Perinatal service delineation – see text for further information

‡ This is a metropolitan hospital situated at the metropolitan/country boundary; it has the characteristics of a country hospital and has been included as such.

4.5 Home birth

Supplementary Birth Records were received from home birth midwives regarding planned home births for 74 women which occurred at home in 2017. One woman received no antenatal care. There were 4 unplanned home births. The unplanned births have been excluded from the planned home birth statistics below.

Ascertainment of planned home births occurring at home in South Australia for the year 2017 is estimated to be 75.7% (78 out of an estimated 103 home births). This estimate has been derived from a comparison of information supplied via the Supplementary Birth Record, with data from the Births, Deaths and Marriages Registration Division on births registered. This compares home births that did not occur in hospital (and were not babies born before arrival at the hospital into which the woman had been booked). This proportion has increased from last year (73.6%).

In addition, 24 women (24 births) who planned to birth at home were transferred to hospital care before birth. Statistics for all 98 planned home births (98 women) in 2017 are provided in Table 42 – Table 45. The age profile of women who planned a home birth in 2017 was similar to all births, with most women in the 30-34 year age category. Of the 74 babies that were birthed at home, all (100.0%) were normal spontaneous vaginal deliveries.

Table 42: Age of women in planned home births, South Australia, 2017

Age	Birthed at home		Birthed in hospital		Total	
	Number of women	%	Number of women	%	Number of women	%
<20	-	-	-	-	-	-
20-24	4	5.4	4	16.7	8	8.2
25-29	17	23.0	7	29.2	24	24.5
30-34	26	35.1	8	33.3	34	34.7
35-39	26	35.1	4	16.7	30	30.6
40-44	1	1.4	1	4.2	2	2.0
Total	74	100.0	24	100.0	98	100.0

Table 43: Method of birth in planned home births, South Australia, 2017

Method of birth	Birthed at home		Birthed in hospital		Total	
	Number of births	%	Number of births	%	Number of births	%
Normal spontaneous vaginal	74	100.0	10	41.7	84	85.7
Forceps	0	0.0	3	12.5	3	3.1
Caesarean (elective)	0	0.0	1	4.2	1	1.0
Caesarean (emergency)	0	0.0	8	33.3	8	8.2
Ventouse	0	0.0	2	8.3	2	2.0
Total	74	100.0	24	100.0	98	100.0

Table 44: Birthweight of planned home births, South Australia, 2017

Birthweight (g)	Birthed at home		Birthed in hospital		Total	
	Number of births	%	Number of births	%	Number of births	%
1,500-1,999	-	-	-	-	-	-
2,000-2,499	-	-	-	-	-	-
2,500-2,999	5	6.8	2	8.3	7	7.1
3,000-3,499	31	41.9	10	41.7	41	41.8
3,500-3,999	28	37.8	9	37.5	37	37.8
4,000-4,499	7	9.5	2	8.3	9	9.2
4,500+	3	4.1	1	4.2	4	4.1
Total	74	100.0	24	100.0	98	100.0

Table 45: Perinatal outcome in planned home births, South Australia, 2017

Perinatal outcome	Birthed at home		Birthed in hospital		Total	
	Number of births	%	Number of births	%	Number of births	%
Stillbirth	-	-	-	-	-	-
Discharged within 28 days	74	100.0	24	100.0	98	100.0
In hospital at 28 days	-	-	-	-	-	-
Neonatal death	-	-	-	-	-	-
Total	74	100	24	100.0	98	100.0

4.6 Sex

Of all infants born, 51.7% were male with a male-female birth ratio of 1.07, which is the same as 2016. There were 653 more male infants born than female (Table 46). The outcome of male and female babies were similar as shown in Table 47.

Table 46: Sex of baby, all births, South Australia, 2017

Sex of baby	Number	%
Male	10,069	51.7
Female	9,416	48.3
Total	19,485	100.0

Table 47: Sex of baby by birth status, South Australia, 2017

Birth status	Sex of baby					
	Male		Female		Total	
	Number	%	Number	%	Number	%
Stillbirth	72	0.7	57	0.6	129	0.7
Live birth	9,997	99.3	9,359	99.4	19,356	99.3
Total	10,069	100.0	9,416	100.0	19,485	100.0

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4.7 Plurality

In 2017, there were 18,908 singleton infants born in South Australia, 97.0% of the total infants born. The total number of multiple births was 577 (3.0% of total births) with 568 twin infants (2.9%) and 9 triplets (0.1%). *The proportion of multiple infants born to Aboriginal women was 3.2%, slightly higher than the proportion for non-Aboriginal women (2.9%, Table 48).*

Among women who gave birth there were 284 twin and 3 triplet pregnancies in 2017. Thus there was one twin pregnancy in every 67 pregnancies, one triplet pregnancy in every 6,398 pregnancies among women who gave birth. Women who gave birth with twins and triplets comprised 1.5% of all women who gave birth.

Table 48: Plurality of birth by maternal Aboriginal status for infants born in South Australia, 2017

Plurality	Maternal Aboriginal status					
	Non-Aboriginal		Aboriginal		Total	
	Number	%	Number	%	Number	%
Singleton	18,184	97.1	724	96.8	18,908	97.0
Twin	544	2.9	24	3.2	568	2.9
Triplet	9	0.1	0	0.0	9	0.1
Total	18,737	100.0	748	100.0	19,485	100.0

4.8 Gestational age

Gestational age is the duration of pregnancy in completed weeks. In 2017, the average gestational age for all babies was 38.5 weeks (SD 2.3 weeks), with the majority of infants (90.2%) born at term (37-41 weeks, Table 49). *Preterm birth occurred for 9.6% of all infants born, and this proportion was higher for infants of Aboriginal women (19.1%).*

Table 49: Gestation at birth by ethnicity of women, South Australia, 2017

Gestation at birth (weeks)	Ethnicity of women									
	Caucasian		Aboriginal		Asian		Other		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
Preterm births (20-36)	1,373	9.6	143	19.1	272	8.8	79	6.0	1,866	9.6
Term births (37-41)	12,920	90.2	604	80.8	2,830	91.2	1,222	93.4	17,577	90.2
Post-term births (42+)	32	0.2	1	0.1	1	0.0	7	0.5	41	0.2
Unknown	1	0.0	0	0.0	0	0.0	0	0.0	1	0.0
Total	14,326	100.0	748	100.0	3,103	100.0	1,308	100.0	19,485	100.0

Gestation at birth varied between singleton and multiple births. Three quarters of multiple births (75%) were preterm, while the vast majority of singleton births were term births (92.2%, Table 50).

Table 50: Gestation at birth by plurality, South Australia, 2017

Gestation at birth (weeks)	Singleton births		Multiple births		Total	
	Number	%	Number	%	Number	%
<24	92	0.5	9	1.6	101	0.5
24-27	67	0.4	12	2.1	79	0.4
28-31	107	0.6	46	8.0	153	0.8
32-36	1,168	6.2	366	63.4	1,533	7.9
37-41	17,432	92.2	144	25.0	17,577	90.2
42+	41	0.2	0	0.0	41	0.2
Unknown	1	0.0	0	0.0	1	0.0
Total	18,908	100.0	577	100.0	19,485	100.0

Among singleton births, the majority of stillbirths occurred before 37 weeks gestation (83.3%), with the highest proportion occurring before 24 weeks gestation (59.2%, Table 51). Among live births, only 7.2% of babies were born preterm.

Table 51: Gestational age at birth for singleton infants by birth status, South Australia, 2017

Gestation at birth (weeks)	Birth status					
	Stillbirth		Live birth		Total	
	Number	%	Number	%	Number	%
<24	71	59.2	21	0.1	92	0.5
24-27	14	11.7	53	0.3	67	0.4
28-31	4	3.3	103	0.6	107	0.6
32-36	11	9.2	1,157	6.2	1,167	6.2
37-41	20	16.7	17,412	92.7	17,433	92.2
42+	0	0.0	41	0.2	41	0.2
Unknown	0	0.0	1	0.0	1	0.0
Total	120	100.0	18,788	100.0	18,908	100.0

4.9 Birthweight

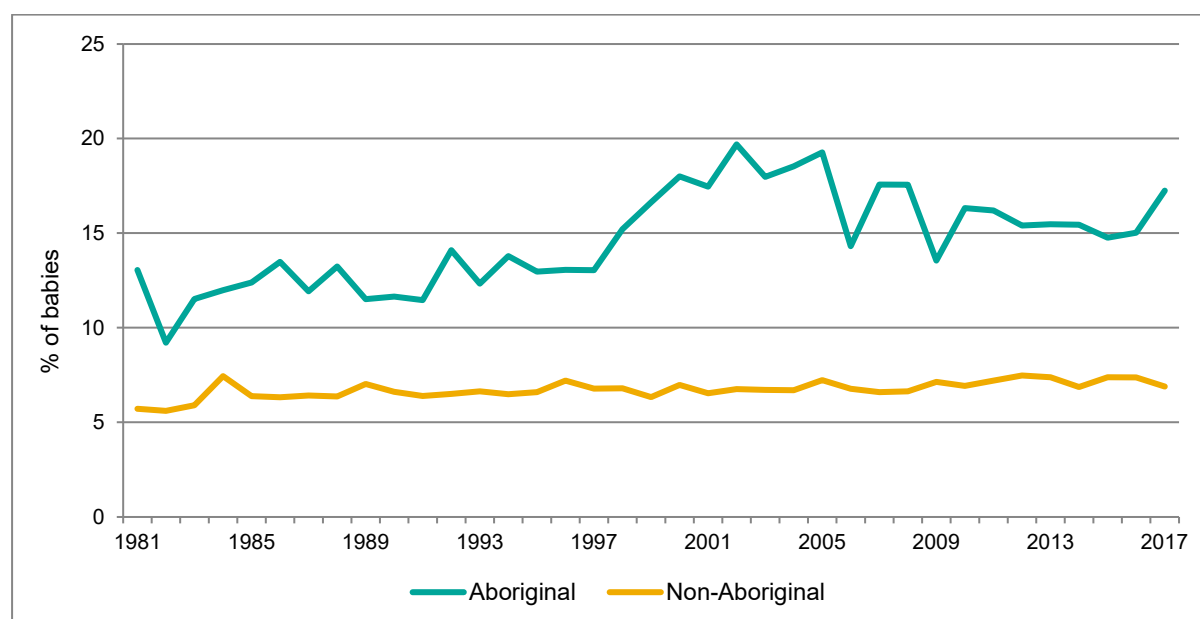
The distribution of birthweight for all births in South Australia is presented in Table 52. The percentage of low birthweight babies (<2,500g) was 7.3%, and that of very low birthweight babies (<1,500g) was 1.6%. The mean birthweight was 3,315g (SD 607.8g), with birthweights ranging from 130g to 5680g. *The proportion of low birthweight babies was 17.2% among babies of Aboriginal women compared with 6.9% among babies of non-Aboriginal women. Among liveborn babies and excluding terminations of pregnancy, these proportions were 15.9% and 6.4% respectively.*

Table 52: Birthweight distribution of all births, South Australia, 2017

Birthweight (grams)	Maternal Aboriginal status					
	Non-Aboriginal		Aboriginal		Total	
	Number	%	Number	%	Number	%
<400	50	0.3	7	0.9	57	0.3
400-499	25	0.1	4	0.5	29	0.2
500-749	43	0.2	1	0.1	44	0.2
750-999	46	0.3	4	0.5	50	0.3
1,000-1,499	102	0.5	13	1.7	115	0.6
1,500-1,999	245	1.3	30	4.0	275	1.4
2,000-2,499	780	4.2	70	9.4	850	4.4
2,500-2,999	2930	15.6	152	20.3	3082	15.8
3,000-3,499	7062	37.7	245	32.8	7307	37.5
3,500-3,999	5623	30.0	160	21.4	5783	29.7
4,000-4,499	1624	8.7	57	7.6	1681	8.6
4,500+	207	1.1	5	0.7	212	1.1
Total	18,737	100.0	748	100.0	19,485	100.0

The proportion of infants of low birthweight born to non-Aboriginal women has been relative stable for the past three decades, increasing gradually from 5.6% of all non-Aboriginal babies in 1981 to 6.9% in 2017 (Figure 9). *The proportion of infants with low birthweight born to Aboriginal women has fluctuated over time, with an increasing trend from 13.0% in 1981 to a peak of 19.7% in 2002, generally declining since then to 15.0% in 2016. In 2017 this proportion increased to 17.2%.*

Figure 9: Proportion of low birthweight babies by maternal Aboriginal status, all births, 1981-2017



4.10 Birthweight, plurality and gestational age

A comparison of multiple births with singletons shows that 58.9% multiple births were of low birthweight compared with only 5.7% for singleton (Table 53). Among singleton births, only 1.8% of infants with gestational age 37 weeks or over were lower birthweight, but this proportion was 44.1% for infants with gestational age of 32-36 weeks (Table 54).

Table 53: Birthweight by plurality, all births, South Australia, 2017

Birthweight (grams)	Singleton births		Multiple births	
	Number	%	Number	%
<400	53	0.3	4	0.7
400-499	25	0.1	4	0.7
500-749	37	0.2	7	1.2
750-999	41	0.2	9	1.6
1,000-1,499	78	0.4	37	6.4
1,500-1,999	189	1.0	86	14.9
2,000-2,499	657	3.5	193	33.5
2,500-2,999	2,907	15.4	175	30.3
3,000-3,499	7,249	38.3	58	10.1
3,500-3,999	5,779	30.6	4	0.7
4,000-4,499	1,681	8.9	0	0.0
4,500+	212	1.1	0	0.0
Total	18,908	100.0	577	100.0

Table 54: Birthweight by gestation for singleton infants* born in South Australia, 2017

Birthweight (grams)	Gestation (weeks)									
	20-27		28-31		32-36		37-43		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
<1000	142	89.3	13	12.2	1	0.1	0	0.0	156	0.8
1000-1499	16	10.1	43	40.2	19	1.5	0	0.0	78	0.4
1500-1999	1	0.6	44	41.1	131	11.2	13	0.1	189	1.0
2000-2499	0	0.0	4	3.7	365	31.3	288	1.7	657	3.5
2500-2999	0	0.0	3	2.8	382	32.7	2,521	14.4	2,906	15.4
3000-3499	0	0.0	0	0.0	213	18.3	7,036	40.3	7,249	38.3
3500-3999	0	0.0	0	0.0	46	3.9	5,733	32.8	5,779	30.6
4000-4499	0	0.0	0	0.0	11	0.9	1,670	9.6	1,681	8.9
≥4500	0	0.0	0	0.0	0	0.0	212	1.2	212	1.1
Total	159	100	107	100	1,168	100.0	17,473	100	18,907	100.0

*Excludes singleton infants with unknown birthweight or gestational age (n=1)

4.11 Apgar scores

The Apgar score is a method to summarise the health of a newborn infant. It is determined by evaluating the infant's heart rate, respiratory effort, muscle tone, skin colour and reflexes. Each criterion is scored from 0 to 2, then summing the five values to obtain the Apgar score. For all liveborn infants with an Apgar score reported one minute after birth, 90.8% had a score of 7-10 and 1.8% had a score less than 4 (Table 55). For liveborn infants with an Apgar score reported at five minutes, 98.3% had an Apgar score of 7-10 and only 0.2% had an Apgar score less than 4. Among all liveborn infants with an Apgar score reported one minute after birth, 91.4% established spontaneous respirations within the first minute of life.

Table 55: Apgar scores* at one and five minutes after birth for infants born alive, South Australia, 2017

Apgar Score	1 min after birth		5 min after birth	
	Number	%	Number	%
0-3	356	1.8	44	0.2
4-6	1,429	7.4	285	1.5
7-10	17,525	90.8	18,990	98.3
Total	19,310	100.0	19,319	100.0

* Excludes infants with missing Apgar score reported one minute (n=46) or five minutes (n=37) after birth

4.12 Infant resuscitation

Multiple methods of infant resuscitation can be reported for each infant on the SBR. Among all liveborn infants, 15.0% received some form of resuscitation. The proportion that received endotracheal intubation was 0.6% and 0.1% received external cardiac massage (Table 56). In 2017, 9.6% of liveborn infants received one type of resuscitation, 4.5% received two types, 0.9% received three types and 0.1% received four types of resuscitation methods. Other resuscitation methods may include medications such as adrenaline or intravenous therapy.

Table 56: Resuscitation received by infants born alive in South Australia, 2017

Method of resuscitation	Liveborn infants (n=19,356)	
	Number	%
None	16,455	85.0
IPPV - bag & mask	1,823	9.4
Oxygen therapy	1,185	6.1
Aspiration	968	5.0
IPPV - Intubation	111	0.6
External cardiac massage	24	0.1
CPAP	15	0.1
Narcotic antagonist	13	0.1
Other	1	0.0

4.13 Birth injuries

Birth injuries were reported in 1.2% of liveborn infants in 2017 (n=237). The most common injury reported was injury to scalp (0.7%). Nerve injury and fracture occurred less frequently (Table 57). More than one birth injury can be reported per infant.

Table 57: Birth injuries among liveborn infants, South Australia, 2017

Birth injury	Liveborn infants (n=19,356)	
	Number	%
None	19,119	98.8
Injury to scalp	136	0.7
Nerve injury	27	0.1
Fracture	16	0.1
Subdural and cerebral haemorrhage	9	0.1
Severe birth asphyxia	1	0.3
Other	58	0.0

4.14 Congenital anomalies

Among the 19,485 births in 2017 there were 520 births (2.7%) notified with congenital anomalies at birth or in the neonatal period, a similar proportion to 2016 (2.6%). In South Australia births notified on the SBR with a congenital anomaly are coded according to the British Paediatric Association (BPA) Classification of Diseases. This is a 5-digit extension of the 4-digit classification of the International Classification of Diseases (ICD9). Table 58 presents the most common congenital anomalies used for international monitoring (sentinel defects) that were notified to the perinatal statistics collection over the past ten years. For coding ranges see Methods and Terminology.

Terminations of pregnancy are not included in this table unless they meet the criteria for inclusion in the perinatal data collection of at least 400g birthweight or 20 weeks gestation. Notifications of congenital anomalies identified after discharge from the hospital of birth, but within the first five years of life are made directly to the South Australian Birth Defects Register at the Women's and Children's Hospital. More complete statistics on congenital anomalies in South Australia are available from the Birth Defect Register Annual Report².

Table 58: Selected congenital anomalies, South Australia, 2008-2017

Congenital Anomaly	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of births	19,970	19,900	20,002	20,344	20,665	20,265	20,751	20,154	20,070	19,485
Anencephalus	1	3	1	2	2	2	1	1	0	1
Spina bifida	4	18	10	3	4	7	6	9	5	7
Encephalocele	1	0	1	0	1	2	2	0	1	1
Hydrocephalus	12	15	5	5	10	13	12	10	9	2
Cleft palate	9	11	13	8	13	12	13	17	10	9
Cleft lip and palate	29	25	18	11	12	14	16	14	20	17
Tracheo-oesophageal fistula, oesophageal atresia and stenosis	5	7	3	4	5	7	8	10	4	1
Atresia and stenosis of large intestine, rectum and anal canal	9	8	9	7	3	8	5	2	10	7
Hypospadias and epispadias	44	40	44	36	32	44	42	32	28	45
Renal agenesis and dysgenesis	3	11	8	11	8	7	5	12	16	13
Limb reduction defects	9	8	13	7	13	17	10	10	17	10
Anomalies of diaphragm	9	9	6	4	1	8	8	4	13	11
Anomalies of abdominal wall	10	18	7	12	13	8	17	12	10	12
Trisomy 21	23	22	14	6	16	17	15	13	18	14

4.15 Treatment given in neonatal period

The proportions of live births that received specified treatments in the neonatal period are provided in Table 59. Up to four treatments can be reported on the Supplementary Birth Record, and in some cases more than one treatment was given. The most common treatments in the neonatal period were intravenous therapies (12.3%) and gavage feeding (8.0%).

Table 59: Neonatal treatment given, all live births, South Australia, 2017

Neonatal treatment	Number	% of live births (n=19,933)
None	16,076	83.1
Any intravenous therapy	2,375	12.3
Gavage feeding more than once	1,546	8.0
Phototherapy for jaundice	1,327	6.9
Oxygen therapy for more than 4 hours	988	5.1

4.16 Level of neonatal care utilised

Table 60 outlines the neonatal levels of care utilised in 2017, as defined in the Standards for Maternal and Neonatal Services policy document⁴. In 2017, 82.0% of neonates utilised Level 1-3 care only. Level 4-5 care was used by 17.7% of neonates, Level 6 neonatal intensive care at the Women's and Children's Hospital or Flinders Medical Centre by 3.1% and paediatric intensive care at the Women's

and Children's Hospital by 0.2% of neonates. As would be expected, with decreasing birthweight, an increasing percentage of babies required higher level care.

Table 60: Level of nursery care by birthweight, all live births, South Australia, 2017

Level of care utilised	Birthweight (grams)							
	<1,500		1,500-2,499		2,500+		Total	
	Number (n=198)	% of care	Number (n=1,114)	% of care	Number (n=18,044)	% of care	Number (n=19,356)	% of care
Well baby care (level 1-3)	18	9.1	212	19.0	15,635	86.6	15,865	82.0
Nursery/special care (level 4-5)	164	82.8	892	80.1	2,377	13.2	3,433	17.7
Neonatal intensive care, FMC/WCH (level 6)	167	84.3	185	16.6	251	1.4	603	3.1
Paediatric intensive care unit, WCH (level 6)	1	0.5	12	1.1	35	0.2	48	0.2

*A baby can be under more than one type of care after birth

4.17 Perinatal outcome by plurality

The proportion of live births in hospital at 28 days was 18.2% for multiple births compared with 1.3% for singletons (Table 61). The proportion of combined stillbirth and neonatal deaths were 0.8% for singletons, and 2.3% for multiple births. *The proportion of live births in hospital at 28 days was also higher in babies born to Aboriginal women (4.7%) compared to Caucasian and Asian women (1.9% and 1.2%, respectively, Table 62). This may be due to the higher proportion of low birthweight babies born to Aboriginal women.*

Table 61: Perinatal outcome by plurality, all births, South Australia, 2017

Perinatal outcome	Singleton births		Multiple births		Total	
	Number	%	Number	%	Number	%
Stillbirth	120	0.6	9	1.6	129	0.7
Discharged within 28 days	18,496	97.8	459	79.6	18,955	97.3
In hospital at 28 days	249	1.3	105	18.2	354	1.8
Neonatal death	43	0.2	4	0.7	47	0.2
Total	18,908	100.0	577	100.0	19,485	100.0

Table 62: Perinatal outcome by ethnicity, all births, South Australia, 2017

Perinatal outcome	Caucasian		Aboriginal		Asian		Other		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
Stillbirth	80	0.6	12	1.6	27	0.9	10	0.8	129	0.7
Discharged within 28 days	13,952	97.4	696	93.1	3,029	97.6	1,278	97.7	18,955	97.3
In hospital at 28 days	266	1.9	35	4.7	38	1.2	15	1.2	354	1.8
Neonatal death	28	0.2	5	0.7	9	0.3	5	0.4	47	0.2
Total	14,326	100.0	748	100.0	3,103	100.0	1,308	100.0	19,485	100.0

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4.18 Length of stay of live born babies

Table 63 shows the distribution of length of stay of liveborn babies in hospital for preterm (<37 weeks gestation) and term births (≥37 weeks gestation). The mean duration of stay for all liveborn babies was 4.3 days (SD 9.0) and the median duration was 3 days. The mean duration was 2.8 days (SD 3.4) for term births, 18.0 days (SD 23.0) for preterm births, while the median durations were 3 and 10 days respectively.

Table 63: Length of stay of liveborn babies in hospital, South Australia, 2017

Length of stay (days)	Preterm births		Term births		Total	
	Number	%	Number	%	Number	%
<1	23	1.3	1,069	6.1	1,092	5.7
1	50	2.9	4,215	24.2	4,265	22.3
2	109	6.2	4,116	23.6	4,225	22.1
3	118	6.8	2,952	17.0	3,070	16.0
4	109	6.2	2,530	14.5	2,639	13.8
5	103	5.9	1,738	10.0	1,841	9.6
6	108	6.2	387	2.2	495	2.6
7-13	346	19.8	289	1.7	635	3.3
14-20	270	15.5	62	0.4	332	1.7
21-27	159	9.1	26	0.2	185	1.0
28 or more	352	20.2	34	0.2	386	2.0
Total	1,747	100.0	17,418	100.0	19,165	100.0

Perinatal Mortality

5.1 Perinatal mortality rates

High crude perinatal mortality rates are often associated with low and high birthweight births, low gestation births and multiple births⁵. The perinatal mortality rate for all births (live births of any gestation and stillbirths of at least 400g birthweight or 20 weeks gestation) in 2017 was 9.0 per 1,000 births. Fifty-three of the 176 perinatal deaths (30.1%) were induced terminations of pregnancy and their exclusion would have resulted in a perinatal mortality rate of 6.4 deaths per 1,000 births.

The stillbirth rate was 6.6 per 1,000 births and the neonatal mortality rate was 2.4 per 1,000 live births (Table 64).

More detail regarding perinatal mortality is available in the 'Maternal and Perinatal Mortality in South Australia' reports⁶. The global average neonatal mortality rate reported by the World Health Organization (WHO) was 18.6 per 1,000 births in 2017, with the lowest regional average in Europe (5.1 per 1,000), followed by the Americas (7.5 per 1,000)⁷.

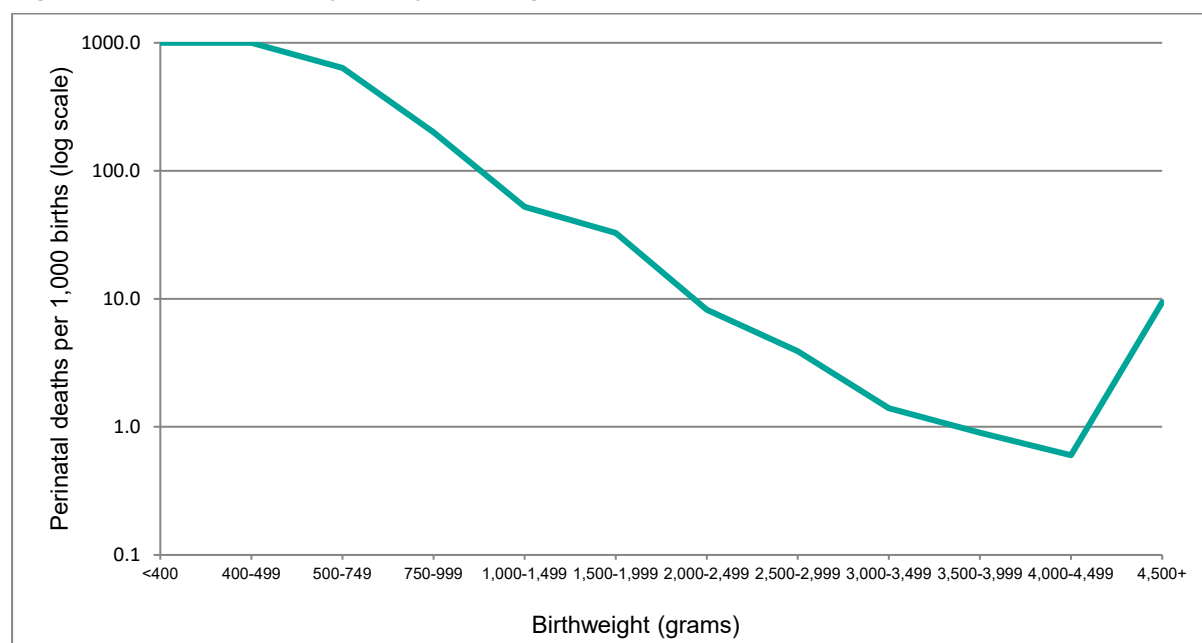
Table 64: Perinatal mortality by birthweight, all births, South Australia, 2017

Birthweight (grams)	Total births	Live births	Stillbirths		Neonatal deaths		Perinatal deaths	
			Number	Deaths per 1,000 births	Number	Deaths per 1,000 live births	Number	Deaths per 1,000 births
<400	57	5	52	912.3	5	1000	57	1000.0
400-499	29	6	23	793.1	6	1000	29	1000.0
500-749	44	29	15	340.9	13	448.3	28	636.4
750-999	50	45	5	100	5	111.1	10	200.0
1,000-1,499	115	113	2	17.4	4	35.4	6	52.2
1,500-1,999	275	269	6	21.8	3	11.2	9	32.7
2,000-2,499	850	845	5	5.9	2	2.4	7	8.2
2,500-2,999	3082	3076	6	1.9	6	2	12	3.9
3,000-3,499	7307	7299	8	1.1	2	0.3	10	1.4
3,500-3,999	5783	5779	4	0.7	1	0.2	5	0.9
4,000-4,499	1681	1680	1	0.6	0	0	1	0.6
4,500+	212	210	2	9.4	0	0	2	9.4
Total	19,485	19,356	129	6.6	47	2.4	176	9.0

5.2 Perinatal mortality by birthweight

The relationship between perinatal mortality and birthweight is demonstrated in Table 64 and Figure 10. The highest perinatal mortality rate was observed for the lowest birthweight group weighing <400g with all births in this birthweight group resulting in a death (1,000 deaths per 1,000 births). The perinatal mortality rate among the highest birthweight group of 4,500 grams or more was 9.4 per 1,000 births.

Figure 10: Perinatal mortality rate by birthweight, all births, South Australia, 2017



5.3 Perinatal mortality by gestational age at birth

The decline in perinatal mortality with increasing gestational age is demonstrated in Table 65. The perinatal mortality rate was 1.8% for infants with a gestational age at birth of 37-41 weeks. There were no neonatal deaths or perinatal deaths for infants with a gestational age at birth of 42 weeks or more.

Table 65: Perinatal mortality by gestational age at birth, South Australia, 2017

Gestation at birth (weeks)	Total births	Live births	Stillbirths		Neonatal deaths		Perinatal deaths	
			Number	Deaths per 1,000 births	Number	Deaths per 1,000 live births	Number	Deaths per 1,000 births
<24	101	25	76	752.5	20	800.0	96	950.5
24-27	79	63	16	202.5	10	158.7	26	329.1
28-31	153	149	4	26.1	1	6.7	5	32.7
32-36	1533	1522	11	7.2	8	5.3	18	11.7
37-41	17577	17555	22	1.3	8	0.5	31	1.8
42+	41	41	0	0.0	0	0.0	0	0.0
Unknown	1	1	0	0.0	0	0.0	0	0.0
Total	19,485	19,356	129	6.6	47	2.4	176	9.0

5.4 Perinatal mortality by birthweight and gestation

The World Health Organization (WHO) recommends that fetuses and infants weighing between 500 and 1,000 grams should be included in national perinatal mortality statistics, and that for international rate comparisons, the classification to be used should be fetuses and infants weighing at least 1000 grams or 28 weeks gestation⁸. Therefore, three birthweight and gestation categories are presented in Table 66 comparing perinatal mortality rates using local and international definitions. Using the WHO

definition (at least 1,000 grams or 28 weeks gestation) the perinatal mortality rate was 2.9 per 1,000 births in 2017 in South Australia, with a stillbirth rate of 2.0 per 1,000 births, and neonatal mortality rate of 0.9 per 1,000 live births. The early neonatal mortality rate in South Australia (for infants weighing at least 1000 grams or 28 weeks gestation that died during the first seven days of life) was 0.8 per 1,000 live births.

Table 66: Perinatal mortality by birthweight and gestation*, South Australia, 2017

Birthweight/ gestation	Total births	Live births	Stillbirths		Neonatal deaths		Perinatal deaths	
			Number	Deaths per 1,000 births	Number	Deaths per 1,000 live births	Number	Deaths per 1,000 births
≥400g/20 weeks	19,485	19,356	129	6.6	47	2.4	176	9.0
≥500g/22 weeks	19,424	19,349	75	3.9	40	2.1	115	5.9
≥1,000g/28 weeks	19,326	19,288	38	2.0	18	0.9	56	2.9

*Excludes unknown birthweight and gestational age (n=1)

5.5 Perinatal mortality by plurality

The perinatal death rate for multiple births was 22.5 compared with 8.6 deaths per 1,000 births for singletons (Table 67). In 2017, all triplets that reached 20 weeks of gestational age at birth were born alive, but the neonatal mortality was 111.1 deaths per 1,000 births.

Table 67: Perinatal mortality by plurality, all births, South Australia, 2017

Plurality	Total births	Live births	Stillbirths		Neonatal deaths		Perinatal deaths	
			Number	Deaths per 1,000 births	Number	Deaths per 1,000 live births	Number	Deaths per 1,000 births
Singleton	18,908	18,788	120	6.3	43	2.3	163	8.6
Twins	568	559	9	15.8	3	5.4	12	21.1
Triplets	9	9	0	0.0	1	111.1	1	111.1
Multiple birth	577	568	9	15.6	4	7.0	13	22.5
Total	19,485	19,356	129	6.6	47	2.4	176	9.0

5.6 Perinatal mortality by ethnicity

The perinatal mortality rate for births to Aboriginal women was 22.7 per 1,000 births in 2017 compared with 7.5 per 1,000 births for births to Caucasian women (Table 68 and 69). Perinatal mortality rates have fluctuated for babies born to Aboriginal women, with a general declining trend since the mid-1980s however this rate has been slowly increasing since 2014. The rates for babies born to non-Aboriginal women have been relatively stable (Figure 11).

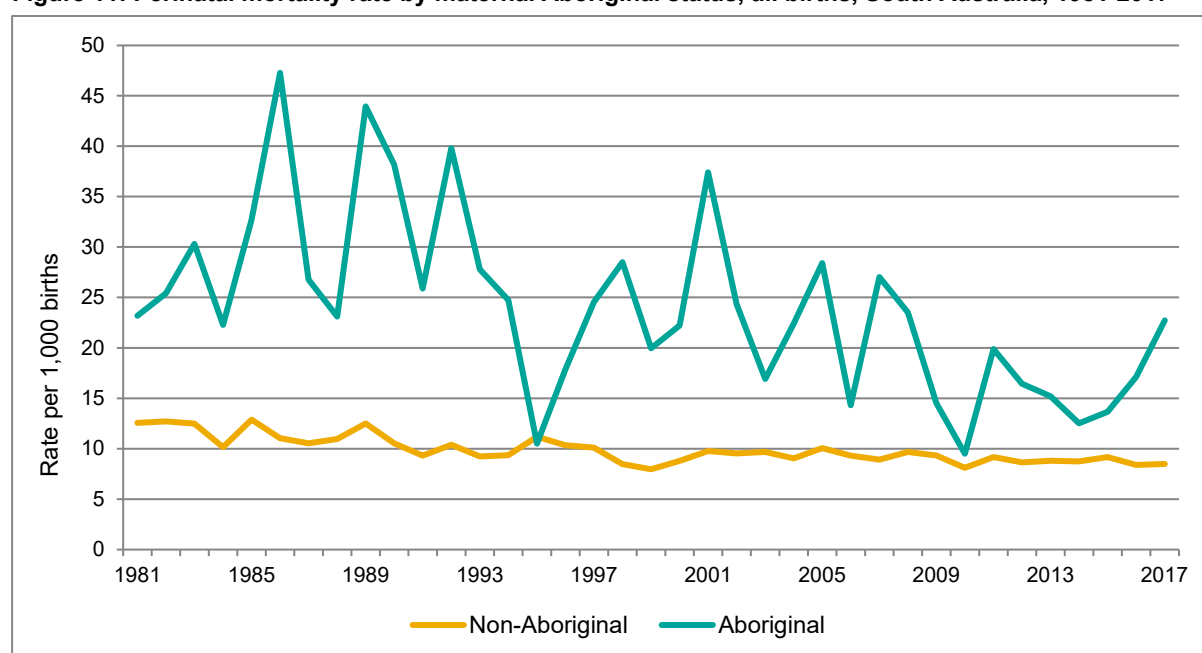
Table 68: Perinatal mortality by ethnicity of mother, all births, South Australia, 2017

Ethnicity of mother	Total births	Stillbirths	Neonatal deaths	Alive at 28 days	Perinatal deaths	
	Number	Number	Number	Number	Number	Deaths per 1,000 births
Caucasian	14,326	80	28	14,218	108	7.5
Aboriginal	748	12	5	731	17	22.7
Asian	3,103	27	9	3,067	36	11.6
Other	1,308	10	5	1,293	15	11.5
Total	19,485	129	47	19,309	176	9.0

Table 69: Perinatal mortality by maternal Aboriginal status, all births, South Australia, 2008-2017

Year	Maternal Aboriginal status					
	Non-Aboriginal		Aboriginal		Total	
	Number of deaths	Perinatal death per 1,000 births	Number of deaths	Perinatal death per 1,000 births	Number of deaths	Perinatal death per 1,000 births
2008	187	9.7	15	23.6	202	10.1
2009	180	9.3	9	14.5	189	9.5
2010	156	8.1	7	11.2	163	8.1
2011	180	9.1	13	20.2	193	9.5
2012	173	8.7	11	16.4	184	8.9
2013	175	9.0	11	15.1	186	9.2
2014	177	8.8	9	12.4	186	9.0
2015	178	9.2	10	13.6	188	9.3
2016	161	8.3	14	18.4	175	8.7
2017	159	8.5	17	22.7	176	9.0

Figure 11: Perinatal mortality rate by maternal Aboriginal status, all births, South Australia, 1981-2017



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Terminations of Pregnancy

6.1 Numbers and rates

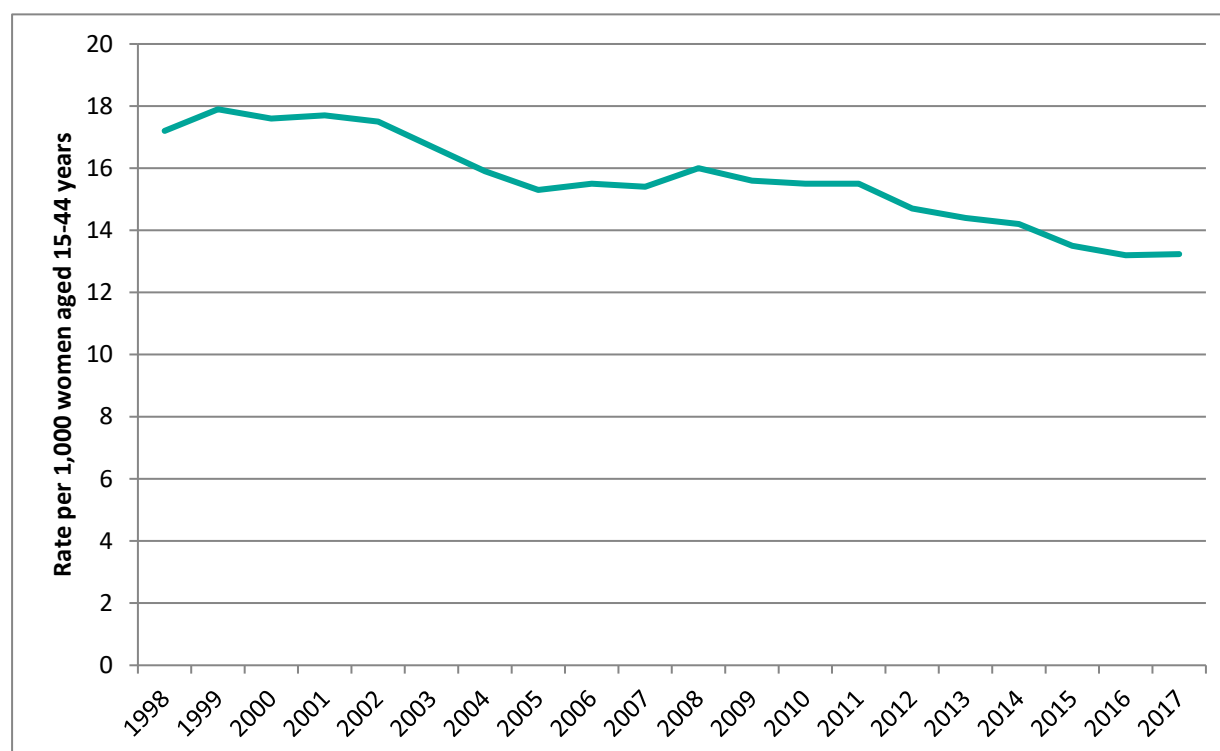
There were 4,349 terminations of pregnancy notified in South Australia in 2017, compared with 4,346 in 2016. This equates to no change with the termination rate remaining stable at 13.2 terminations of pregnancy per 1,000 women aged 15-44 years (Table 70).

Table 70: Number of pregnancy terminations, and rate per 1,000 women aged 15-44 years, South Australia, 1998-2017

Year	Number	Termination rate	Year	Number	Termination rate
1998	5,488	17.2	2008	5,101	16.0
1999	5,679	17.9	2009	5,057	15.6
2000	5,580	17.6	2010	5,048	15.5
2001	5,579	17.7	2011	5,010	15.5
2002	5,467	17.5	2012	4,765	14.7
2003	5,216	16.7	2013	4,683	14.4
2004	4,931	15.9	2014	4,650	14.2
2005	4,715	15.3	2015	4,441	13.5
2006	4,889	15.5	2016	4,346	13.2
2007	4,885	15.4	2017	4,349	13.2

Since 1999, there has been a steady decline in the rate of pregnancy terminations in South Australia from 17.9 in 1999 to 13.2 per 1,000 women aged 15-44 years in 2017 (Figure 12).

Figure 12: Pregnancy termination rate per 1,000 women aged 15-44 years, South Australia, 1998-2017



6.2 Age of women

The age distribution of women who had pregnancies terminated in 2017 is shown in Table 71. Among the five-year age groups, the highest pregnancy termination rate was among women aged 20-24 years (20.1 terminations per 1,000 women). Pregnancy termination rates continued to fall for teenage women, from 8.3 per 1,000 women in 2016 to 7.6 per 1,000 women aged 15-19 years in 2017.

Table 71: Number and rate of pregnancy terminations by age group, South Australia, 2017

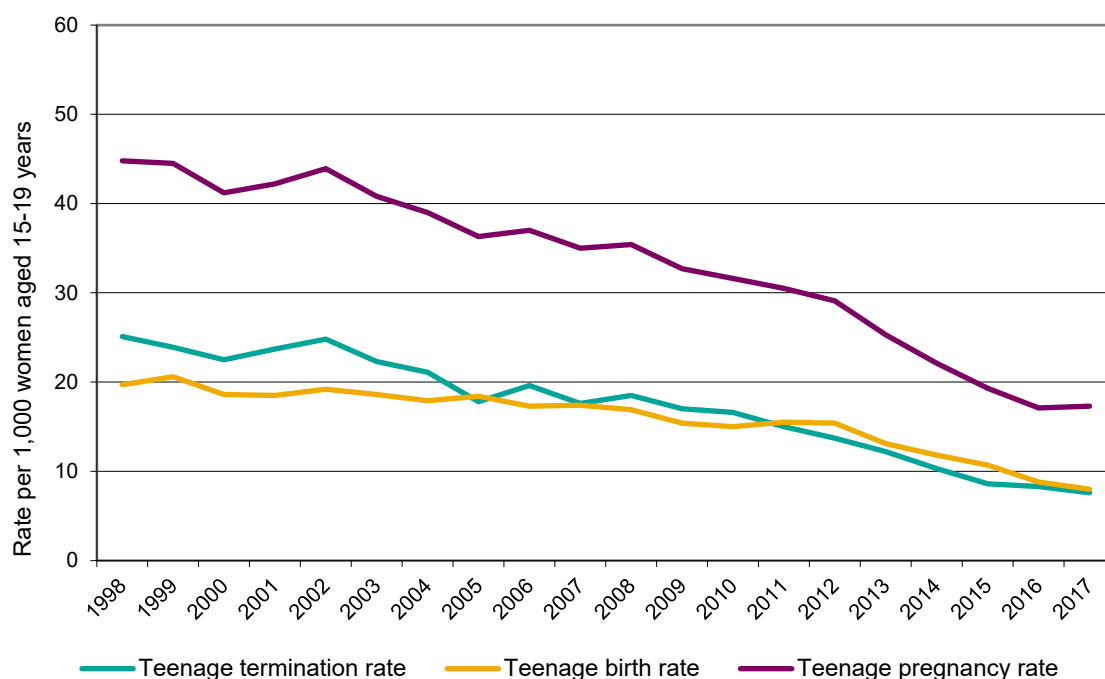
Age group	Number	%	Estimated resident female population 30 June 2017 ¹¹	Termination rate per 1,000 women
Under 15	11	0.3	-	n/a
15-19	375	8.6	50,495	7.6*
20-24	1,130	26.0	56,172	20.1
25-29	1,088	25.0	57,412	19.0
30-34	953	21.9	58,332	16.3
35-39	577	13.3	53,441	10.8
40-44	189	4.3	52,844	4.1 [^]
45 and over	26	0.6	-	n/a

* includes terminations for women aged under 15

[^] includes terminations for women aged 45 and over

The teenage pregnancy rate (including live births and induced terminations) has been declining steadily since 2002, and in the most recent period remained relatively stable increasing slightly from 17.1 in 2016 to 17.3 per 1,000 women aged 15-19 years in 2017 (Figure 13).

Figure 13: Teenage pregnancy, termination and birth rates*, SA, 1998-2017



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*Terminations and births to women aged less than 15 years are included in the numerators

6.3 Residential region and health service category

The proportion of women residing in the Metropolitan Adelaide region who had their termination in a metropolitan hospital (either private or public) was very high at 99.3%. However, only 16.3% of women residing in Country South Australia had their termination in a country hospital, with most women travelling to metropolitan areas (Table 72).

Most terminations were conducted in metropolitan public hospitals (95.7%), followed by country hospitals (3.3%) and metropolitan private hospitals (1.0%). The distribution of terminations by health service category has been stable over the past 5 years.

Table 72: Pregnancy terminations by residential region and health service category, South Australia, 2017

Residential Region	Health Service Category						Total
	Metro Public		Metro Private		Country		
	Number	% of residential region	Number	% of residential region	Number	% of residential region	
Metropolitan	3,536	98.4	38	1.1	20	0.6	3,594
Country	618	83.1	5	0.7	121	16.3	744
Unknown	10	90.9	0	0.0	1	9.1	11
Total	4,164	95.7	43	1.0	142	3.3	4,349

Of the terminations conducted in a metropolitan public hospital, 61.3% (2,552) were conducted by the Pregnancy Advisory Centre. A full list of terminations by metropolitan public hospitals is presented below (Table 73).

Table 73: Pregnancy terminations in metropolitan public hospitals, South Australia, 2017

Metropolitan public hospital	Number	% terminations in metropolitan public hospitals	% all terminations
Pregnancy Advisory Centre	2,552	61.3	58.7
Flinders Medical Centre	519	12.5	11.9
Women's and Children's Hospital	518	12.4	11.9
Lyell McEwin Hospital	288	6.9	6.6
Noarlunga Health Services	287	6.9	6.6

6.4 Clinicians performing terminations

Medical practitioners in family advisory clinics conducted 69.4% of the terminations in South Australia in 2017. Obstetrician/gynaecologists conducted 19.0% of all terminations, followed by trainee obstetricians (6.0%) and general practitioners (5.5%, Table 74).

Table 74: Pregnancy terminations by category of doctor, South Australia, 2017

Category of doctor performing termination	Number	%
Medical practitioner in family advisory clinic	3,020	69.4
Obstetrician/gynaecologist	828	19.0
Trainee obstetrician	262	6.0
General practitioner	239	5.5
Total	4,349	100.0

6.5 Reported reason for termination

In 2017, 95.3% of terminations conducted were for the woman's mental health, 4.1% for congenital anomalies and 0.5% for specified medical conditions (Table 75). Of the 177 terminations for congenital anomalies, 90 (51.7%) were for other fetal abnormalities and 81 terminations (46.6%) were for chromosomal abnormalities detected or suspected prenatally (Table 76).

Table 75: Reported reason for termination of pregnancy, South Australia, 2017

Reason	Number	%
Mental health of woman	4,146	95.3
Congenital anomaly	177	4.1
Specified medical condition	23	0.5
Pre-existing psychiatric	3	0.1
Total	4,349	100.0

Table 76: Reported reason for termination for congenital anomalies, South Australia, 2017

Reason for termination	Number	%
Other fetal abnormality	91	51.4
Chromosomal abnormality	82	46.3
Exposure during pregnancy to drugs	1	0.6
Other known or suspected damage	3	1.7
Total	177	100.0

6.6 Termination by gestational age

In 2017, the majority of pregnancy terminations were conducted in the first trimester (91.2%). The proportion conducted in the second trimester was 8.8% (Table 77), similar to the average over the past five years (8.7%).

Table 77: Gestation of termination by age of women and trimester, South Australia, 2017

Age of women (years)	First trimester		Second trimester		Total Number
	Number	% of age group	Number	% of age group	
Under 15	8	72.7	3	27.3	11
15–19	346	92.3	29	7.7	375
20–24	1,034	91.5	96	8.5	1,130
25–29	1,008	92.6	80	7.4	1,088
30–34	858	90.0	95	10.0	953
35–39	518	89.8	59	10.2	577
40 and over	194	90.2	21	9.8	215
Total	3,966	91.2	383	8.8	4,349

The proportion of terminations conducted at 20 weeks gestation or later was 2.6% (Table 78) slightly lower than the proportion in 2016 (2.8%). Of the 111 pregnancy terminations conducted at 20 weeks gestation or later, 53 were for congenital anomalies (47.7%), 55 were for the mental health of the woman (49.5%) and 3 for specified medical conditions of the woman (2.7%). Terminations for congenital anomalies are often conducted after 20 weeks gestation as many fetal conditions are detected only in the second trimester.

Table 78: Reported reason for termination of pregnancy by gestation, South Australia, 2017

Reason for termination	Gestation (weeks)						Total
	<14		14–19		20+		
	Number	% of reason	Number	% of reason	Number	% of reason	
Mental health of woman	3,895	93.9	196	4.7	55	1.3	4,146
Congenital anomalies	57	32.2	67	37.8	53	29.9	177
Specified medical condition of woman	11	47.8	9	39.1	3	13.0	23
Pre-existing psychiatric	3	100.0	0	0.0	0	0.0	3
Total	3,966	91.2	272	6.3	111	2.6	4,349

6.7 Method of pregnancy termination, and associated sterilisation

In 2017 the majority (55.8%) of pregnancy terminations were conducted by vacuum aspiration/dilatation and curettage (Table 79). Procedures with mifepristone as a cervical primer prior to vacuum aspiration or dilatation and curettage were not specifically differentiated. Pharmaceutical termination of pregnancy using Mifepristone and Misoprostol was used in 35.0% of all terminations, increasing in use over the past 5 years (26.6% of all terminations in 2013).

Table 79: Method of pregnancy termination, South Australia, 2017

Method of termination	Number	%
Vacuum aspiration / Dilatation and curettage	2,425	55.8
Mifepristone +/- Misoprostol	1,522	35.0
Dilatation and evacuation	369	8.5
Misoprostol	12	0.3
Vaginal prostaglandin	12	0.3
Other	4	0.1
Laminaria tent only	5	0.1
Total	4,349	100.0

For terminations of pregnancy conducted in the first trimester, vacuum aspiration/dilation and curettage was utilised for the majority of cases (60.3%) followed by Mifepristone and Misoprostol (36.8%, Table 80). For terminations of pregnancy conducted in the second trimester, dilatation and evacuation was utilised for the majority of cases (68.4%) followed by Mifepristone and Misoprostol (16.2%).

Table 80: Method of pregnancy termination by trimester, South Australia, 2017

Method of termination	First trimester		Second trimester		Total Number
	Number	% first trimester	Number	% second trimester	
Vacuum aspiration / Dilatation and curettage	2,393	60.3	32	8.4	2,425
Mifepristone +/- Misoprostol	1,460	36.8	62	16.2	1,522
Dilatation and evacuation	107	2.7	262	68.4	369
Misoprostol	0	0.0	12	3.1	12
Vaginal prostaglandin	1	0.0	11	2.9	12
Other	0	0.0	4	1	4
Laminaria tent only	5	0.1	0	0	5
Total	3,966	100.0	383	100	4,349

6.8 Complications

There were 125 (2.9%) women who experienced complications related to the termination of pregnancy, which was a decreased proportion from 2016 (4.0%). Eighty five (68.0%) of these complications were notified on the data collection form soon after the termination. To improve the ascertainment of complications resulting after the termination, a data linkage was conducted with South Australian hospital morbidity data (Integrated South Australian Activity Collection), which records hospital admissions. A further 40 women with complications (32.0%) were identified through this process. The most common complication was retained products of conception (99 women), which represented 79.2% of all complications and occurred in 2.3% of all terminations (Table 81). Post-operative haemorrhage was the second most common complication (16 women), which represented 12.8% of all complications and occurred in 0.4% of all terminations.

Table 81: Complications resulting from termination of pregnancy, South Australia, 2017

Main complication	Number of women with complication	% of all women with complications	% of all women with termination procedures
Retained products of conception	99	79.2	2.3
Post-operative haemorrhage	16	12.8	0.4
Bleeding	3	2.4	0.1
Failed procedure	2	1.6	0.0
Haemorrhage intra-operative	2	1.6	0.0
Perforation/ trauma to uterus	2	1.6	0.0
Uterine infection	1	0.8	0.0
Total	125	100.0	2.9

The two most common termination methods in 2017 were vacuum aspiration, and Mifepristone and Misoprostol. Terminations using these methods resulted in complication rates of 0.9% and 6.0% respectively (Table 82). Overall, 96 (76.8%) women with complications following an initial procedure progressed to a surgical procedure, including 76 women who had a termination of pregnancy with Mifepristone and Misoprostol as the initial procedure.

Table 82: Method of termination resulting in complication, South Australia, 2017

Method of termination	Number of terminations	Number of complications	Number subsequent surgical D&C	% of termination method with complication	% of complication method with subsequent D&C
Mifepristone +/- Misoprostol	1,522	92	76	6.0	82.6
Vacuum aspiration / Dilatation and curettage	2,425	21	13	0.9	61.9
Vaginal prostaglandin	12	2	2	16.7	100.0
Dilatation and evacuation	369	7	4	1.9	57.1
Misoprostol	12	2	1	16.7	50.0
Laminaria tent only	5	0	0	0.0	0.0
Other	4	1	0	25.0	0.0
Total	4,349	125	96	2.9	76.8

Two women had a failed initial termination procedure with Mifepristone and Misoprostol (Table 83). Both of the failed procedures progressed to a full surgical procedure to complete the termination. Of the 92 women with complications reported following induced abortion with Mifepristone and Misoprostol, 79 (85.9%) were due to retained products of conception.

Table 83: Complication type and method of termination procedure, South Australia, 2017

Method of termination	Number of complications	Failed procedure	Perforated uterus	Haemorrhage intra-operative	Haemorrhage post-operative	Uterine infection	Retained products conception	Bleeding
Mifepristone +/- Misoprostol	92	2	0	0	9	0	79	3
Vacuum aspiration/ Dilatation and curettage	21	0	1	1	4	1	14	0
Vaginal prostaglandin	2	0	0	0	1	0	1	0
Dilatation and evacuation	7	0	1	1	1	0	4	0
Misoprostol	2	0	0	0	1	0	0	0
Other	1	0	0	0	0	0	1	0
Total	125	2	2	2	16	1	99	3

6.9 Previous pregnancy terminations

Of the 4,349 women who had pregnancy terminations in 2017, 1,581 (36.4%) had undergone a previous termination (Table 84). The proportion of women who had a previous termination generally increased with age. Table 85 (below) shows the number of previous terminations by age group.

Table 84: Women with previous pregnancy terminations by age, South Australia, 2017

Age (years)	Number	% of age group	% of all terminations
< 20	39	10.1	0.9
20 - 24	299	26.5	6.9
25 - 29	430	39.5	9.9
30 - 34	448	47.0	10.3
35 - 39	273	47.3	6.3
40+	92	42.8	2.1
Total	1,581	36.4	36.4

Table 85: Number of previous pregnancy terminations by age of women, South Australia, 2017

Number of previous terminations	Age group							Number	%
	< 15	15–19	20–24	25–29	30–34	35–39	40+		
0	11	336	831	658	505	304	123	2,768	63.6
1	0	29	218	283	273	145	53	1,001	23.0
2	0	9	59	102	98	79	19	366	8.4
3	0	1	17	25	50	34	9	136	3.1
4+	0	0	5	20	27	15	11	78	1.8
Total	11	375	1,130	1,088	953	577	215	4,349	100.0

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6.10 Total induced abortion rates

The total first abortion rate (TFAR) is a method used to estimate the proportion of women who will experience a termination of pregnancy in their reproductive lifetime (see Methods and Terminology). The TFAR for 2017 was 249.0 per 1,000 women aged 15-44 years. This suggests that 24.9% of women would have at least one termination of pregnancy in their reproductive lifetime if they experienced the termination of pregnancy rates of the different age groups for 2017. The total induced abortion rate (TAR) is the sum of pregnancy termination rates for each of the five-year age groups multiplied by five. This can be calculated using the rates in Table 70 and in 2017 was 389.6 per 1,000 women aged 15-44. This represents the number of induced abortions 1,000 women would have during their lifetime if they experienced the induced abortion rates of the different age groups for 2017. (Table 86).

Table 86: Calculation of total first induced abortion rate (TFAR), South Australia, 2017

Age (years)	Number of women who had terminations (A)	Number of women who had previous terminations (B)	Number of women who had first termination (A) – (B)	Estimated female resident population 30 June 2017	First termination of pregnancy rate per 1,000 women‡
15-19	386	39	347	50,495	6.9*
20-24	1,130	299	831	56,172	14.8
25-29	1,088	430	658	57,412	11.5
30-34	953	448	505	58,332	8.7
35-39	577	273	304	53,441	5.7
40-44	215	92	123	52,844	2.3^
Total	4,349	1,581	2,768	328,696	

* includes terminations for women aged under 15

^ includes terminations for women aged 45 and over

Further details of termination of pregnancy in South Australia in 2015 may be obtained from the Annual Report of the South Australian Abortion Reporting Committee for the year 2017⁹.

Obstetric Profiles by Hospital Category

Obstetric profiles for 2017 for the three major metropolitan public hospitals and an additional three hospital categories are provided in Table 87. Obstetric profiles are also reported to birthing hospitals in South Australia via the Pregnancy and Neonatal Care Bulletins.

The hospital categories, as determined by their perinatal service delineation are:

1. Women's & Children's Hospital
2. Flinders Medical Centre
3. The Lyell McEwin Hospital
4. Metropolitan private hospitals
5. Two Level 4:4 country hospitals (Mount Gambier and Port Augusta)
6. Other country hospitals (perinatal service delineation of 3:3)

A list of maternal and baby characteristics identified either as risk factors for poor perinatal outcome in earlier analyses¹⁰, or of general interest, is provided with mean values for all state hospitals and the six hospital categories outlined above.

Where indicated (+) in Table 87 the mean (number of women who gave birth or births) relates to the 21 hospitals or groups of hospitals for which obstetric profiles have been provided. These are as follows:

1. Women's & Children's Hospital
2. Flinders Medical Centre
3. Lyell McEwin Hospital
4. Ashford Hospital
5. Burnside War Memorial Hospital
6. Calvary Healthcare Adelaide
7. Flinders Private Hospital
8. North Eastern Community Hospital
9. Mount Gambier & District Health Service
10. Port Augusta Hospital & Regional Health Service
11. Gawler Health Service
12. Mount Barker District Soldiers' Memorial Hospital
13. Port Lincoln Health Service
14. Murray Bridge Soldiers' Memorial Hospital
15. Whyalla Hospital & Health Services
16. Riverland General Hospital (Berri)
17. Port Pirie Regional Health Service
18. Naracoorte Health Service
19. South Coast District (Victor Harbour)
20. Northern Yorke Peninsula Regional Health Service (Wallaroo)
21. Country hospitals with <100 births per year

Table 87: Obstetric profiles by hospital category, South Australia, 2017

Factors	All state hospitals ^a	Metropolitan hospitals				Country hospitals	
	Mean	WCH	FMC	LMH	Private	Level 4:4	Other
Maternal factors							
Women (n= 19,117) +	956	4,709	3,343	3,689	3,812	803	2,761
% <i>Aboriginal women</i>	3.8	4.2	2.9	4.2	0.3	15.3	5.4
% Antenatal visits <7 ^b	12.1	23.0	13.9	13.9	0.9	9.1	5.3
% Teenage women	2.1	2.1	2.1	3.1	0.1	3.7	3.4
% Women ≥35 years	21.7	23.5	20.4	15.1	34.0	14.8	14.2
% 4+ prior live births	3.0	2.8	2.6	6.0	0.4	6.0	3.0
% 1+ prior perinatal deaths	1.3	1.8	1.2	1.8	0.8	1.4	0.7
% Obstetric complications	43.9	44.3	53.6	49.4	38.3	46.5	30.8
% Labour complications	36.0	40.3	46.8	36.4	25.1	30.8	31.7
% Induction	36.0	38.6	38.6	33.7	38.9	33.7	28.4
% Emergency caesarean	18.1	17.8	18.7	16.1	20.3	16.6	18.1
% Elective caesarean	16.9	13.7	15.7	14.9	26.8	15.2	13.0
% Any caesarean	35.0	31.5	34.5	31.0	47.1	31.8	31.2
% Ultrasound examination ^b	98.3	99.0	98.4	98.3	98.2	97.1	97.2
% Amniocentesis ^b	1.4	3.1	0.7	1.1	1.1	1.2	0.4
% Episiotomy	15.7	19.9	15.2	18.7	15.6	9.3	7.1
% Repair of perineal tear	28.3	31.8	30.5	24.6	28.1	21.4	27.0
% Epidural analgesia ^c	32.9	38.8	30.8	27.6	43.6	19.2	21.6
% Spinal analgesia ^c	0.6	0.3	0.5	0.7	0.4	2.6	0.7
% Private patients	24.1	8.5	1.5	1.7	100.0	12.5	6.4
% Primiparous women	42.0	44.9	43.3	36.4	46.3	34.7	39.3
% Previous caesarean	18.7	17.0	18.3	18.9	21.9	19.8	17.3
% PPH	14.7	17.9	19.9	17.1	7.0	10.1	11.2
Baby factors							
Births (n= 19,407) +	970	4,831	3,401	3,732	3,869	810	2,764
% Birthweight <2,500g	7.3	12.3	8.7	6.1	5.1	5.8	2.0
% Gestational age <37 weeks at birth	9.6	15.4	11.6	7.4	8.0	10.0	2.2
% Prolonged hospitalisation (>27 days) ^d	2.0	4.4	2.9	0.4	1.4	0.9	0.4
% Neonatal intensive care (Level 6 or WCH paediatric intensive care) ^d	3.3	7.3	4.9	1.0	1.0	1.6	1.1
% Birth defect	2.7	5.4	2.4	1.9	1.3	2.5	1.4

^a Mean values are calculated based on data from all state hospitals.

^b adjusted for missing values (missing values are included in the "no" group)

^c refer to analgesia during labour

^d excluded stillbirths and births with unknown outcome

+ mean number of women who gave birth, or mean number of births for the 21 hospitals or groups of hospitals

National Core Maternity Indicators

The National Core Maternity Indicators assist in improving the quality of maternity services in Australia by establishing baseline data for monitoring and evaluating practice change¹¹. This annual report presents the indicators with 95% Confidence Intervals (CI) for South Australian births in 2017. The core maternity indicators are also reported for individual hospitals in the Pregnancy and Neonatal Care Bulletins for 2017. Indicator specifications are in accordance with the National Core Maternity Indicators report.

For the purpose of indicators 5, 6 and 8 'selected primiparae' was defined as:

- woman who was 20-34 years of age at the time of giving birth
- giving birth for the first time at ≥ 20 weeks of gestation
- singleton pregnancy
- cephalic presentation
- 37 to 41 weeks gestation.

Antenatal Period: A1a A1b Smoking in pregnancy

Description: This indicator has two parts: (a) among all women who gave birth, the proportion who reported smoking tobacco at any time within the first 20 weeks of pregnancy; and (b) among women who reported smoking, the proportion who reported smoking after 20 weeks of pregnancy.

Purpose: This indicator is used to monitor public health and assess the effectiveness of smoking cessation advice in the antenatal period.

❖ Indicator A1a:	Smoking in the first 20 weeks of pregnancy for all women giving birth
Numerator:	The number of women who gave birth and reported smoking tobacco in the first 20 weeks of pregnancy (n=2,150)
Denominator:	The total number of women who gave birth (n=19,195)
CI A1a	11.2% (95% CI 10.8% - 11.7%)
❖ Indicator A1b:	Smoking after the first 20 weeks of pregnancy for all women who gave birth and reported smoking during pregnancy
Numerator:	The number of women who gave birth and reported smoking tobacco in the second 20 weeks of pregnancy (n= 1,349)
Denominator:	The number of women who gave birth who reported smoking tobacco at any time in the pregnancy (n= 2,150)
CI A1b	62.7% (95% CI 60.7% – 64.8%)

Antenatal Period: A2 Antenatal care in the first trimester

Description: Among all women who gave birth, the proportion who commenced antenatal care in the first trimester (before 14 weeks gestation).

Purpose: This indicator is used to assess the accessibility of antenatal services.

❖ Indicator A2:	Antenatal care in the first trimester for all women giving birth
Numerator:	The number of women who had their first antenatal visit before 14 weeks gestation and went on to give birth (n=15,547)
Denominator:	The number of all women who gave birth (n=19,195)
Indicator A2	81.0% (95% CI 80.4% - 81.5%)

Labour and Birth: Induction of labour for selected primiparae

Description: The proportion of all selected primiparae, whose labour was induced.

Purpose: This indicator is used to benchmark practice.

❖ Indicator B1:	Induction of labour for selected women giving birth for the first time
Numerator:	The number of selected primiparae who had labour induced (n=2,689)
Denominator:	All selected primiparae (n=5,737)
Indicator B1	46.9% (95% CI 45.6% - 48.2%)

Labour and Birth: Unassisted vaginal birth for selected primiparae

Description: The proportion of all selected primiparae, who had a normal (non-instrumental) vaginal birth.

Purpose: This indicator is used to benchmark practice.

❖ Indicator B2:	Unassisted (non-instrumental) vaginal birth for selected women giving birth for the first time
Numerator:	The number of selected primiparae who had a normal (non-instrumental) vaginal birth (n=2,648)
Denominator:	All selected primiparae (n=5,737)
Indicator B2	46.2% (95% CI 44.9% - 47.4%)

Labour and Birth: Assisted vaginal birth for selected primiparae

Description: The proportion of all selected primiparae, who had a vaginal birth with the assistance of instruments.

Purpose: This indicator is used to benchmark practice.

❖ Indicator B3:	Assisted (instrumental) vaginal birth for selected women giving birth for the first time
Numerator:	The number of selected primiparae who had a vaginal birth with the assistance of instruments (n=1,401)
Denominator:	All selected primiparae (n=5,737)

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Indicator B3 **24.4% (95% CI 23.3% - 25.5%)**

Labour and Birth: Episiotomy for women having their first baby and giving birth vaginally

Description: This indicator has two parts among women who had their first baby: (a) the proportion who received an episiotomy while giving birth vaginally without instruments; and (b) the proportion who received an episiotomy during an instrumental vaginal birth.

Purpose: This indicator is used to benchmark practice.

❖ **Indicator B4a: Episiotomy for women having their first baby and giving birth vaginally unassisted (non-instrumental)**

Numerator: The number of women having their first baby who had an episiotomy while giving birth vaginally without instruments (n=841)

Denominator: The number of women having their first baby who gave birth vaginally without instruments (n=3,433)

Indicator B4a 24.5% (95% CI 23.1% - 26.0%)

❖ **Indicator B4b: Episiotomy for women having their first baby and giving birth vaginally assisted (instrumental)**

Numerator: The number of women having their first baby who had an episiotomy during a vaginal birth with instruments (n=1,345)

Denominator: The number of women having their first baby who gave birth vaginally with instruments (n=1,745)

Indicator B4b 77.1% (95% CI 75.0% - 79.0%)

Labour and birth: Caesarean section for selected primiparae

Description: The proportion of all selected primiparae who gave birth by caesarean section.

Purpose: This indicator is used to benchmark practice.

❖ **Indicator B5: Caesarean section for selected women giving birth for the first time**

Numerator: The number of selected primiparae who gave birth by caesarean section (n=1,688)

Denominator: All selected primiparae (n=5,737)

Indicator B5 29.4% (95% CI 28.3% - 30.6%)

Labour and birth:	Women having their second birth vaginally whose first birth was by caesarean section
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Description: The proportion of women having their second birth vaginally whose first birth was by caesarean section.

Purpose: This indicator is used to benchmark practice for vaginal birth following.

❖ Indicator B6:	Women having their second birth vaginally whose first birth was by caesarean section
Numerator:	The number of women having their second birth vaginally whose first birth was by caesarean section (n=306)
Denominator:	The number of women having their second birth whose first birth was by caesarean section (n=2,247)
Indicator B6	13.6% (95% CI 12.3% - 15.1%)

Labour and Birth:	General anaesthetic for women giving birth by caesarean section
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Description: The proportion of women who gave birth by caesarean section who received a general anaesthetic.

Purpose: This indicator is used to benchmark anaesthetic care in association with caesarean section.

❖ Indicator B7: General anaesthetic for women giving birth by caesarean section	
Numerator:	The number of women who gave birth by caesarean section and had a general anaesthetic (n=404)
Denominator:	The total number of women who gave birth by caesarean section (n=6,688)
Indicator B7	6.0% (95% CI 5.5% - 6.6%)

Birth Outcomes:	Third and fourth degree tears for vaginal births
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Description: The proportion of women who have a third or fourth degree perineal laceration after giving birth vaginally. This indicator has two parts: (a) for all vaginal first births (b) for all vaginal births.

Purpose: Third and fourth degree perineal lacerations cause significant ongoing maternal morbidity. This is an outcome indicator that measures their occurrence.

❖ Indicator C1a:	Third and fourth degree tears for all vaginal first births
Numerator:	The number of women who had a third or fourth degree perineal laceration after giving birth for the first time and had a vaginal birth (n=336)
Denominator:	The number of women who gave birth for the first time and had a vaginal birth (n=5,178)
Indicator C1a	6.5% (95% CI 5.8% - 7.2%)

❖ Indicator C1b:	Third and fourth degree tears for all vaginal births
Numerator:	The number of women who had a third or fourth degree perineal laceration after giving birth vaginally (n=434)
Denominator:	The number of women who gave birth vaginally (n=12,507)
Indicator C1b	3.5% (95% CI 3.2% - 3.8%)

Birth Outcomes: Apgar score of less than 7 at 5 minutes for births at or after term

Description: The proportion of liveborn term infants with an Apgar score of less than 7 at 5 minutes.

Purpose: This indicator of the condition of the baby after birth provides an outcome measure of intrapartum care and resuscitation of the newborn.

❖ Indicator C2:	Apgar score of less than 7 at 5 minutes for births at or after term
Numerator:	The number of babies born alive at term with an Apgar score less than 7 at 5 minutes (n=222)
Denominator:	The number of live babies born at term (n=17,596)
Indicator C2	1.3% (95% CI 1.1% - 1.4%)

Birth Outcomes: Small babies among births at or after 40 weeks gestation

Description: The proportion of babies born at or after 40 weeks gestation who weighed less than 2,750 grams at birth.

Purpose: This indicator aims to identify intrauterine growth restriction for babies born at or after 40 weeks gestation. This indicator is used to benchmark practice.

❖ Indicator C3:	Small babies among births at or after 40 weeks gestation
Numerator:	The number of babies born at or after 40 weeks gestation who weighed less than 2,750 grams at birth (n=74)
Denominator:	The total number of babies born at or after 40 weeks (n=6,015)
Indicator C3	1.2% (95% CI 1.0% - 1.5%)

Key Statistics and Trends 2007 - 2017

Perinatal statistics are presented in Table 88 and 89 for both socio-demographic and obstetric aspects for each year from 2008-2017, and for 1981, when the perinatal data collection was commenced. The trends noted are as follows:

1. The total fertility rate was 1.71 live births per woman in 2017, lower than the level in 1981. The highest rate was observed in 2008 and 2012 (1.91 live births per woman).
2. *There was a steady increase in the proportion of Asian women giving birth from 1.8% in 1981 to 16.0% in 2017, and of Aboriginal women from 1.5% in 1981 to 3.8% in 2017.*
3. The proportion of teenage women giving birth decreased from 7.8% in 1981 to 2.1% in 2017. Over the past decade, there has been a general decline in both the teenage birth and termination rates.
4. The mean age of women giving birth has increased each year. The proportion of women who gave birth who were 35 years or older increased from 4.6% in 1981 to a peak of 21.8% in 2017. Amongst primiparous women, the proportion aged 35 years or older in 1981 was 1.2%, and in 2017 was 13.7%. The mean age among women giving birth increased from 26.6 years in 1981 to a peak of 30.8 in 2016, remained stable at 30.4 in 2017. The mean age among primiparous women increased from 24.4 years in 1981 to 29.1 years in 2016 and has decreased slightly to 28.8 in 2017.
5. The proportion of multiple births has been relatively stable since 2008 and in 2017 this proportion was 3.0% of all births.
6. The induction of labour rate increased from 28.6% in 2008 to 35.9% in 2017. Fifty one percent of inductions in 2017 were performed for other than defined indications.
7. The proportion of normal spontaneous vaginal births decreased from 56.0% in 2008 to 53.2% in 2017. The proportion of caesarean section births has increased gradually but steadily in the past decade, and reached 34.8% in 2017. The proportion of breech and ventouse births were stable in the past decade and were 0.4% and 5.7% respectively in 2017.
8. There was a gradual increase in the proportion of low birthweight births (<2,500 grams) from 7.0% in 2008 to 7.3% in 2017. The proportion of preterm births was 8.6% in 2008 and increased to 9.6% in 2017.
9. The proportion of births with congenital anomalies identified before discharge from hospital after birth has been relatively stable in the last decade and was 2.7% in 2017.
10. In the past decade, the proportion of babies utilising Level 2 care increased from 15.4% in 2008 to 17.7% in 2017. The utilisation of Level 3 care also increased from 2.5% in 2008 to 3.1% in 2017. The proportion of births using paediatric intensive care remained stable over the past decade. The proportion of infants in hospital at 28 days after birth has also been relatively stable over the past decade.
11. Using the WHO definition (at least 1,000 grams or 28 weeks gestation) the perinatal mortality rate for international comparison was 2.9 per 1,000 births in 2017. This rate has decreased slightly from the 2008 rate of 3.4 deaths per 1,000 births.

Table 88: Socio-demographic aspects of perinatal statistics, South Australia, 1981 and 2008 – 2017

Characteristic	Year										
	1981	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total births	19,052	19,970	19,901	20,002	20,344	20,666	20,263	20,749	20,154	20,069	19,485
Live births	18,905	19,819	19,761	19,883	20,194	20,528	20,125	20,604	20,001	19,333	19,356
Women who gave birth	18,857	19,672	19,604	19,667	20,043	20,338	19,925	20,448	19,818	19,765	19,195
Total fertility rate per woman	1.75	1.91	1.87	1.84	1.89	1.91	1.85	1.83	1.80	1.75	1.71
Place of birth (%)											
Teaching hospital	52.2	53.2	53.7	54.3	55.5	56.8	57.3	57.8	59.5	60.4	61.4
Private hospital	19.7	26.5	25.7	25.6	24.1	23.3	22.8	22.5	21.5	20.7	19.9
Country hospital	27.8	20.3	19.9	19.3	19.9	19.4	19.3	19.3	18.6	18.4	18.3
Domiciliary*	0.3	0.5	0.7	0.7	0.5	0.5	0.6	0.5	0.5	0.5	0.4
Ethnicity											
Aboriginal, %	1.5	3.2	3.1	3.2	3.5	3.3	3.6	3.5	3.6	3.8	3.8
<i>Number of women who gave birth</i>	277	624	607	625	693	662	717	712	718	750	736
<i>Number of births to Aboriginal mothers</i>	280	637	618	630	703	669	729	720	732	759	748
<i>Number of babies identified as Aboriginal</i>						904	952	947	1,001	1,031	962
Asian, %	1.8	7.0	8.1	9.6	11.1	12.1	12.0	12.9	13.7	14.6	16.0
Age											
Mean age (years)	26.6	30.1	30.1	30.1	29.7	30.2	29.8	30.0	30.1	30.8	30.4
Teenage (%)	7.8	4.5	4.1	4.0	4.0	3.9	3.3	3.1	2.8	2.4	2.1
≥35 years (%)	4.6	21.1	21.1	20.5	20.6	20.4	19.8	20.6	20.3	21.3	21.8
Primiparae											
Mean age (years)	24.4	28.2	28.3	28.3	27.9	28.4	28.2	28.4	28.5	29.1	28.8
Teenage, %	15.4	8.8	8.4	7.8	7.8	7.8	6.7	6.3	5.6	4.6	4.2
≥35 years, %	1.2	12.7	12.8	12.2	12.0	11.8	12.4	12.9	12.5	12.5	13.7

Table 89: Obstetric aspects of perinatal statistics, South Australia, 1981 and 2008 – 2017

Characteristic	Year										
	1981	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Plurality											
Multiple births, %	2.0	3.0	3.0	3.3	2.9	3.2	3.3	2.9	3.3	3.0	3.0
Twins, number	363	592	578	644	586	636	640	574	648	592	568
Triplets, number	21	3	12	15	12	15	27	21	18	12	9
Quadruplets, number	0	0	0	4	0	0	0	0	0	0	0
Induction of labour (%)	22.1	28.6	29.4	29.6	31.2	30.9	32.5	32.2	32.5	33.9	35.9
Method of birth, %											
Normal spontaneous	66.1	56.0	55.4	55.2	54.7	54.2	53.9	54.1	53.1	52.7	53.2
Elective caesarean	8.2	15.4	15.7	15.5	15.8	15.9	16.2	16.6	17.2	17.3	16.8
Emergency caesarean	8.7	16.8	16.7	16.7	17.3	17.9	17.8	17.3	17.8	17.8	18.1
Forceps	15.2	4.2	4.6	5.4	5.7	5.5	5.6	5.3	5.6	5.7	5.9
Breech	1.1	0.5	0.4	0.3	0.5	0.4	0.5	0.4	0.3	0.4	0.4
Ventouse	0.7	7.1	7.2	6.9	5.9	6.0	5.9	6.3	5.9	6.1	5.7
Total caesarean	16.9	32.2	32.4	32.2	33.2	33.8	34.0	33.9	35.1	35.1	34.8
Birthweight <2,500 g, %	5.8	7.0	7.3	7.2	7.5	7.7	7.7	7.1	7.6	7.7	7.3
Singletons	4.9	5.5	5.7	5.6	6.2	6.1	5.8	5.7	5.9	5.9	5.7
Multiples	52.1	53.4	59.8	54.1	51.9	56.8	63.0	57.2	59.6	63.1	58.9
Gestational age <37 weeks, %	5.5	8.6	9.0	8.9	9.2	9.4	9.8	9.2	9.6	9.5	9.6
Singletons	4.8	7.0	7.2	7.2	7.5	7.6	7.7	7.5	7.6	7.5	7.6
Multiples	41.1	59.3	67.5	58.4	61.5	64.7	70.6	69.2	69.4	74.7	75.0
Congenital abnormalities, %	3.4	2.7	2.7	2.8	3.0	2.7	2.8	2.7	2.6	2.6	2.7
Level of perinatal care utilised, %											
Level II care	n/a	15.4	15.3	16.0	16.2	16.7	16.5	15.9	16.9	17.2	17.7
Level III care	3.3	2.5	2.9	2.5	2.6	2.7	2.7	2.5	2.9	3.1	3.1
WCH ICU care	n/a	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Hospitalisation for 28 days or more, %	4.2	2.2	2.2	2.0	2.2	2.4	2.4	2.1	2.1	2.1	2.0
Neonatal deaths, number	96	51	49	44	44	46	45	39	35	39	47
Stillbirths, number	147	151	140	119	150	138	138	145	153	136	129
Perinatal deaths, number	243	202	189	163	194	184	183	184	188	175	176
Perinatal mortality rate per 1,000 births											
≥400g / 20 weeks	12.8	10.1	9.5	8.1	7.4	8.9	6.6	8.9	9.3	8.7	9.0
≥500 g / 22 weeks*	11.6	5.3	4.9	4.4	5.3	4.1	5.2	4.6	5.2	6.1	5.9
≥1,000 g / 28 weeks	7.2	3.4	3.5	3.2	3.2	2.1	2.8	2.4	3.2	3.3	2.9
Standardized perinatal mortality ratio	117.6	67.3	65.2	57.6	62.9	57.6	59.4	60.0	59.9	55.8	54.1

Summary Statistics for 2017

These statistics refer to all live births as well as stillbirths of at least 400g birthweight or 20 weeks gestation. Fifty two babies of less than 400g birthweight have been included.

1. Number of births

Notified births with Supplementary Birth Records: 19,485

Notified women who gave birth on SBRs: 19,195

Crude birth rate: 11.2 live births per 1,000 population

Total fertility rate: 1.71 live births per woman

2. Place of birth

Home births: 78 home births in all (0.4%), of which 74 were planned home births

Metropolitan teaching hospitals: 11,964 (61.4%)

Metropolitan private hospitals: 3,869 (19.9%)

Country hospitals: 3,574 (18.3%)

3. Sex of babies

Males 10,069 (51.7%)

Females 9,416 (48.3%)

Male: Female sex ratio 1.07:1

4. Plurality

Singleton 18,908 (97.0%)

Twin 568 (2.9%)

Triplet 9 (0.1%)

5. Ethnicity of women

Caucasian 14,094 (73.4%)

Aboriginal 736 (3.8%)

Asian 3,066 (16.0%)

Other 1,299 (6.8%)

6. Obstetric interventions

Induction of labour: 6,889 (35.9% of women)

Augmentation of labour: 3,202 (37.4% of women)

Forceps: 1,140 (5.9%)

Ventouse: 1,089 (5.7%)

Episiotomy: 2,997 (24.0% of women who gave birth vaginally)

Caesarean section: 6,688 (34.8%)

Elective caesarean section: 3,223 (16.8%)

Emergency caesarean section: 3,465 (18.1%)

7. Low birthweight (<2,500 g)

Number of all births of low birthweight =1,420 (7.3% of all births)

Number of singleton births of low birthweight =1,080 (5.7% of singleton births)

Number of multiple births of low birthweight =340 (58.9% of multiple births)

8. Congenital anomalies

Births notified with congenital anomalies: 520 (2.7%)

9. Perinatal mortality rates

The perinatal mortality rate for all births (live births of any gestation and stillbirths of at least 400g birthweight or 20 weeks gestation) in 2017 was 9.0 per 1,000 births

10. Terminations of pregnancy

Total terminations of pregnancy: 4,349

Pregnancy termination rate: 13.2 per 1,000 women aged 15-44 years

Teenage pregnancy rate: 17.3 per 1,000 women aged 15-19 years

Methods and Terminology

Age specific fertility rate

The number of live births to women in an age group in a year, divided by the estimated resident population of women of that age group in the same year, expressed per 1,000 population.

Apgar score

The Apgar score is a method used to summarise the health of a newborn infant. It is determined by evaluating the infant's heart rate, respiratory effort, muscle tone, reflexes and skin colour. Each criterion is scored from 0 to 2, then summing the five values to obtain the Apgar score.

Indicator	Score		
	0	1	2
Heart rate	Absent	Slow (below 100)	Over 100
Respiratory effort	Absent	Slow, irregular	Good, crying
Muscle tone	Flaccid	Some flexion of extremities	Active motion
Reflex irritability	No response	Grimace	Vigorous cry
Colour	Blue, pale	Body pink, extremities blue	Completely pink

Birthweight

The first weight of a fetus or newborn obtained after birth. This is preferably measured within the first hour of life before significant post-natal weight loss has occurred. Low birthweight is defined as a birthweight of less than 2,500 grams. Very low birthweight is defined as a birthweight of less than 1,500 grams.

Body Mass Index

A person's weight in kilograms divided by their height in meters squared. A person's BMI can then be used as a guide to determine whether they are underweight, normal weight or overweight for their height, according to the following categories.

BMI range	Category
<18.5	Underweight
18.5 to 24.9	Normal
25.0 to 29.9	Overweight
30.0 to 34.9	Obese
35.0 to 39.9	Severely obese
>40	Morbidly obese

Caesarean section

Birth of a child by an abdominal operation. Elective caesarean section is defined as a caesarean section that takes place as a planned procedure before the spontaneous onset of labour. Emergency caesarean section is defined as a caesarean section that is undertaken for a complication before the onset of labour, or during labour (whether that labour is of spontaneous onset or following induction).

Congenital Anomalies

Congenital anomalies are coded according to the British Paediatric Association (BPA) Classification of Diseases. Anomalies presented in Table 58 are from the following code ranges:

BPA Code	Category
74000-74029	Anencephalus
74100-74199	Spina bifida
74200-74209	Encephalocele
74230-74239	Hydrocephalus
74900-74909	Cleft palate
74910-74929	Cleft lip and palate
75030-75038	Tracheo-oesophageal fistula, oesophageal atresia and stenosis
75120-75124	Atresia and stenosis of large intestine, rectum and anal canal
75260-75261	Hypospadias and epispadias
75300-75301	Renal agenesis and dysgenesis
75520-75549	Limb reduction defects
75660-75669	Anomalies of diaphragm
75670-75679	Anomalies of abdominal wall
75800-75809	Trisomy 21

Crude birth rate

The number of live births occurring among the ABS Estimated Resident Populations (ERP) for South Australia, per 1,000 population during the same year.

Early Neonatal Mortality Rate

The Early Neonatal Mortality Rate (ENMR) is defined as infants weighing at least 1000 grams or 28 weeks gestation that died during the first seven days of life.

Fetal death

Death prior to the complete expulsion or extraction from a woman of a product of conception, irrespective of the duration of pregnancy; 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.

General fertility rate

The total number of live births in a year, divided by the estimated resident population of women aged 15 to 44 years in the same year, expressed per 1,000 population.

Gestational age

The duration of pregnancy in completed weeks determined by the best obstetric estimate, using ultrasonography and the first day of the last normal menstrual period.

Induction of labour

An intervention undertaken to stimulate the onset of labour by pharmacological or other means.

Live birth

The complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of 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.

This report does not include live births less than 20 weeks gestation and less than 400g birthweight.

Maternal death

Defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Multigravida

A woman who has been pregnant more than once.

Neonatal death

Death of a live born infant within 28 days of birth.

Neonatal death rate

The number of neonatal deaths in a defined time period, divided by the total number of live births in the same time period, multiplied by 1,000.

Parity

The total number of previous pregnancies resulting in live births or stillbirths.

Perinatal deaths

Stillbirths and neonatal deaths combined

Perinatal mortality rate

The number of stillbirths and neonatal deaths in a defined time period, divided by the total number of stillbirths and live births in the same time period, multiplied by 1,000

For South Australian statistics, the rate refers to live births and stillbirths of at least 400g birthweight or 20 weeks gestation.

For national statistics, the rate refers to all births of at least 20 weeks gestation or 400g birthweight, and neonatal deaths occurring within 28 days of birth.

For international comparison, the rate refers to all births of at least 1,000g birthweight or, when birthweight is unavailable, of at least 28 weeks gestation and neonatal deaths occurring within seven days of birth (as recommended by WHO).

Preterm

Less than 37⁺⁰ completed weeks gestation.

Primigravida

A woman pregnant for the first time.

Primipara

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

Pregnancy termination rate

All rates of populations were calculated using the reproductive age range 15 to 44 years. Terminations occurred in women that were younger or older than this age group. These events were added to the numerator for the 15 to 19 years group or the 40 to 44 years group respectively.

Stillbirth

Birth of a fetus at or after 20 weeks gestation or with a birthweight of 400g or more, with no signs of life at birth.

Stillbirth rate

The number of stillbirths in a defined time period, divided by the total number of stillbirths and live births in the same time period, multiplied by 1,000

Termination of pregnancy

The removal or expulsion of a pregnancy from the uterus via surgical or medical intervention, and excludes spontaneous abortions or miscarriages

Total abortion rate (TAR)

The sum of the five-year age-specific termination of pregnancy rates, multiplied by five. This represents the number of induced abortions (or terminations of pregnancy) that 1,000 women would have during their reproductive lifetime if they experienced the induced abortion rates of the different age groups for the current year.

Total fertility rate

The sum of age-specific fertility rates at a given time. It represents the number of children a woman

would bear during her lifetime if she experienced current age-specific fertility rates at each age of her reproductive life.

Total first abortion rate (TFAR)

The sum of the five-year age-specific termination of pregnancy rates of women experiencing their first termination, multiplied by five. The total first abortion rate (TFAR) is a method used to estimate the proportion of women who will experience a termination of pregnancy in their reproductive lifetime

Women who gave birth

Women who gave birth after a pregnancy ending with the birth of one or more live births or stillbirths.

References

1. Maternal and Perinatal Mortality Committee, Archived Recommendations <https://www.sahealth.sa.gov.au/wps/wcm/connect/590d2f13-5423-46c1-996f-99a702cb9e41/MPMC+2016+Report+Archived+Recommendations.pdf?MOD=AJPERES&CAID=ROOTWORKSPACE-590d2f13-5423-46c1-996f-99a702cb9e41-mMF.hj4>
2. South Australian Birth Defect Register. *Annual Report*. Available from: <http://www.wch.sa.gov.au/services/az/other/phru/birthdefect.html>
3. United Nations, Population Division. *Total fertility rate*. Available from: http://www.un.org/esa/sustdev/natlinfo/indicators/methodology_sheets/demographics/total_fertility_rate.pdf.
4. Statewide Service Strategy Division, *Standards for Maternal and Neonatal Services in South Australia 2015*. 2015, Department of Health and Wellbeing: Adelaide.
5. South Australia Health Commission Epidemiology Branch, *Risk factors for adverse perinatal outcome: determination from a perinatal statistics collection*. 1986, South Australia Health Commission: Adelaide.
6. Maternal and Perinatal Mortality Committee, *Maternal and Perinatal Mortality in South Australia 2017*. 2019, SA Health, Government of South Australia: Adelaide.
7. World Health Statistics data visualization dashboard. *Newborn and child mortality: Neonatal mortality*. 2017 [cited May 2018; Available from: <http://apps.who.int/gho/data/node.sdg.3-2-viz-3?lang=en>.
8. *Neonatal and perinatal mortality: country, regional and global estimates*. 2006, World Health Organization: Geneva.
9. South Australian Abortion Reporting Committee, *Annual Report of the South Australian Abortion Reporting Committee 2017*. 2019, SA Health, Government of South Australia: Adelaide.
10. South Australia Health Commission Epidemiology Branch, *Risk factors for adverse perinatal outcome: determination from a perinatal statistics collection*. 1986, South Australia Health Commission: Adelaide.
11. AIHW National Perinatal Epidemiology and Statistics Unit, *National Core Maternity Indicators*. 2017, AIHW: Canberra.

Appendix 1

Government of South Australia
Department of Health

2017 SUPPLEMENTARY BIRTH RECORD
FOR COMPLETION BY MIDWIVES AND NEONATAL NURSES

25815

Mother's name (Surname) (Given names) 2 1 7

Child's surname (if different) (Given name - if known)

Mother's address Postcode

Hospital/Place of birth

Mother's Case Record Number

Plurality (1=single, 2=twin, 3=triplet, 4=quad)

Personal information above this line is confidential For multiple births, please complete a separate baby form for each baby.

MOTHER'S INFORMATION

1 Mother's date of birth day month year

2 Ethnicity
1. Caucasian
2. Aboriginal
3. Asian
4. Torres Strait Islander (TSI)
5. Aboriginal & TSI
6. Other

3 Country of birth

4 Type of patient
1. Hospital/Public
2. Private

5 Marital status
1. Never married
2. Married/De facto
3. Widowed
4. Divorced
5. Separated

OCCUPATION

6 Baby's father

Baby's mother

PREVIOUS PREGNANCY OUTCOMES

7 Number of previous pregnancies

8 Number of previous pregnancies resulting in births 220 weeks (parity)

9 Number of previous outcomes
Livebirths, not neonatal deaths
Livebirths, neonatal deaths
Stillbirths
Miscarriages
Ectopic pregnancies
Terminations of pregnancy

10 Outcome of last pregnancy

11 Date of delivery/termination of last pregnancy month year

12 Method of last birth
0. No previous birth
1. Vaginal
2. Caesarean
9. Not known

13 Number of previous caesareans

THIS PREGNANCY

14 Date of last menstrual period day month year

15 Intended place of birth
1. Hospital
2. Birthing unit / centre
3. Home
4. Other (specify)

16a Number of antenatal visits

16b First antenatal visit Gestation (weeks)

Height (cm)

Weight (kg)

17 Type of antenatal care
1. No antenatal care
2. Midwifery Group Practice at birth hospital
3. Birth unit / centre
4. Public Clinic (specialist led)
5. General Practitioner and public hospital (shared care)
6. General Practitioner led
7. Obstetrician +/- midwife in private practice
8. Privately practising midwife
9. Other (specify)

18 Tobacco smoking status at first visit
1. Smoker
2. Quit in pregnancy before first visit
3. Non smoker
4. Unknown smoking status

19 Average number of tobacco cigarettes smoked per day in 2nd half of pregnancy
None
Number per day =
<1 (occasional)
Unknown number

20 Medical conditions present in this pregnancy
1. None
2. Anaemia
3. Urinary tract infection
4. Hypertension (pre-existing)
5. Diabetes (pre-existing)
6. Epilepsy
7. Asthma
8. Other (specify)

21 Obstetric complications
1. None
2. Threatened miscarriage
3. APH - Abruption
4. APH - Placenta praevia
5. APH - Other & unknown cause
6. Pregnancy hypertension (all types)
7. Suspected IUGR
8. Gestational diabetes
9. Other (specify, including impaired glucose tolerance)

22 Date of admission prior to birth day month year

23 Procedures performed in this pregnancy
Tick if Yes Tick if Unknown
0. NIPT
1. First trimester anomaly screen (U/S & biochem)
2. Second trimester anomaly screen (biochem only)
3. Ultrasound dating scan
4. Ultrasound morphology scan
5. Other ultrasound scan
6. Amniocentesis
7. Chorion villus biopsy
8. Antenatal fetal blood sampling
9. Other surgical procedures (specify)

LABOUR AND BIRTH

24 Onset of labour
1. Spontaneous
2. No labour (CS)
3. Induction (excluding augmentation)
Give reason/s for induction (If postdates, state T+ days)

25 If induction, or augmentation after spontaneous onset, specify method/s
1. ARM
2. Oxytocics
3. Prostaglandins
4. Other (specify)

26 Presentation prior to birth
1. Vertex
2. Breech
3. Face
4. Brow
5. Other
6. Unknown

27 Method of birth
1. Normal spontaneous
2. Forceps
3. Assisted breech (no forceps)
4. CS (elective)
5. CS (emergency)
If CS state reason/s:
6. Ventouse
7. Breech extraction
8. Breech spontaneous
9. Unknown
10. Assisted breech (with forceps for head)

28 Complications of labour, birth and puerperium
1. None
2. PPH Primary ≥ 500 ml specify ml
Transfusion required
3. Fetal distress
4. Retained placenta
5. Prolonged labour (>18 hrs)
6. Cord prolapse
7. Wound infection
8. Failure to progress (specify)
9. Other (specify)

29 Perineal status after birth
Tick tear, repair & episiotomy if all
1. Intact
2. 1st degree tear/vaginal graze
3. 2nd degree tear
4. 3rd degree tear
5. 4th degree tear
6. Repair of tear
7. Episiotomy
8. Other (specify)
9. Not stated

30 CTG performed during labour
1. None
2. External
3. Scalp clip

31 Fetal scalp pH taken during labour
1. No
2. Yes

32 Analgesia for labour
1. None
2. Nitrous oxide and oxygen
3. Narcotic (parenteral)
4. Epidural (lumbar/caudal)
5. Spinal
6. Other (specify)
7. Combined spinal-epidural

33 Anaesthesia for birth
1. None
2. Local anaesthesia to perineum
3. Pudendal
4. Epidural (lumbar/caudal)
5. Spinal
6. General anaesthesia
7. Other (specify)
8. Combined spinal-epidural

34 Mother's outcome for birth hospital/home birth
1. Discharged
2. Transferred
3. Died
Transferred to day month year

35 MOTHER'S FINAL DISCHARGE/DEATH
Date day month year

BABY DETAILS

1 Case record number

2 Aboriginal status
1. Aboriginal
2. Torres Strait Islander (TSI)
3. Aboriginal & TSI
4. Not Aboriginal nor TSI
5. Not stated / inadequately described.

3 Place of birth
1. Hospital 3. Domiciliary
2. BBA 4. Birthing unit/centre

4 Date of birth day month year

5 Hour of birth (24 hour clock)

6 Sex
1. Male
2. Female
3. Indeterminate

7 Birth weight (grams)

8 Gestation at birth (best clinical estimate in weeks)

CONDITION AT BIRTH

9 Apgar Score 1 minute 5 minute

10 Time to establish regular breathing (to nearest minute)

11 Resuscitation at birth
1. None
2. Aspiration
3. Oxygen
4. IPPV - bag & mask
5. IPPV - intubation
6. Narcotic antagonist
7. Sodium bicarbonate
8. Ext. cardiac massage
9. Other (specify)

12 Condition occurring during birth
1. None
2. Fracture
3. Dislocation
4. Nerve injury
5. Other (specify)

13 Congenital abnormalities
1. Nil apparent
2. Yes (specify)

14 Treatment given
1. None of the treatments below
2. Oxygen therapy > 4 hours
3. Phototherapy for jaundice
4. Gavage feeding more than once
5. Any intravenous therapy

15 Nursery care required
1. Well Baby Care (Level 1-3)
2. Nursery / Special Care (Level 4-5)
Number of days
3. Neonatal Intensive Care Unit (NICU) - FMC/WCH (Level 6)
Number of days
4. Paediatric Intensive Care Unit (PICU) - WCH
Number of days

16 Was transfer to NICU/PICU for a congenital abnormality?
Yes
No

OUTCOME OF BABY

17 Outcome of baby
1. Fetal death
2. Discharged
3. In hospital at 28 days
4. Neonatal death

18 Baby transferred to day month year

19 Date of final discharge (or death) day month year

25815

Please return top copy to:
Pregnancy Outcome Unit, PO Box 6,
Rundle Mall, Adelaide SA 5000

For Official Use I3-A1

Appendix 2



Government of South Australia
Department of Health

S.A. PREGNANCY OUTCOME STATISTICS UNIT,
PO Box 6, Rundle Mall, Adelaide SA 5000

CONGENITAL ABNORMALITY FORM

SBR No.

ACC NO.

2	1				
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BABY'S SURNAME.....

BABY'S FIRST NAME.....

SEXIF MULTIPLE BIRTH, BIRTH ORDER.....

DATE OF BIRTH...../...../..... UR NO.

HOSPITAL.....

ADDRESS OF MOTHER.....

.....

FAMILY HISTORY OF CONGENITAL ABNORMALITY Yes No Not known

1. Parents (specify)..... ☐ Yes ☐ No ☐ Not known

2. Siblings of this baby (including known stillbirths and 2nd trimester terminations of pregnancy) ☐ Yes ☐ No ☐ Not known

(specify).....

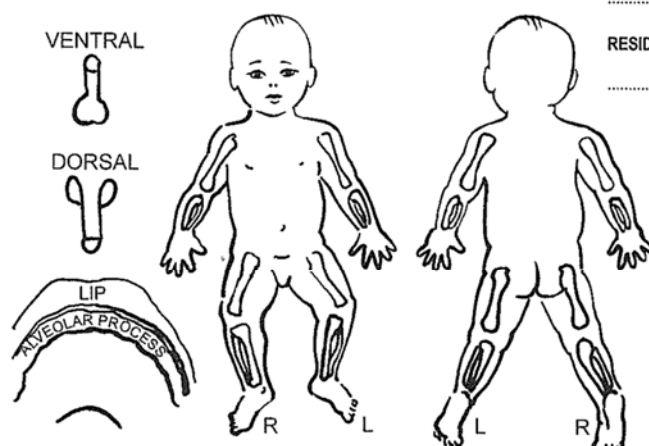
3. Other relatives (specify)..... ☐ Yes ☐ No ☐ Not known

.....

RESIDENCE OF MOTHER DURING THE FIRST 16 WEEKS OF PREGNANCY

.....

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EXPOSURE TO TERATOGENS

DURING THE FIRST 16 WEEKS OF PREGNANCY

This information can be provided by the doctor undertaking antenatal care

Yes If yes, details

1. Infection (including viral) ☐.....

2. Xrays ☐.....

3. Environmental chemicals ☐.....

4. Prescribed drugs ☐.....

5. Over-the-counter drugs ☐.....

6. Alcohol ☐.....

7. Other addictive substances ☐.....

8. Any other substances ☐.....

Comments.....

GEST =

CONGENITAL ABNORMALITIES / BIRTH DEFECTS PRESENT

(Please list all defects & specify where relevant right/left, anterior/posterior)

Office use only

1.....

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SPECIFIC SYNDROME/S (if known).....

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HAS THE FATHER OF THIS CHILD A HISTORY OF EXPOSURE TO ANY POTENTIAL TERATOGENS? ☐ Yes ☐ No ☐ Not known

(specify).....

ADDITIONAL INFORMATION (eg drinking water supply/local epidemics)

.....

PRENATAL DIAGNOSIS

Please tick all tests performed during this pregnancy

Please tick if abnormal result

1. ☐ MSAFP (NTD etc) ☐

2. ☐ Triple/Quadruple screen (Down's, etc) ☐

3. ☐ Ultrasound (morphology) ☐

4. ☐ Chorion villus sampling ☐

5. ☐ Amniocentesis ☐

6. ☐ Cordocentesis ☐

7. ☐ Other (specify)..... ☐

8. ☐ Not known ☐

Comments.....

NAME OF NOTIFYING DOCTOR..... Signed..... Date.....

NAME & ADDRESS OF OBSTETRICIAN / MIDWIFE (if not the same).....

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For more information

Pregnancy Outcome Unit
Wellbeing SA, Government of South Australia
PO Box 6 Rundle Mall, Adelaide
South Australia 5000 Australia
Telephone: (08) 8226 6382
www.sahealth.sa.gov.au/pregnancyoutcomes



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