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PREGNANCY OUTCOME

IN SOUTH AUSTRALIA 2006



PREGNANCY OUTCOME UNIT

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2006**

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November 2007

PREGNANCY OUTCOME UNIT

Department of Health

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Pregnancy Outcome in South Australia 2006

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EXECUTIVE SUMMARY

This report on pregnancy outcome in South Australia for 2006 provides statistics derived mainly from the South Australian perinatal statistics collection of births. These are notified by hospital and homebirth midwives and neonatal nurses. For a more complete picture of pregnancy outcome, some statistics from the abortion statistics collection are also included. More statistics on abortions in the state in 2006 are provided in the Fourth Annual Report of the Abortion Reporting Committee. Comparisons of selected pregnancy characteristics are provided for five different hospital categories in the state. Individual hospital reports (Pregnancy and Neonatal Care Bulletins) with these comparisons made in greater detail are provided to hospitals in the state with at least 100 births per year. Group reports are provided for hospitals with smaller numbers of births.

1 Numbers and fertility rates

The number of births notified in South Australia in 2006 was 18,803, which was 607 more than the previous year. The number of women who gave birth was 18,519. The total fertility rate was 1.82 live births per woman, the same as in 2005, and the highest in the last decade. The fertility rates increased in the older age groups of 30 years and above, remaining highest in the 30-34 years age group, followed by the 25-29 years age group.

2 Place of birth

There were increases in the numbers of women giving birth in metropolitan teaching and private hospitals. 1,272 women (6.9% of those who gave birth in the state) gave birth in birthing units in teaching hospitals and 82 women (0.4%) had planned home births.

3 Teenage women

892 teenage women gave birth, accounting for 4.8% of confinements, and 998 teenage women had terminations of pregnancy, accounting for 20.4% of terminations. In 2006, the proportion of 'known' pregnancies terminated was 53% for teenagers compared with 21% for women of all ages. The teenage pregnancy rate declined in the 1970s and 1980s, but increased in the early 1990s. It declined again after 1996. The teenage pregnancy rate of 37.1 per 1,000 women in 2006 was slightly higher than the rate of 36.3 in 2005, which was the lowest rate recorded since 1970, when abortion statistics became available to derive a pregnancy rate.

4 Older mothers and first time mothers

The mean age of women giving birth increased from 26.55 years in 1981 to 30.01 years in 2006, and, among first time mothers, from 24.42 years to 28.20 years. The proportion of women aged 35 years or more increased from 4.6% in 1981 to 20.4% in 2006. Among first time mothers, this proportion increased from 1.2% to 12.6%. As in the previous five years, more women gave birth in the 30-34 years than in the 25-29 years age group.

5 Country of birth and race

Eighty-five percent of women who gave birth in 2006 were Australian-born. Of women born overseas who gave birth, the largest proportions came from the United Kingdom and Ireland (3.2% of confinements in the state), Vietnam (1.5%), New Zealand (1.1%) and the Philippines (0.7%). Asian women accounted for 940 confinements, 5.1% of all confinements in the state in 2006, compared with 1.8% in 1981. They were slightly older than women of other races (23.0% being aged 35 years or more) and gave birth mainly in teaching hospitals.

6 Smoking during pregnancy

The proportion of women smoking during pregnancy has declined steadily from 25% in 1998 to 18% in 2006. About 4% each year quit smoking before the first antenatal visit.

7 Aboriginal women

Aboriginal women accounted for 548 confinements, 3.0% of confinements in the state. Twenty-three percent of Aboriginal women were teenagers (compared with 5% of non-Aboriginal women) and 38% had less than seven antenatal visits during pregnancy (compared with 7% of non-Aboriginal women). Smoking during pregnancy was more prevalent and heavier among Aboriginal women, with 54% smoking at the first antenatal visit compared with 17% of non-Aboriginal women. The proportion of non-Aboriginal women smoking during pregnancy has decreased steadily from 24% in 1998 to 17% in 2006. Among Aboriginal women, the decrease has occurred only between 2005 and 2006, from 61% to 54%. In 2006, decreases were also seen in the proportions of preterm birth (<37 weeks gestation), small-for-gestational-age and low birthweight (<2,500g) among Aboriginal births. These proportions remained about twice those of non-Aboriginal births. The perinatal mortality rate of babies of Aboriginal women was still higher than that of babies of non-Aboriginal women (14.3 compared with 9.3 per 1,000 births).

8 Type of care and length of stay

Although many women had more than one type of antenatal care, the most common types used were hospital clinics (38%), obstetricians in private practice (33%) and general practitioners (21%). Thirty-two percent of women were private patients. The median length of stay of mothers after a birth was four days; it was three days for those who had a vaginal birth and five days for those who had a caesarean section. It was two days longer among private patients for both vaginal and caesarean births.

9 Procedures

At least ninety-seven percent of women who gave birth had an ultrasound examination; 29% had labour induced while another 22% had spontaneous labour augmented; epidurals were used for pain relief during labour for 31% of women, and 12% had an episiotomy (18% of women who gave birth vaginally). The main reasons for induction of labour were prolonged pregnancy (23%), hypertension (14%), premature rupture of membranes (7%), intrauterine growth restriction (4%) and diabetes or gestational diabetes (6%). Nearly half the inductions (49%) were performed for other than defined indications.

10 Method of delivery

Fifty-six percent of women had normal spontaneous vaginal deliveries. Seven percent were delivered by ventouse and 4% by forceps (compared with 1% and 15% respectively in 1981). In 2006 the proportion of women delivered by caesarean section rose to 32.9%, with 15.5% of women having elective caesareans. Of those who had previously given birth, 29% had previously experienced a caesarean section. Only 16% of women had a vaginal delivery following a previous first caesarean without intervening births, compared with 30% in 1998. The main reasons given for caesarean section were previous caesarean section (31%), failure to progress in labour or cephalopelvic disproportion (25%), fetal distress (14%) and malpresentation (10%).

11 Multiple births

Multiple births accounted for 3.0% of births; confinements with twins or triplets accounted for 1.5% of confinements in 2006. These proportions have been increasing since the 1980s as a result of the use of assisted conception and the increasing proportion of older mothers, who have higher rates of multiple pregnancies than younger mothers. However, the peak proportion of multiple births was recorded in 2002 and 2003 (3.6%), after which it declined.

12 Abortions

4,888 terminations of pregnancy were notified, 173 more than in 2005. The abortion rate was 15.5 per 1,000 women aged 15-44 years. Approximately 90% of terminations were performed in metropolitan teaching hospitals, including the Pregnancy Advisory Centre, and 75% were in family advisory clinics in these hospitals. Ninety-one percent of terminations were performed within the first 14 weeks of pregnancy and 1.6% (78) were late terminations (at or after 20 weeks gestation). Fifty-one percent of these late terminations were for fetal abnormalities. The abortion rate has declined significantly since 2001, when it was 17.7 per 1,000 women. Approximately 21% of known pregnancies ended as terminations in 2006.

13 Perinatal mortality

The perinatal mortality rate for all births in 2006 was 9.5 per 1,000 births and the neonatal mortality rate 2.0 per 1,000 live births, the lowest ever recorded in the state. For international comparisons, the World Health Organization recommends including only births of at least 1,000g birthweight (or 28 weeks gestation if birthweight unavailable) and early neonatal deaths within the first 7 days of life (instead of 28 days) in calculating the perinatal mortality rate. This rate for international comparisons for South Australia for 2006 was 3.1 per 1,000 births. This rate has declined by 57% from 7.2 per 1,000 births in 1981. The decline has been even greater for neonatal deaths (a decline of 72% from 2.5 per 1,000 live births in 1981 to 0.7 per 1,000 live births in 2006).

I INTRODUCTION

This Report summarizes the statistics for 2006 from the South Australian perinatal statistics collection and the South Australian abortion statistics collection, both of which are held in the Pregnancy Outcome Unit. Some definitions used by the Unit are provided in Appendix 1. Guidelines¹ with some of these definitions are issued to all South Australian obstetric units to promote the uniform completion of forms.

1 The Perinatal Statistics Collection

This collection utilises notifications of births in South Australia made by hospital and homebirth midwives and hospital neonatal nurses on the Supplementary Birth Record (SBR - Appendix 2). The SBRs are checked manually for completeness and data discrepancies and then go through a series of automated validation procedures during data entry.

Information on congenital abnormalities detected at birth or in the neonatal period (within 28 days of birth) is provided by doctors using the Congenital Abnormality Form (Appendix 3). Few 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 Hospital.² The Register complements statistics on birth defects from the perinatal and abortion statistics collections with statistics on birth defects detected and notified after discharge from the birth hospital up to the child's fifth birthday.

Perinatal data are provided under legislation, the South Australian Health Commission (Pregnancy Outcome Statistics) Regulations 1999. The South Australian perinatal statistics collection includes all births occurring in South Australia, including those to women who normally reside interstate, mainly in New South Wales near the South Australian border and in the Northern Territory. Births of South Australian residents which occur in other states are not included. The perinatal data have been collected since 1981, but there have been changes in the data items collected over the years.

Perinatal death certificates and Coroner's findings in coronial cases are obtained from the Births, Deaths and Marriages Registration Division, chromosome analysis reports from the Department of Cytogenetics and Molecular Genetics at Women's and Children's Hospital and autopsy reports from pathology departments and the Coroner's Office. All these are linked with the SBRs to provide more complete information on births and deaths. All maternal, perinatal and infant deaths in the state are reviewed by the Maternal, Perinatal and Infant Mortality Committee and details of these are reported in the annual report of the Committee entitled 'Maternal, Perinatal and Infant Mortality in South Australia 2006.'³

2 The Abortion Statistics Collection

Notifications made by doctors of medical terminations of pregnancy under the Criminal Law Consolidation (Medical Termination of Pregnancy) Regulations 1996, are included in this collection. It has been in existence since 1970, when specific abortion legislation was introduced under the Criminal Law Consolidation Act. Termination of pregnancy became legal in the state if performed in a prescribed hospital by a medical practitioner for a woman who has been resident at least two months in the state. The practitioner and another medical practitioner must have examined the woman and formed the opinion that the continuation of the pregnancy would involve greater risk to her life or greater risk of injury to her physical or mental health than if the pregnancy were terminated; or that there is a substantial risk that if the pregnancy were not terminated and the child were born, the child would suffer from such physical or mental abnormalities as to be seriously handicapped. A termination may not be performed on a woman who is pregnant with a child 'capable of being born alive' unless it is performed to save the mother's life. The legislation states that evidence that a

woman has been pregnant for a period of 28 weeks or more is *prima facie* proof that she was pregnant with a child that was capable of being born alive.

II CONFINEMENTS AND BIRTHS: CHARACTERISTICS & OUTCOMES

The births in 2006 in South Australia described in this Report include live births of any gestation and stillbirths (including terminations of pregnancy for congenital abnormalities and medical conditions) of at least 400g birthweight or 20 weeks gestation. There were two livebirths of unknown birthweight. One was a neonatal death at 19 weeks gestation and the second was a baby delivered at 39 weeks gestation. One other baby of unknown birthweight was a twin which died in utero at 19 weeks and was delivered with its twin at 28 weeks gestation. Fifty births of less than 400g birthweight have been included, consisting of 46 stillbirths and four live births. The four live births were born at 20-26 weeks gestation and died in the neonatal period. Twenty-five of these 50 births were terminations of pregnancy, all but one having been undertaken for congenital abnormalities. SBRs were received for all 18,803 births reported by hospital and home birth midwives in their monthly notification lists. These comprised 18,663 live births and 140 stillbirths. The number of women who gave birth was 18,519, an increase of 622 from 2005. Findings relating to Aboriginal mothers and babies in the text of this Report have been *italicised* for easy identification, in response to the request of the Aboriginal Health Council.

1 Place of residence of mother

South Australia is divided into nine CURB (Committee for Uniform Regional Boundaries) Regions, comprising five country Regions and four Central Regions. Each of the Central Regions (Northern, Eastern, Western, Southern) has a Metropolitan (Adelaide) and a non-metropolitan component (Figures 1A and 1B). The distribution of births according to place of residence of mother by CURB Regions is provided in Table 1 together with the estimated resident population and crude birth rate. The crude birth rate in 2006 for South Australia was 11.9 per 1,000 population. It was lowest in Yorke and Lower North and relatively low in the Central Western, Eastern and Southern Regions. It was highest in the Central Northern Region and was also high in the South East and Eyre.

Table 1: Births and crude birth rate by CURB regions, South Australia, 2006

CURB Region (Mother's residence)	Total births		Live births	Estimated resident population, June 30, 2006+	Crude birth rate per 1,000 population
	Number	Percent	Number	Number	
Central Northern	5521	29.4	5,487	407,497	13.5
Central Western	2277	12.1	2,252	217,187	10.4
Central Eastern	3000	15.9	2,977	277,203	10.7
Central Southern	4261	22.7	4,225	373,154	11.3
Yorke & Lower North	465	2.5	463	45,589	10.2
Murraylands	834	4.4	828	69,479	11.9
South East	863	4.6	860	64,615	13.3
Northern	1012	5.4	1,008	78,720	12.8
Eyre	462	2.4	458	34,760	13.2
Interstate	108	0.6	105	na	na
Total	18,803	100.0	18,663	1,568,204	11.9

+ Australian Bureau of Statistics. Population estimates by age and sex, South Australia, 2006. Canberra: ABS, 2007 (Catalogue No 3235.0).

na: not applicable

2 Place of birth

Of the 18,803 births in 2006, 87 (0.5%) were home births and of those 83 were planned homebirths. The remaining 18,716 births occurred in hospitals or (in 70 cases) before arrival at hospitals into which the mothers had been booked. These 70 'Born Before Arrival' (or BBA) births have been included in the statistics for those hospitals. The distribution of births by place of birth (home or hospital) and plurality is provided in Table 2. Locations of South Australian hospitals with obstetric beds in 2006 are provided in Figures 1A and 1B.

Table 2: Total births notified in 2006, by place of birth and plurality, South Australia (based on Supplementary Birth Records)

Condition at birth	Home births		Hospital births			Total
	Singleton	Twin	Singleton	Twin	Triplet	
Live birth	85	2	18,024	541	11	18,663
Stillbirth	0	0	130	9	1	140
Total births	85	2	18,154	550	12	18,803

Of the 18,716 hospital births, 79% occurred in metropolitan hospitals (teaching and private) and 21% in country hospitals. This distribution is summarized in Table 3a and Figure 2 and the numbers of births and confinements by race in individual hospitals are provided in Table 3b. Metropolitan hospitals are listed in order of number of births and country hospitals in alphabetic order in their category of number of births. Fifty-two percent of births in South Australia in 2006 occurred in metropolitan teaching hospitals. Level III teaching hospitals - the Women's and Children's Hospital and Flinders Medical Centre - provide a high risk pregnancy service and neonatal intensive care. Two other teaching hospitals have neonatal special care units - Lyell McEwin Health Service and Modbury Hospital. These levels are defined in the Report 'Operational Policy, Guidelines and Standards for Maternal and Neonatal Services in South Australia.'⁴

Compared with 2005, the numbers of births in 2006 increased mainly in Level III teaching hospitals and at Lyell McEwin Health Service. The numbers also increased at Ashford, Burnside War Memorial and North Eastern Community Hospitals but decreased at Flinders Private Hospital.

The total number of births in country hospitals was similar to 2005. Births increased in hospitals with 100-399 births per year, eg in Murray Bridge Soldiers' Memorial, Port Augusta and Port Lincoln Hospitals, but decreased in Gawler Health Service and in smaller hospitals. Obstetric services at Cleve ceased in September 2006.

Figure 1A

SOUTH AUSTRALIAN HOSPITALS WITH OBSTETRIC BEDS IN 2006*

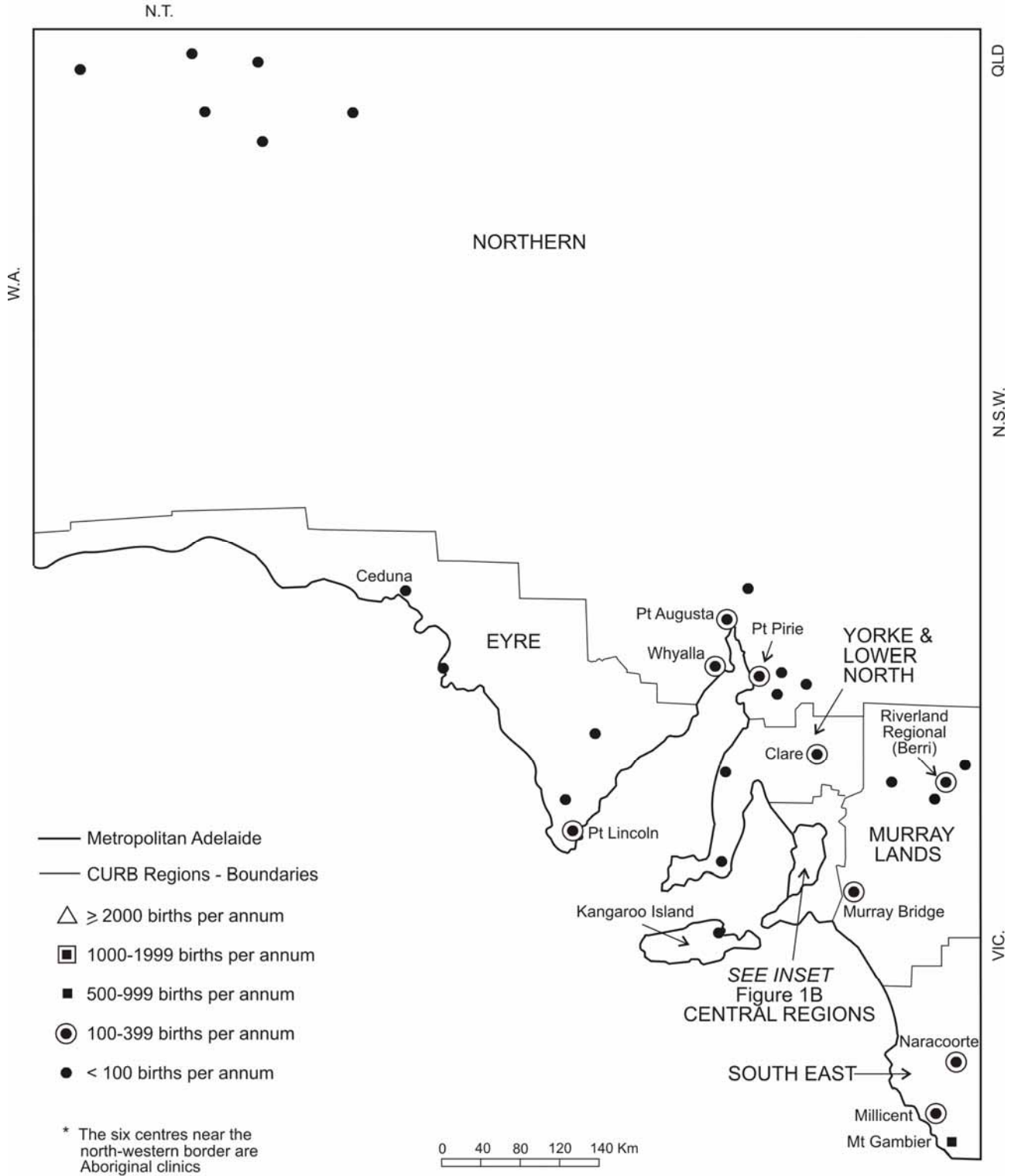


Figure 1B

CENTRAL REGIONS

(as at June 2006)

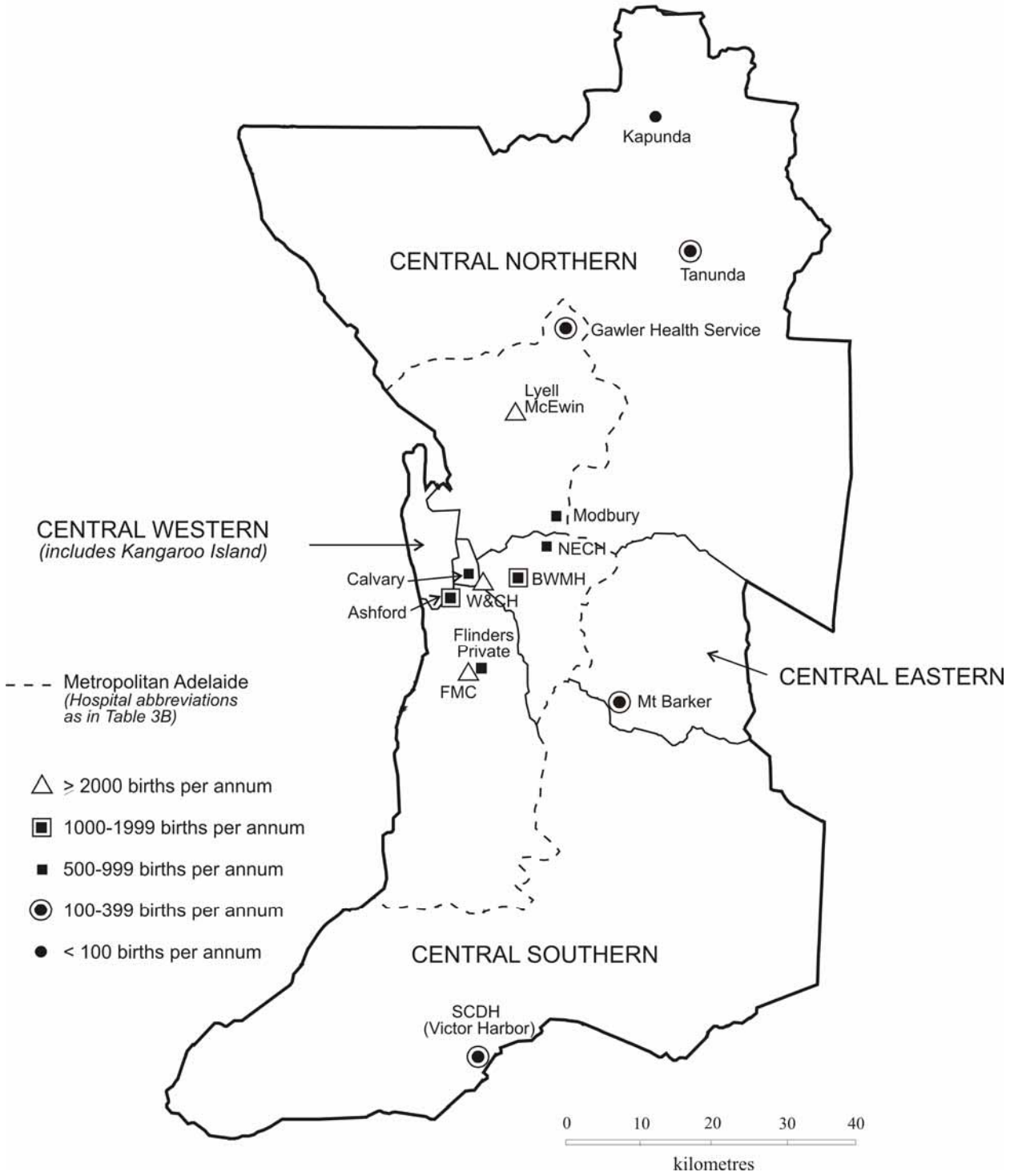
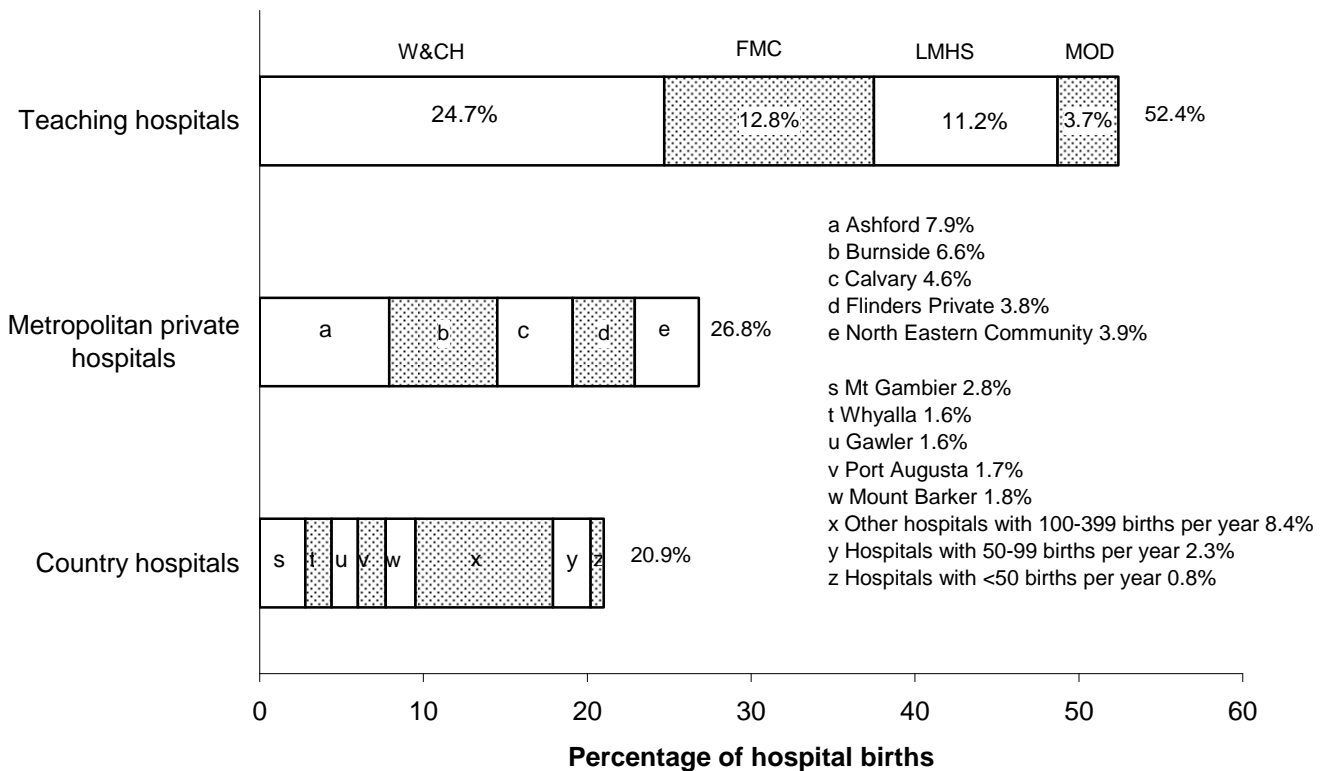


Table 3a: Hospital births by category of hospital, South Australia, 2006

Hospital category	Number of births	Percent hospital births
Metropolitan teaching	9,799	52.4
Level III	(7,017)	(37.5)
Other teaching	(2,782)	(14.9)
Metropolitan private	5,012	26.8
Country	3,905	20.9
Major country	(831)	(4.4)
100-399 births per annum	(2,495)	(13.3)
50-99 births per annum	(421)	(2.3)
<50 births per annum	(158)	(0.8)
Total	18,716	100.0

Figure 2: Distribution of hospital births by hospital category, South Australia, 2006 (n=18,716)

Note: Hospital abbreviations as in Table 3b

Table 3b: Hospital births in South Australia in 2006 by race and hospital (as indicated by returned SBRs for hospital births)

Hospital	Caucasian	Aboriginal	Asian	Other	Total births	Total confinements
Metropolitan teaching						
Women's & Children's Hospital (W&CH)	3,599*	171	518	327	4,615	4,504
Flinders Medical Centre (FMC)	2,198	51	91	62	2,402	2,358
Lyell McEwin Health Service (LMHS)**	1,862	83	127	24	2,096	2,071
Modbury Hospital (MOD)**	614	14	30	26	684	674
Southern Adelaide Health Service (Noarlunga)	1	1	0	0	2	2
Total	8,274*	320	766	439	9,799	9,609
Metropolitan private						
Ashford**	1,444	4	27	8	1,483	1,456
Burnside War Memorial (BWMH)**	1,183	1	35	9	1,228	1,219
Calvary**	827	3	33	4	867	855
Flinders Private**	678	2	24	6	710	701
North Eastern Community (NECH)**	714	0	5	5	724	712
Total	4,846	10	124	32	5,012	4,943
Country						
Major country						
Mt. Gambier**	507	13	6	4	530	523
Whyalla	264	24	7	6	301	296
Subtotal	771	37	13	10	831	819
100-399 births per annum						
Barossa Health (Tanunda Centre)	135	0	1	0	136	136
Gawler Health Service***	285	2	1	3	291	291
Lower North Health Centre (Clare)	104	0	2	0	106	106
Millicent	103	0	0	3	106	106
Mt. Barker	324	1	5	0	330	327
Murray Bridge Soldiers' Memorial	249	19	5	5	278	278
Naracoorte	150	1	10	6	167	165
Pt. Augusta	195	105	3	7	310	307
Pt. Lincoln	264	19	1	1	285	285
Pt. Pirie	158	13	2	2	175	174
Riverland Regional (Berri)	167	10	3	5	185	182
South Coast District (Victor Harbor)	122	3	0	1	126	126
Subtotal	2,256	173	33	33	2,495	2,483

* Includes one woman of unknown race.

** These hospitals have neonatal special care nurseries.

*** 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.

Hospital	Caucasian	Aboriginal	Asian	Other	Total births	Total confinements
50-99 births per annum						
Kapunda	57	0	0	1	58	58
Loxton	78	1	0	2	81	81
Northern Yorke Peninsula Regional Health Service (Wallaroo)	86	2	0	0	88	88
Renmark	61	2	11	1	75	75
Southern Flinders Health Service (Crystal Brook)	58	1	0	0	59	59
Waikerie	57	1	0	2	60	60
Subtotal	397	7	11	6	421	421
1-49 births per annum						
Amata	0	1	0	0	1	1
Bordertown	1	0	0	1	2	2
Ceduna	12	4	0	0	16	16
Cleve	12	0	0	0	12	12
Cummins	12	0	0	0	12	12
Indulkana	0	1	0	0	1	1
Kangaroo Island	20	0	0	0	20	20
Keith	1	0	0	0	1	1
Meningie	0	1	0	0	1	1
Mid North Health (Booleroo Health Service)	5	1	0	0	6	6
Mid North Health (Jamestown Campus)	33	0	0	0	33	33
Mid West Health (Streaky Bay)	6	0	0	0	6	6
Mimili	0	1	0	0	1	1
Peterborough	10	3	0	0	13	13
Quorn	10	0	0	0	10	10
Southern Yorke Peninsula (Yorketown)	23	0	0	0	23	23
Subtotal	145	12	0	1	158	158
Total (country)	3,569	229	57	50	3,905	3,881
Grand total	16,689	559	947	521	18,716	18,433

3 Maternal race

The distribution of South Australian confinements by race of mother is provided in Table 4a and also by category of birthplace in Table 4b. *In these tables and all others where distribution by race is shown, 'Aboriginal' includes Aboriginal (528 women), Torres Strait Islander (7 women) and those who are Aboriginal and Torres Strait Islander (13 women). Aboriginal mothers accounted for 3.0% of confinements and gave birth mainly in metropolitan teaching hospitals and country hospitals. Asian mothers accounted for 5.1% of confinements and gave birth mainly in metropolitan teaching hospitals but 13.2% gave birth in private hospitals.*

Table 4a: Confinements by race of mother, South Australia, 2006

Race of mother	Number of confinements	% Confinements
Caucasian*	16,516*	89.2
Aboriginal	548	3.0
Asian	940	5.1
Other	515	2.8
Total	18,519	100.0

* Includes one woman of unknown race.

Table 4b: Confinements by race and birthplace category, South Australia, 2006

Birthplace	Race of mother								Total	
	Caucasian		Aboriginal		Asian		Other		Number	%
	Number	%	Number	%	Number	%	Number	%		
Metropolitan teaching hospital	8,110*	49.1	311	56.8	756	80.4	432	83.9	9,609	51.9
Metropolitan private hospital	4,777	28.9	10	1.8	124	13.2	32	6.2	4,943	26.7
Country hospital	3,547	21.5	227	41.4	57	6.1	50	9.7	3,881	21.0
Home	82	0.5	0	0	3	0.3	1	0.2	86	0.5
Total	16,516	(89.2)	548	(3.0)	940	(5.1)	515	(2.8)	18,519	100.0

* Includes one woman of unknown race.

4 Maternal age

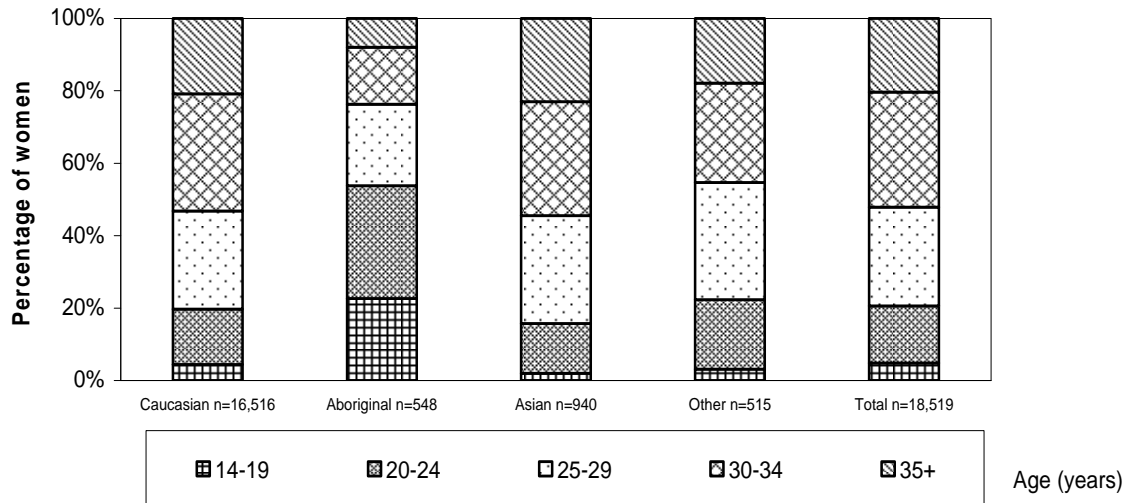
Among the five-year age groups the largest proportion of confinements (31.8%) was contributed by women in the 30-34 years age group (Table 4c). The proportion of women in this age group has exceeded that of the 25-29 years age group since 2001. Confinements of teenagers comprised 4.8% and those of older women aged 35 years or more, 20.4% (*Figure 3*). *Aboriginal mothers were generally younger than non-Aboriginal: 22.6% were teenagers and only 8.0% were 35 years or older. Among Asian women, on the other hand, there were fewer teenagers (2.0%) and a larger proportion (23.0%) of older women.*

The age-specific fertility rates have increased in the older age groups compared with 2005 (Table 4d). The rate was highest in the age group 30-34 years (116.6 per 1,000 women), followed closely by the 25-29 years age group (106.8 per 1,000 women). The general fertility rate (see Appendix 1) was 59.1 per 1,000 women aged 15-44 years. The total fertility rate (see Appendix 1) was 1.82 live births per woman, which has remained the same as in 2005.

Table 4c: Maternal age by race, South Australian confinements, 2006

Age (years)	Caucasian		Aboriginal		Asian		Other		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
<15	2	0.0	3	0.5	0	0	0	0	5	0.0
15-19	731	4.4	121	22.1	19	2.0	16	3.1	887	4.8
20-24	2521	15.3	171	31.2	129	13.7	99	19.2	2920	15.8
25-29	4479*	27.1	123	22.5	280	29.8	167	32.4	5049	27.3
30-34	5356	32.4	86	15.7	296	31.5	141	27.4	5879	31.8
35-39	2928	17.7	32	5.8	177	18.8	73	14.2	3210	17.3
40-44	477	2.9	12	2.2	36	3.8	18	3.5	543	2.9
45+	22	0.1	0	0	3	0.3	1	0.2	26	0.1
Total	16,516*	(89.2)	548	(3.0)	940	(5.1)	515	(2.8)	18,519	100.0

* Includes one woman of unknown race.

Figure 3: Maternal age by race, South Australian confinements, 2006 (n=18,519)**Table 4d: Age-specific fertility rates, South Australia, 2006**

Age (years)	Number of live births	Estimated resident female population*	Age-specific fertility rate per 1,000 women (ASFR)
15-19	883**	50,875	17.4***
20-24	2923	53,083	55.1
25-29	5083	47,591	106.8
30-34	5940	50,927	116.6
35-39	3261	55,336	58.9
40-44	573	57,898	9.9**
Total	18,663	315,710	59.1**

* Australian Bureau of Statistics. Population Estimates by Age and Sex, South Australia 2006. Canberra: ABS, 2007 (Catalogue No 3235.0).

** The fertility rate for women aged 15-19 years includes live births for younger ages, and the rate for women aged 40-44 years includes live births for older ages, while the total rate (general fertility rate) includes all live births. Live births in this table exclude terminations of pregnancy.

*** Sum of 5-year ASFRs = 364.7 per 1,000 women. Total fertility rate = $364.7 \times 5 = 1,823.5$ per 1,000 women = 1.82 per woman.

5 Country of birth

The distribution of women by major country of birth groups is provided in Table 5a and by specified countries of birth with 40 or more confinements in Table 5b. Of the 15.4% of women born outside Australia, the largest proportion was born in the United Kingdom and Ireland (3.2%). Other countries contributing relatively large proportions of migrant women were Vietnam (1.5% of confinements), New Zealand (1.1%), the Philippines (0.7%), India (0.6%), Sudan (0.5%), China, Malaysia and South Africa (0.4% each), Cambodia, the United States of America, Thailand and Poland, (0.3%), and Afghanistan and Canada (0.2% each).

Table 5a: Confinements by country of birth of mother, major groups,* South Australia, 2006

	Country of birth	Number	%
1	Oceania and Antarctica	15,919	86.0
2	Europe and the USSR	1,027	5.6
3	The Middle East and North Africa	209	1.1
4	Southeast Asia	650	3.5
5	Northeast Asia	166	0.9
6	Southern Asia	201	1.1
7	Northern America	92	0.5
8	South America, Central America and the Caribbean	63	0.3
9	Africa (excluding North Africa)	192	1.0
	Total	18,519	100.0

* Australian Bureau of Statistics. Australian Standard Classification of Countries for Social Statistics (ASCCSS). Canberra: ABS, 1990 (Catalogue No 1269.0).

Table 5b: Confinements by specified country of birth* of mother, South Australia, 2006

	Specified country of birth	Number	% of confinements	% of confinements of migrant women (n=2,849)
1100	Australia	15,670	84.6	na
6101	Afghanistan	42	0.2	1.5
4102	Cambodia	64	0.3	2.2
7102	Canada	42	0.2	1.5
5101	China	82	0.4	2.9
6104	India	105	0.6	3.7
4105	Malaysia	68	0.4	2.4
1301	New Zealand	200	1.1	7.0
4107	Philippines	122	0.7	4.3
2504	Poland	50	0.3	1.8
9220	South Africa	73	0.4	2.6
3207	Sudan	89	0.5	3.1
4109	Thailand	61	0.3	2.1
2101-2107	The United Kingdom and Ireland	596	3.2	20.9
7104	United States of America	50	0.3	1.8
4110	Vietnam	280	1.5	9.8
	All other countries	925	5.0	32.5
	Total	18,519	100.0	100.0

* ASCSS, Australian Bureau of Statistics

6 Marital status and type of patient

While 86.9% of women who gave birth in 2006 were married or in a de facto relationship, 13.1% were single (11.7% were never married and 1.3% were widowed, separated or divorced, Table 6a) and marital status was unknown for 0.1%. Of never married women, just over a fifth were teenagers and just under a third were in the early twenties age group. Relatively more single women were hospital/public patients than married women and women in de facto relationships (90.6% v 64.1%, Table 6b). Nearly a third of all women were private patients (32.4%).

Table 6a: Marital status by age of mother, South Australia, 2006

Age of mother (years)	Marital status of mother								Total	
	Never married		Married/de facto		Widowed/ separated/divorced		Unknown			
	Number	%	Number	%	Number	%	Number	%	Number	%
<20	456	21.0	430	2.7	5	2.1	1	11.1	892	4.8
20-24	690	31.8	2,190	13.6	37	15.2	3	33.3	2,920	15.8
25-29	480	22.1	4,514	28.1	53	21.8	2	22.2	5,049	27.3
30-34	345	15.9	5,467	34.0	65	26.8	2	22.2	5,879	31.8
35-39	168	7.7	2,983	18.5	58	23.9	1	11.1	3,210	17.3
40-44	33	1.5	487	3.0	23	9.5	0	0	543	2.9
45+	1	0.0	23	0.1	2	0.8	0	0	26	0.1
Total	2,173	(11.7)	16,094	(86.9)	243	(1.3)	9	(0.1)	18,519	100.0

Table 6b: Type of patient by marital status of mother, South Australia, 2006

Type of patient	Marital status of mother								Total	
	Never married		Married / de facto		Widowed / separated / divorced		Unknown			
	Number	%	Number	%	Number	%	Number	%	Number	%
Hospital/public	1,967	90.5	10,312	64.1	223	91.8	9	100.0	12,511	67.6
Private	206	9.5	5,782	35.9	20	8.2	0	0	6,008	32.4
Total	2,173	(11.7)	16,094	(86.9)	243	(1.3)	9	(0.1)	18,519	100.0

7 Occupation of father and mother

This distribution is based on the Australian Statistical Classification of Occupations (ASCO) of the Australian Bureau of Statistics and is provided in Table 7. Unclassified occupations have been assigned a separate category (Category 9).

A much larger proportion of mothers than fathers (26.4% v 0.4%) was included in the occupation 'home duties'. Larger proportions were also found for the groups of clerks, salespersons and personal service workers and students. More fathers were managers and administrators, tradespersons, plant and machine operators and labourers, but occupation was unknown for 11.5% of fathers and 4.5% of mothers.

Table 7: Occupation of father and mother,* South Australian confinements, 2006

Occupation	Father		Mother	
	Number	%	Number	%
1 Managers and administrators	3,156	17.0	1,378	7.4
2 Professionals	2,512	13.6	2,472	13.4
3 Para professionals	886	4.8	1,061	5.7
4 Tradespersons	3,170	17.1	591	3.2
5 Clerks	576	3.1	2,406	13.0
6 Salespersons and personal service workers	1,018	5.5	2,557	13.8
7 Plant and machine operators and drivers	1,067	5.8	91	0.5
8 Labourers and related workers	2,464	13.3	645	3.5
9 Students	372	2.0	634	3.4
Pensioners	106	0.6	57	0.3
Home duties	80	0.4	4,893	26.4
Unemployed	770	4.2	761	4.1
Other	213	1.1	132	0.7
Unknown	2,129	11.5	841	4.5
Total	18,519	100.0	18,519	100.0

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

8 Previous pregnancy outcomes

Forty-one percent of women had no previous birth and 30.6% were pregnant for the first time. *Among Aboriginal women and those of 'other' races, these proportions were lower, with 30.7% and 31.7% respectively giving birth for the first time.*

The proportion of women of parity 4 or greater was higher among Aboriginal women (17.3%) than among Caucasian women (2.5%) and Asian women (2.1%) (Table 8a).

Table 8a: Parity by race of mother, South Australian confinements, 2006

Parity	Race of mother								Total	
	Caucasian		Aboriginal		Asian		Other			
	Number	%	Number	%	Number	%	Number	%	Number	%
0-PRIMIGRAVIDA	5,106*	30.9	124	22.6	320	34.0	123	23.9	5,674	30.6
0-MULTIGRAVIDA	1,761	10.7	44	8.0	105	11.2	40	7.8	1,950	10.5
1	5,944	36.0	130	23.7	336	35.7	143	27.8	6,553	35.4
2	2,504	15.2	90	16.4	129	13.7	90	17.5	2,813	15.2
3	794	4.8	65	11.9	30	3.2	60	11.7	949	5.1
4	234	1.4	37	6.8	13	1.4	23	4.5	307	1.7
≥5	172	1.0	58	10.6	7	0.7	36	7.0	273	1.5
Total	16,515*	(89.2)	548	(3.0)	940	(5.1)	515	(2.8)	18,519	100.0

* Includes one woman of unknown race

Among women with previous pregnancies (multigravid women), the proportions who have had previous adverse pregnancy outcomes are shown in Table 8b. About a third of the women have had a miscarriage and a fifth have had a termination of pregnancy.

Table 8b: Previous pregnancy outcomes, South Australian confinements, 2006 (multigravidae only, n= 12,845)

Previous pregnancy outcome	Number	%
Miscarriage	4,183	32.6
Termination of pregnancy	2,510	19.5
Stillbirth	213	1.7
Neonatal death	90	0.7
Ectopic pregnancy	290	2.3

9a Antenatal care

Women who gave birth are grouped in Table 9a according to the number of reported antenatal visits: no visits, only 1 - 6 visits, 7 or more visits. *If we exclude women for whom the number of antenatal visits was unknown, 38.0% of Aboriginal women compared with 6.9% of Caucasian women were reported to have made less than 7 visits. Among Asian women this proportion was 9.7%. A low frequency of antenatal visits may be taken, particularly in term births, as an indication of inadequate antenatal care. However, for 6.7% of women (11.7% of Aboriginal women), the number of antenatal visits made was not known. It is hoped that this proportion will be reduced by wider use of the Pregnancy Record,⁵ which will also facilitate continuity of care.*

Table 9a: Antenatal visits by race, South Australian confinements, 2006

Antenatal visits	Race of mother								Total	
	Caucasian		Aboriginal		Asian		Other		Number	%
	Number	%	Number	%	Number	%	Number	%		
None	41	0.3	21	3.8	0	0	1	0.2	63	0.3
1-6	1,019	6.2	163	29.7	83	8.8	63	12.2	1,328	7.2
≥7	14,396*	87.2	300	54.7	774	82.3	422	81.9	15,892	85.8
Unknown	1,060	6.4	64	11.7	83	8.8	29	5.6	1,236	6.7
Total	16,516*	(89.2)	548	(2.9)	940	(5.1)	515	(2.8)	18,519	100.0

* Includes one woman of unknown race

9b Type of antenatal care

Table 9b shows that the main types of antenatal care used were hospital clinics (38.4%), obstetricians in private practice (32.5%), general practitioners (20.6%) and birth centres (8.4%). There were 67 women (0.4%) who had no antenatal care at all. Individual women may have used more than one type of antenatal care.

Table 9b: Type of antenatal care, South Australian confinements, 2006 (n = 18,519)

Type of care	Number	%
No antenatal care	67	0.4
Hospital clinic	7,105	38.4
Obstetrician in private practice	6,023	32.5
General practitioner (GP)	3,813	20.6
Birth centre	1,552	8.4
Home birth midwife	84	0.5
Obstetrician/midwife (shared care) in private practice	260	1.4
GP/midwife (shared care)	835	4.5
Midwifery Group Practice (W&CH)	914	4.9
Northern Women's Community Health Centre (NWCHC)	131	0.7
Mothers with Midwives clinic TQEH*	20	0.1
Other	58	0.3
Not stated	52	0.3

* This type of antenatal care was ceased at closure of obstetric services at TQEH with women either transferring to Midwifery Group Practice based at TQEH or hospital clinic.

10 Smoking

Table 10a shows that 18.0% of all women were reported to be smokers at their first antenatal visit, and 4.1% had quit smoking before their first visit. Smoking status was unknown for 1.1% of women. Among age groups, the highest rates of smoking were among teenagers (40.1%) and women aged 20-24 years (31.3%). *A much higher proportion of Aboriginal women were reported to be smokers at the first antenatal visit - 54.2% compared with 16.9% among non-Aboriginal women. Smoking rates were high among all age groups of Aboriginal women varying from 45.2% among teenage women to 66.7% among those aged 40-44 years.*

In the second half of pregnancy (Table 10b), 16.0% of women were reported to be smokers and 0.8% smoked more than 20 cigarettes per day, but the number of cigarettes smoked was not known for 2.2% of women. *In the second half of pregnancy, 48.4% of Aboriginal women smoked, compared with 15.0% of non-Aboriginal women. A higher proportion of Aboriginal women (2.7% compared with 0.8%) was also smoking more than 20 cigarettes per day, but the number of cigarettes smoked was not known for 8.2% of Aboriginal women and 2.1% of non-Aboriginal women.*

The proportion of all women smoking during pregnancy has been declining in the state, from 25% in 1998 to 18% in 2006. *However, the decline in the proportion of Aboriginal women smoking during pregnancy has only occurred more recently: from 61% in 2005 to 54% in 2006.*

Table 10a: Tobacco smoking status at first visit, Non-Aboriginal and Aboriginal South Australian confinements, 2006

Smoking status	Non-Aboriginal		Aboriginal		Total	
	Number	%	Number	%	Number	%
Smoker	3,032	16.9	297	54.2	3,329	18.0
Quit before 1 st visit	726	4.0	27	4.9	753	4.1
Non-smoker	14,022*	78.0	209	38.1	14,231	76.8
Unknown smoking status	191	1.1	15	2.7	206	1.1
Total	17,971*	97.0	548	3.0	18,519	100.0

* Includes one woman of unknown race.

Table 10b: Average number of tobacco cigarettes smoked per day in the second half of pregnancy, Non-Aboriginal and Aboriginal South Australian confinements, 2006

Average number per day	Non-Aboriginal		Aboriginal		Total	
	Number	%	Number	%	Number	%
None	14,900*	82.9	238	43.4	15,138	81.7
Occasional (<1)	80	0.5	5	0.9	85	0.5
1-10	1,738	9.7	165	30.1	1,903	10.3
11-20	744	4.1	80	14.6	824	4.5
21-30	125	0.7	10	1.8	135	0.7
31-40	14	0.1	5	0.9	19	0.1
41+	1	0.0	0	0	1	0.0
Unknown	369	2.1	45	8.2	414	2.2
Total	17,971*	97.0	548	3.0	18,519	100.0

* Includes one woman of unknown race.

11 Medical conditions

A medical condition was recorded in the current pregnancy for 5,348 women (28.9%). The frequencies of specified medical conditions are provided in Table 11.

Table 11: Medical conditions in current pregnancy, South Australian confinements, 2006

Medical condition	Number	% of confinements (n = 18,519)
1 None	13,171	71.1
2 Anaemia	1,136	5.8
3 Urinary tract infection	452	2.3
4 Hypertension (pre-existing)	188	1.0
5 Diabetes (pre-existing)	110	0.6
6 Epilepsy	74	0.4
7 Asthma	1,132	5.8
8 Other	3,247	16.6

12 Obstetric complications

An obstetric complication was recorded in 5,626 confinements (30.4%). The reported frequencies of the more common complications are presented in Table 12. There was one direct maternal death from pulmonary embolism (cf definition in Appendix 1) notified to the Maternal, Perinatal and Infant Mortality Committee in 2006.³

Table 12: Frequency of some obstetric complications, South Australian confinements, 2006

Obstetric complication	Number	% of confinements (n= 18,519)
No complication	12,893	69.6
Threatened miscarriage	336	1.8
Antepartum haemorrhage (APH) - Abruption	99	0.5
APH - Placenta praevia	101	0.5
APH – Other & unknown causes	444	2.4
Pregnancy hypertension	1,328	7.2
Intrauterine growth restriction (suspected)	495	2.7
Gestational diabetes	835	4.5
Other complications (including 11 women with impaired glucose tolerance)	3,158	17.1

13 Procedures performed in current pregnancy

Procedures performed are listed as reported in Table 13. At least one ultrasound examination was performed for 97.2% of women, amniocentesis for 4.5% and chorion villus sampling for 0.7%.

For a proportion of women it was not known whether a specific procedure had been performed, eg 4.9% for maternal serum alpha foeto-protein (MSAFP) screening. The figures for Down's syndrome screening are believed to be underestimates, when compared with statistics from the Chemical Pathology Department of the Women's and Children's Hospital. It is hoped that the increasing use of the Pregnancy Record will reduce the number of 'unknown' entries.

Table 13: Procedures performed in current pregnancy, South Australian confinements, 2006

Procedure	Yes		No		Unknown	
	Number	%	Number	%	Number	%
MSAFP (Neural tube defect screen etc)	7,245	39.1	10,376	56.0	898	4.9
Triple/Quadruple screen (Down's etc)	10,305	55.7	7,374	39.8	840	4.5
Ultrasound	18,008	97.2	361	2.0	150	0.8
Chorion villus sampling	136	0.7	18,004	97.2	379	2.1
Amniocentesis	832	4.5	17,304	93.4	383	2.1
Cordocentesis	4	0.0	18,127	97.9	388	2.1
Other surgical procedure	58	0.3	18,461	99.7	0	0

14a Onset of labour

Labour occurred spontaneously in 53.5% of confinements (Table 14a). It was induced in 28.9%, and the methods of induction used were artificial rupture of membranes (ARM) in 63.7% of inductions, prostaglandins in 62.8% and oxytocics in 45.5% (Table 14b). More than one method was used in many cases.

Table 14a: Onset of labour, South Australian confinements, 2006

Onset of labour	Number	%
Spontaneous	9,913	53.5
No labour - LSCS*	3,262	17.6
Induction	5,344	28.9
Total	18,519	100.0

* Lower segment caesarean section

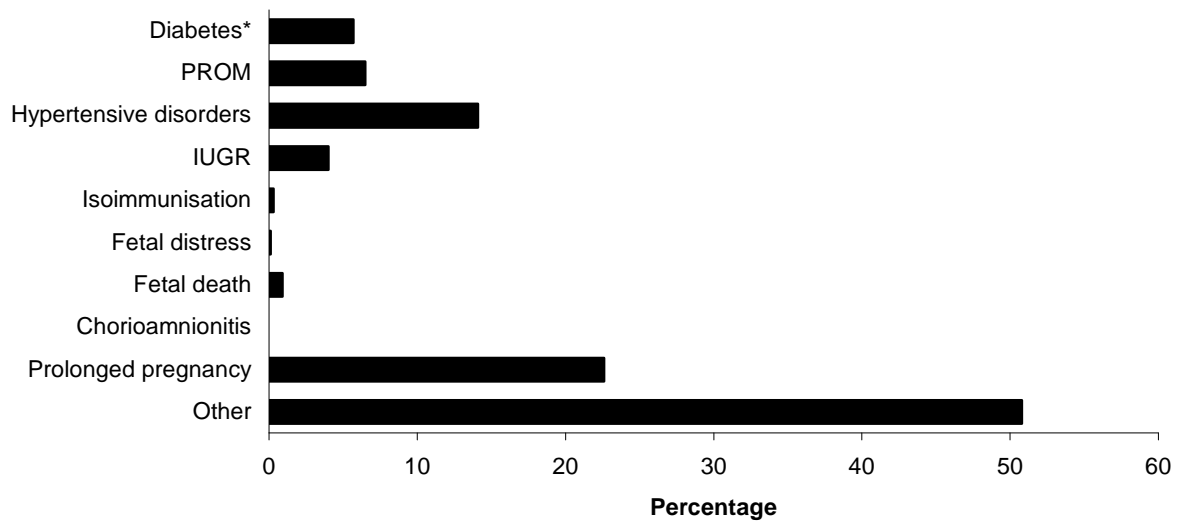
Table 14b: Method of induction of labour, South Australian confinements, 2006

Method of induction	Number	% of confinements (n =18,519)	% of inductions (n =5,344)
No induction	13,275	71.7	-
ARM	3,403	18.4	63.7
Oxytocics	2,431	13.1	45.5
Prostaglandins	3,357	18.1	62.8

14b Reasons for induction of labour

Up to two reasons could be provided for reason for induction. These reasons for induction of labour are the ones listed (see page 53) in the Australian Council on Healthcare Standards Obstetrics and Gynaecology Indicators 'Clinical Indicators – A User's Manual Version 4'.

Fig 4 demonstrates that 22.6% of women were induced for prolonged pregnancy (41 or more completed weeks), 14.1% for hypertension, 6.5% for premature rupture of membranes (PROM), 4.0% for intrauterine growth restriction (IUGR) and 5.7% for diabetes (including gestational diabetes and glucose intolerance).

Figure 4: Reasons for induction of labour, SA, 2006 (n=5,344)

*includes diabetes mellitus, gestational diabetes and glucose intolerance

Labour was augmented for 3,984 (40.2%) of the 9,913 women who went into spontaneous labour. Methods used in augmentation were artificial rupture of membranes (ARM) (74.3%), oxytocics (39.0%) and prostaglandins (1.3%). More than one method may be used for a woman. It should be noted that prostaglandins are not recommended by the manufacturers as a method of augmenting labour. The proportion of women giving birth who had labour augmented was 21.5%.

Table 14c: Augmentation of labour after spontaneous onset, South Australian confinements, 2006

Method of augmentation	Number	% of confinements (n=18,519)	% of augmentations (n=3,984)
Any augmentation	3,984	21.5	100.0
1 ARM	2,961	16.0	74.3
2 Oxytocics	1,553	8.4	39.0
3 Prostaglandins	52	0.3	1.3

15a Presentation and method of delivery

Of the women who gave birth, 56.0% had normal spontaneous vaginal deliveries (Table 15a and Figure 5A). Caesarean section (LSCS) was performed for 32.9% of women, with 15.5% of deliveries being elective sections; forceps were utilised for 3.7%, ventouse for 7.0% and breech delivery for the remaining 0.4%. The method of delivery given for confinements in multiple births is that for the first birth. The method of delivery by presentation for all births is provided in Table 15b. Breech presentation occurred in 4.7% of births and caesarean section was the method of delivery for 90.7% of breech presentations. Caesarean section was utilised for 91.3% of breech presentations in singletons (Table 15c).

Table 15a: Method of delivery, South Australian confinements, 2006

Method of delivery	Number	%
Normal spontaneous vaginal	10,366	56.0
Forceps	693	3.7
Assisted breech	27	0.2
LSCS (elective)	2,876	15.5
LSCS (emergency)	3,221	17.4
Ventouse	1,297	7.0
Breech extraction	3	0.0
Breech spontaneous	36	0.2
Total	18,519	100.0

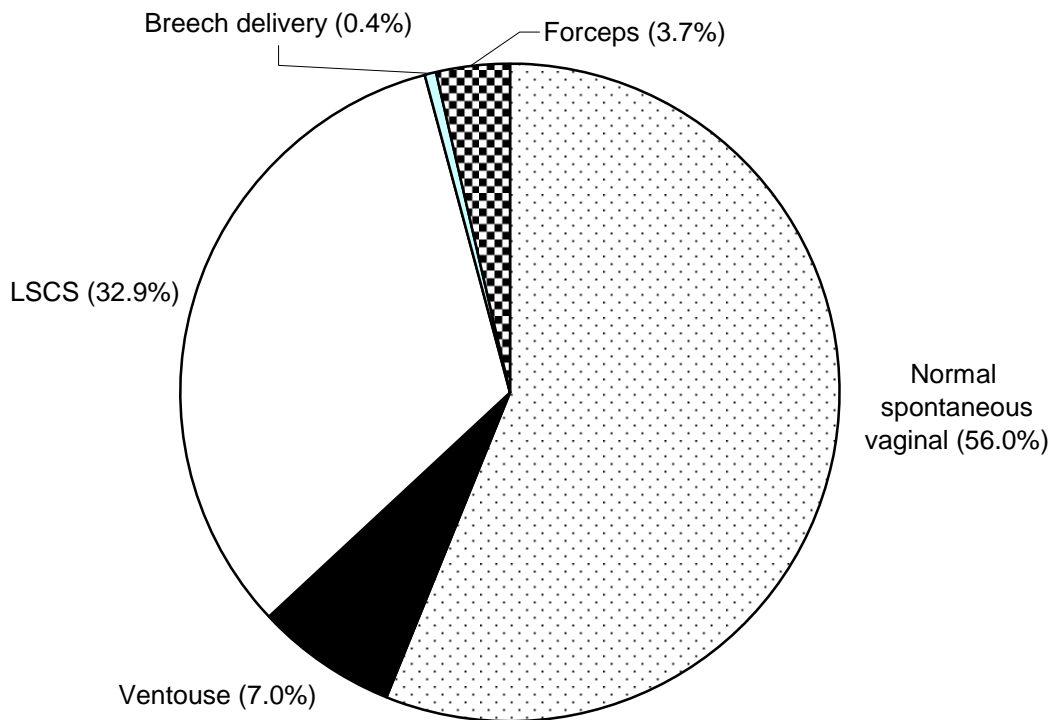
Figure 5A: Method of delivery in all confinements, South Australia, 2006 (n = 18,519)

Table 15b: Method of delivery by presentation, South Australian births, 2006 (n=18,803)

Method of delivery	Presentation								Total	
	Vertex		Breech		Other		Unknown			
	Number	%	Number	%	Number	%	Number	%	Number	%
1 Normal spontaneous	10,366	58.5	0	0	30	16.4	11	33.3	10,407	55.4
2 Forceps	690	3.9	0	0	8	4.4	0	0	698	3.7
3 Assisted breech	0	0	39	4.4	0	0	0	0	39	0.2
4 Elective LSCS	2,434	13.7	494	56.3	34	18.6	8	24.2	2,970	15.8
5 Emergency LSCS	2,921	16.5	302	34.4	106	57.9	14	42.4	3,343	17.8
6 Ventouse	1,298	7.3	0	0	5	2.7	0	0	1,303	6.9
7 Breech extraction	0	0	5	0.6	0	0	0	0	5	0.0
8 Breech spontaneous	0	0	38	4.3	0	0	0	0	38	0.2
Total	17,709	(94.2)	878	(4.7)	183	(1.0)	33	(0.2)	18,803	100.0

Table 15c: Method of delivery in breech presentation, by plurality, South Australian births, 2006 (n = 878)

Plurality	Assisted breech	Elective LSCS	Emergency LSCS	Breech extraction	Breech spontaneous	Total
Singleton	25	418	230	3	34	710
Twins	14	76	70	2	4	166
Triplets	0	0	2	0	0	2
Total	39 (4.4%)	494 (56.3%)	302 (34.4%)	5 (0.6%)	38 (4.3%)	878 (100.0%)

15b Reason for caesarean section

Up to two reasons may be provided on the supplementary birth record for caesarean section, and these have been collated in Figure 5B (all caesarean sections), Figure 5C (elective sections only) and Figure 5D (emergency sections only). The main reasons given for all caesarean sections were failure to progress/cephalopelvic disproportion (CPD) (24.7%), previous caesarean section (31.2%), fetal distress (14.4%) and malpresentation (10.2%). The main reasons for elective sections were previous section (59.8%), malpresentation (13.2%) and CPD (4.6%), and the main reasons given for emergency sections were failure to progress or CPD (40.9%), fetal distress (25.8%) and malpresentation (7.7%). 3194 women had had a previous caesarean section: thus 17.2% of all women who gave birth in 2006 or 29.3% of women with a previous birth had had a previous caesarean section.

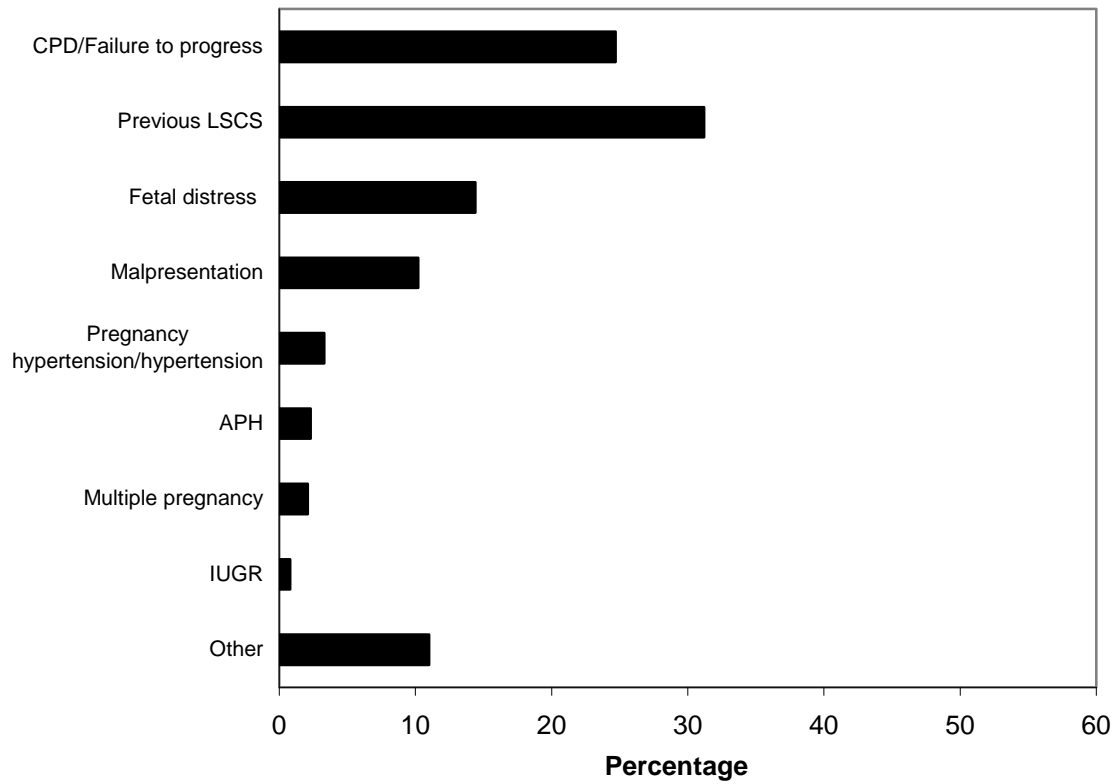
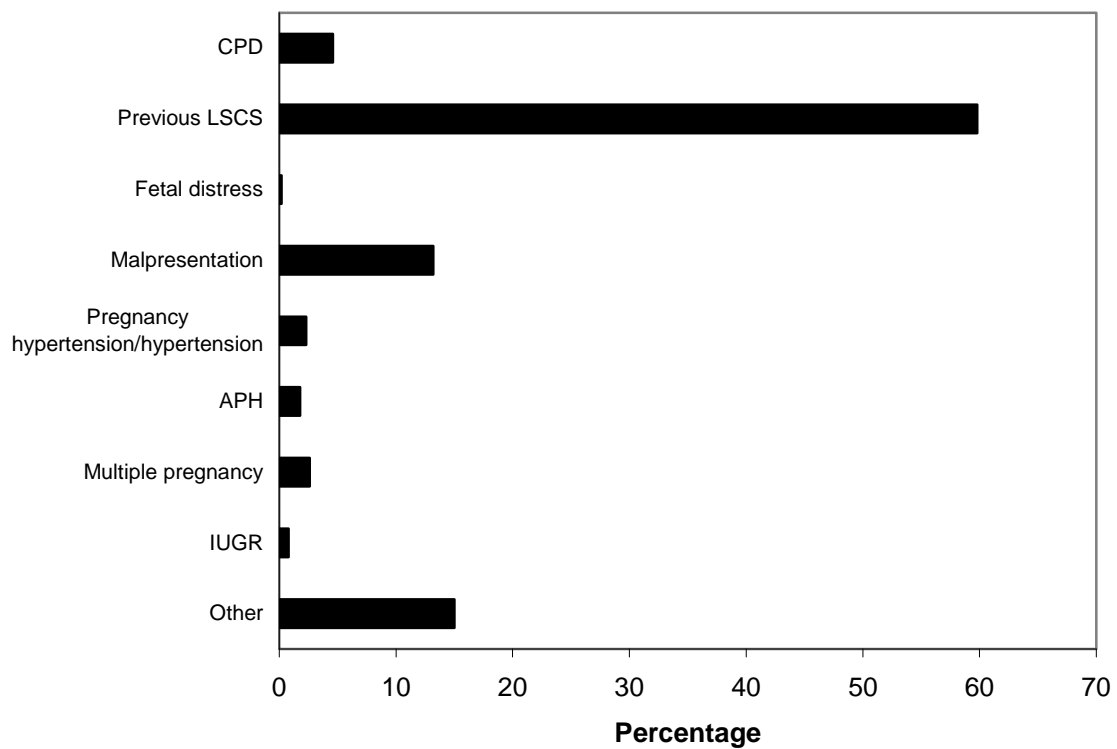
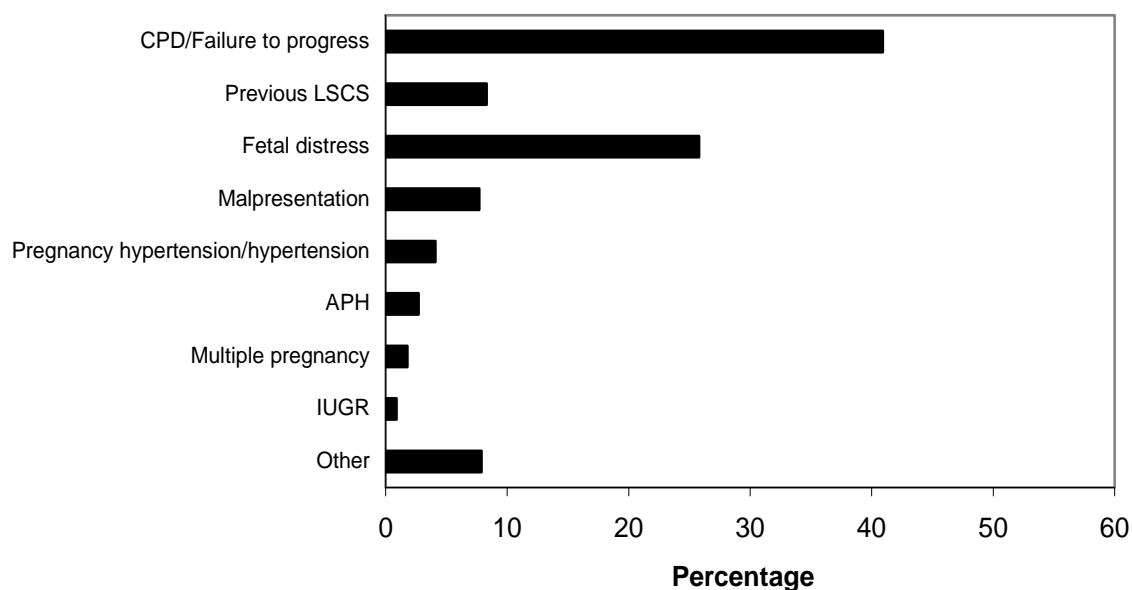
Figure 5B: Reason for LSCS, 2006 (n=6,097)**Figure 5C: Reason for elective LSCS, 2006 (n=2,876)**

Figure 5D: Reason for emergency LSCS, 2006 (n=3,221)

16 Complications of labour and delivery and perineal status after delivery

A complication of labour or delivery was recorded in 6,442 confinements (34.8%). The reported frequency of some complications is presented in Table 16. Among all 18,519 women who gave birth, episiotomy was performed for 2,183 (11.8%). Among the 12,422 women who gave birth vaginally, 3,837 (30.9%) had an intact perineum after delivery, 4,715 (38.0%) had a repair of a perineal tear, of which 244 (2.0%) had a third or a fourth degree tear; 17.5% had an episiotomy.

Table 16: Frequency of some complications of labour and delivery, South Australian confinements, 2006

Complication of labour	Number of confinements	% of confinements (n=18,519)
None	12,077	65.2
Post-partum haemorrhage (PPH) - primary	1,316	7.1
Fetal distress	2,239	12.1
Retained placenta	265	1.4
Prolonged labour	194	1.0
Cord prolapse	19	0.1
Wound infection	47	0.3
Third degree tear (218) or fourth degree tear (26)	244	1.3
Failure to progress	2,230	12.0
Other	3,994	21.6

17 Fetal monitoring during labour

Cardiotocography (CTG) was performed during labour for 61.2% of women. The majority of these (54.0% of women) were external CTGs (Table 17a) while a scalp clip was used for 7.2%. A fetal scalp pH was taken during labour in 172 confinements (0.9%, Table 17b).

Table 17a: CTG performed during labour, South Australian confinements, 2006

	CTG during labour	Number of confinements	% of confinements (n=18519)
1	None	7,188	38.8
2	External	9,998	54.0
3	Scalp clip	1,333	7.2

Table 17b: Fetal scalp pH taken during labour, South Australian confinements, 2006

	Fetal scalp pH taken	Number of confinements	% of confinements (n=18,519)
1	No	18,347	99.1
2	Yes	172	0.9

18 Analgesia for labour and anaesthesia for delivery

These distributions are provided in Tables 18a and 18b. Epidurals were used for analgesia in labour for 30.7% and for anaesthesia in delivery for 24.7% of women. The proportion of women who had an epidural for either was 32.1% (5,947 women). The proportion of women who had a spinal anaesthetic increased between 1991 and 2006 from 0.2% to 0.8% for analgesia and from 0.5% to 23.4% for anaesthesia. General anaesthesia was used for 2.4% of deliveries. It was used in 7.0% of caesarean sections. Approximately 37% of women who delivered received none of the specified methods for analgesia during labour.

Table 18a: Analgesia for labour,* South Australian confinements, 2006

	Analgesia	Number	% of confinements
1	None	6,762	36.5
2	Nitrous oxide and oxygen	6,490	35.0
3	Narcotic (parenteral)	4,058	21.9
4	Epidural (lumbar/caudal)	5,683	30.7
5	Spinal	148	0.8
6	Other	158	0.9

* more than one method may be used for each woman

Table 18b: Anaesthesia for delivery,* South Australian confinements, 2006

	Anaesthesia	Number	% of confinements
1	None	7,039	38.0
2	Local anaesthesia	2,363	12.8
3	Pudendal	141	0.8
4	Epidural (lumbar/caudal)	4,574	24.7
5	Spinal	4,326	23.4
6	General anaesthesia	437	2.4
7	Other	148	0.8

* more than one method may be used for each woman

19 Postnatal length of stay of mother

The distribution of length of stay of mothers who gave birth in hospitals is presented in Table 19a for public and private patients. The median duration for all women was four days. It was three days for vaginal deliveries and five days for caesarean deliveries (Table 19b). The median duration of stay was two days longer for private patients for vaginal and caesarean deliveries (four and six days respectively for private patients compared with two and four days respectively for public patients).

Table 19a: Postnatal length of stay of mother, South Australian hospital confinements, 2006

Postnatal length of stay (days)	Public		Private		Total	
	Number	%	Number	%	Number	%
<1	599	4.8	29	0.5	628	3.4
1	1,819	14.6	75	1.3	1,894	10.3
2	2,826	22.6	163	2.7	2,989	16.2
3	2,885	23.1	536	9.0	3,421	18.6
4	2,259	18.1	1,947	32.7	4,206	22.8
5	1,276	10.2	1,676	28.2	2,952	16.0
6	422	3.4	1,029	17.3	1,451	7.9
7 or more	398	3.2	494	8.3	892	4.8
Total	12,484	100.0	5,949	100.0	18,433	100.0

Table 19b: Average postnatal length of stay of mother by type of patient & type of delivery, South Australian hospital confinements, 2006

Average length of stay	Public			Private			Total		
	Vaginal (n=8,917)	LSCS (n=3,567)	Total (n=12,484)	Vaginal (n=3,419)	LSCS (n=2,530)	Total (n=5,949)	Vaginal (n=12,336)	LSCS (n=6,097)	Total (n=18,433)
Mean number of days	2.43	4.50	3.02	4.05	5.66	4.73	2.88	4.98	3.57
(±SD)	(±1.65)	(±2.10)	(±2.02)	(±1.18)	(±1.75)	(±1.66)	(±1.70)	(±2.04)	(±2.07)
Median number of days	2	4	3	4	6	5	3	5	4

20 Sex of baby

The sex distribution of babies is provided in Table 20; the male:female sex ratio was 1.04:1.

Table 20: Sex of baby, South Australian births, 2006

Sex of baby	Number	%
Male	9,591	51.0
Female	9,211	49.0
Indeterminate	1	0.0
Total	18,803	100.0

21 Birthweight and gestation

The birthweight distribution of all births is presented in Table 21a. The percentage of low birthweight babies (<2,500g) was 7.0%, and that of very low birthweight babies (<1,500g) was 1.6%. The mean birthweight was 3,344g (SD 620.9g), with birthweights ranging from 100g to 5,550g. *The proportion of low birthweight babies was 14.3% among babies of Aboriginal mothers compared with 6.8% among babies of non-Aboriginal mothers.*

Table 21a: Birthweight distribution of all births, South Australia, 2006

Birthweight (g)	Number of births	Percentage of births
<400	50	0.3
400-499	31	0.2
500-749	49	0.3
750-999	59	0.3
1,000-1,499	115	0.6
1,500-1,999	235	1.2
2,000-2,499	773	4.1
2,500-2,999	2,881	15.3
3,000-3,499	6,756	35.9
3,500-3,999	5,675	30.2
4,000-4,499	1,873	10.0
4,500+	303	1.6
Unknown	3	0.0
Total	18,803	100.0

The improvement in perinatal mortality with increasing birthweight, except for births of 4,000g or greater, is demonstrated in Table 21b and Figure 6. The perinatal mortality rate for babies of normal birthweight (2,500g or more) was 1.7 per 1,000 births. In 2006, 1,312 babies (7.0%) were of low birthweight and 1,546 (8.2%) were preterm (<37 weeks gestation). *The proportion of preterm births was 15.9% among babies of Aboriginal mothers compared with 8.0% among babies of non-Aboriginal mothers.* The improvement in perinatal mortality with increasing gestation is demonstrated in Table 21c.

Table 21b: Perinatal mortality by birthweight (all births), South Australia, 2006

Birthweight (g)	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	50	4	46	920.0	4	1000.0	50	1000.0
400-499	31	9	22	709.7	7	777.8	29	935.5
500-749	49	29	20	408.2	4	137.9	24	489.8
750-999	59	52	7	118.6	6	115.4	13	220.3
1,000-1,499	115	109	6	52.2	1	9.2	7	60.9
1,500-1,999	235	227	8	34.0	1	4.4	9	38.3
2,000-2,499	773	762	11	14.2	3	3.9	14	18.1
2,500-2,999	2,881	2,874	7	2.4	7	2.4	14	4.9
3,000-3,499	6,756	6,750	6	0.9	3	0.4	9	1.3
3,500-3,999	5,675	5,673	2	0.4	1	0.2	3	0.5
4,000-4,499	1,873	1,869	4	2.1	0	0	4	2.1
4,500+	303	303	0	0	0	0	0	0
Unknown	3	2**	1*	na	1	na	2	na
Total	18,803	18,663	140	7.4	38	2.0	178	9.5

* this stillbirth was a twin which died in utero at 19 weeks and was born with its twin at 28 weeks gestation

** one of these livebirths was born at 19 weeks gestation and died in the neonatal period; the other was born at 39 weeks gestation and survived.

na: not applicable

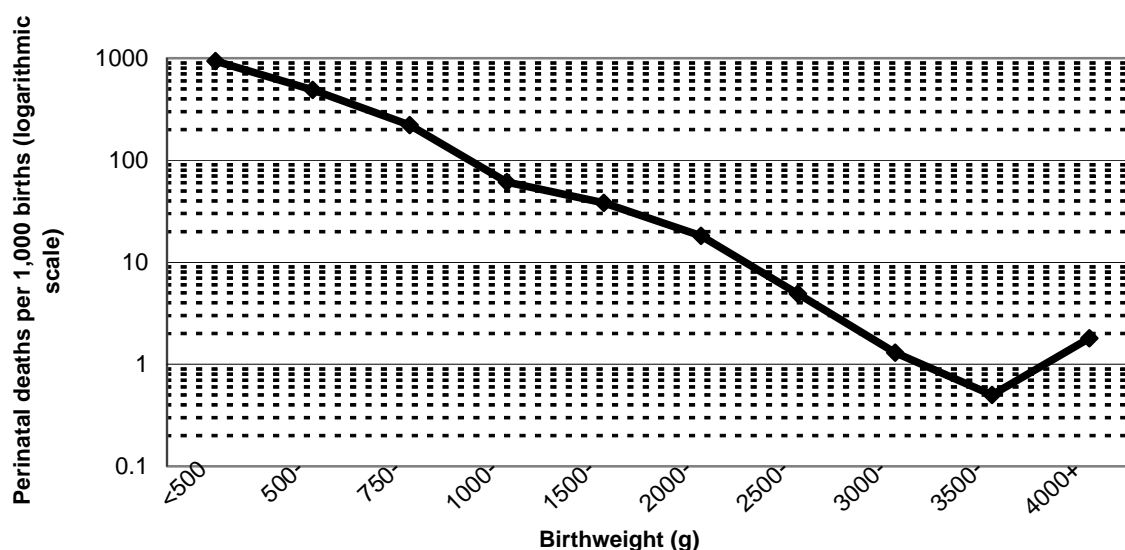
Figure 6: Perinatal mortality rate by birthweight, South Australian births, 2006

Table 21c: Perinatal mortality by gestational age at birth, South Australia, 2006

Gestational age 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	94	16	78	829.8	13	812.5	91	968.1
24-27	84	70	14	166.7	8	114.3	22	261.9
28-31	158	149	9	57.0	2	13.4	11	69.6
32-36	1,210	1,192	18	14.9	4	3.4	22	18.2
37-41	17,174	17,153	21	1.2	11	0.6	32	1.9
42+	83	83	0	0	0	0	0	0
TOTAL	18,803	18,663	140	7.4	38	2.0	178	9.5

22 Birth injuries

Birth injuries were reported in 143 live births (0.8%). The most common injury reported was cephalhaematoma. Fracture and nerve injury occurred less frequently (Table 22).

Table 22: Birth injuries* (in 18,663 live births), South Australia, 2006

Birth injury	Number of live births	% of live births
None	18,520	99.2
Fracture	14	0.1
Dislocation	4	0.0
Nerve Injury	18	0.1
Cephalhaematoma	73	0.4
Other	39	0.2

*More than one injury may occur in each birth

23 Treatment given in neonatal period

The proportions of live births who received specified treatments in the neonatal period are provided in Table 23: 84.9% of neonates did not receive any of these treatments.

Table 23: Neonatal treatment given (all live births), South Australia, 2006

Neonatal treatment	Number	% of live births
None of the treatments listed below	15,853	84.9
Oxygen therapy for more than 4 hours	1,106	5.9
Phototherapy for jaundice	1,265	6.8
Gavage feeding more than once	1,403	7.5
Any intravenous therapy	1,565	8.4

24 Level of care utilised

Table 24 shows that 84.5% of neonates utilised Level I care only. Level II care was used by 15.3% of neonates, Level III care at the Women's and Children's Hospital or Flinders Medical Centre by 2.5% 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 Level II and Level III care.

Table 24: Level of nursery care utilised by birthweight (all live births), South Australia, 2006

Level of care utilised	Birthweight (g)							
	<1,500 (n=203)		1,500-2,499 (n=989)		2,500+ (n=17,469)		Total (n=18,663*)	
	Number	%	Number	%	Number	%	Number	%
Level I only	12	5.9	209	21.1	15,550	89.0	15,773*	84.5
Level II	180	88.7	777	78.6	1,899	10.9	2,856	15.3
Level III (W&CH & FMC)	174	85.7	148	15.0	139	0.8	461	2.5
Level III (W&CH Paediatric intensive care)	5	2.5	10	1.0	25	0.1	40	0.2

*includes two babies of unknown birthweight, one born at 19 weeks gestation, which died in the neonatal period, and another born at 39 weeks gestation, which survived.

25 Length of stay of babies

Table 25 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 5.1 days (SD 9.6) and the median duration 4 days. The mean duration was 3.7 days (SD 3.3) for term births and 22.3 days (SD 27.3) for preterm births, while the median durations were 4 and 14 days respectively.

Table 25: Length of stay of liveborn babies in hospital, South Australia, 2006

Length of stay (days)	Preterm births		Term births		Total	
	Number	%	Number	%	Number	%
<1	14	1.0	558	3.3	572	3.1
1	15	1.1	1,766	10.3	1,781	9.6
2	46	3.2	2,803	16.3	2,849	15.3
3	43	3.0	3,197	18.6	3,240	17.4
4	88	6.2	3,927	22.9	4,015	21.6
5	106	7.4	2,692	15.7	2,798	15.1
6	87	6.1	1,308	7.6	1,395	7.5
7-13	294	20.6	774	4.5	1,068	5.8
14-20	230	16.1	71	0.4	301	1.6
21-27	160	11.2	24	0.1	184	1.0
28 or more	344	24.1	29	0.2	373	2.0
Total	1,427	100.0	17,149	100.0	18,576	100.0

26 Congenital abnormalities

Among the 18,803 births in 2006 there were 432 births (2.3%) notified with congenital abnormalities; 414 (2.2%) of these births had abnormalities notified in the congenital anomalies range 74000-75999 of the British Paediatric Association (BPA) Classification of Diseases.* This is a 5-digit extension of the ICD-9** 4-digit classification. Table 26 includes births with the more readily identifiable defects used for international monitoring (sentinel defects) notified to the perinatal statistics collection in 1996-2006. Terminations of pregnancy are not included in this table unless they meet a criterion for inclusion in the perinatal data collection, ie at least 400g birthweight or 20 weeks gestation. Notifications of births with birth defects identified after discharge from the hospital of birth but within the first five years of life are made to the South Australian Birth Defects Register at the Women's and Children's Hospital, and more complete statistics on birth defects in South Australia are available from the Register's Annual Report.²

Table 26: Selected congenital abnormalities notified to the perinatal statistics collection, 1996-2006, South Australia

Congenital abnormality BPA CODE	Year										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number of births =	19,111	18,674	18,734	18,519	17,871	17,704	17,745	17,844	17,522	18,196	18,803
74000-74029 Anencephalus	1	0	1	2	3	1	4	0	1	0	1
74100-74199 Spina bifida	5	3	9	4	5	9	4	7	5	5	8
74200-74209 Encephalocele	1	1	0	1	0	0	1	0	0	1	1
74230-74239 Hydrocephalus	0	3	5	7	4	4	3	7	6	9	10
74900-74909 Cleft palate	14	14	16	8	10	14	17	9	10	15	11
74910-74929 Cleft lip and palate (Total cleft lip)	18	19	20	17	16	15	16	14	17	9	16
75030-75038 Tracheo- oesophageal fistula, oesophageal atresia and stenosis	8	5	7	6	2	10	3	2	2	5	4
75120-75124 Atresia and stenosis of large intestine, rectum and anal canal	9	4	13	5	9	3	9	6	6	12	4
75260-75261 Hypospadias and epispadias	53	43	46	43	40	40	42	34	41	38	29
75300-75301 Renal agenesis and dysgenesis	4	6	2	4	5	7	5	10	4	12	8
75520-75549 Limb reduction defects	9	5	9	9	11	6	7	5	8	8	13
75660-75669 Anomalies of diaphragm	5	5	3	4	7	6	7	4	4	7	12
75670-75679 Anomalies of abdominal wall	7	7	12	8	8	13	10	13	12	9	10
75800-75809 Down's syndrome	11	24	25	25	19	21	19	13	14	19	17

* British Paediatric Association Classification of Diseases. London: The British Paediatric Association, 1979.

** International Classification of Diseases. Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, 1975 Revision. Geneva: World Health Organisation, 1977.

27 Multiple births

There were 276 twin and 4 triplet confinements compared with 18,239 singleton ones. Thus there was one twin confinement in every 67 and 1 triplet confinement in every 4,630 confinements. Confinements with twins or triplets comprised 1.5% of all confinements. The total number of multiple births was 564 (3.0% of total births).

A comparison of multiple births with singleton ones shows that multiple births were of lower birthweight (with 53.4% being of low birthweight compared with 5.5% for singletons, Table 27a), and gestation (with 54.4% being preterm births compared with 6.8% for singletons, Table 27b). The proportion in hospital at 28 days was 17.6% for multiple births compared with 1.5% for singletons, and the perinatal death rate for multiple births was also elevated (30.1 compared with 8.8 deaths per 1,000 births for singletons, Table 27c).

Table 27a: Birthweight by plurality (all births), South Australia, 2006

Birthweight (g)	Singleton births		Multiple births	
	Number	%	Number	%
<400	45	0.2	4	0.7
400-499	27	0.1	5	0.9
500-749	39	0.2	10	1.8
750-999	52	0.3	7	1.2
1,000-1,499	88	0.5	27	4.8
1,500-1,999	152	0.8	83	14.7
2,000-2,499	608	3.3	165	29.3
2,500-2,999	2,691	14.8	190	33.7
3,000-3,499	6,688	36.7	68	12.1
3,500-3,999	5,671	31.1	4	0.7
4,000-4,499	1,873	10.3	0	0
4,500+	303	1.7	0	0
Unknown	2	0	1	0.2
Total	18,239	100.0	564	100.0

Table 27b: Gestation at delivery, by plurality (all births), South Australia, 2006

Gestation (weeks)	Singleton births		Multiple births		Total	
	Number	%	Number	%	Number	%
<24	82	0.5	12	2.1	94	0.5
24-27	76	0.4	8	1.4	84	0.5
28-31	115	0.6	43	7.6	158	0.8
32-36	966	5.3	244	43.3	1,210	6.4
37-41	16,917	92.7	257	45.6	17,174	91.3
42+	83	0.5	0	0	83	0.5
Total	18239	100.0	564	100.0	18,803	100.0

Table 27c: Perinatal outcome by plurality (all births) South Australia, 2006

Perinatal outcome	Singleton births		Multiple births		Total	
	Number	%	Number	%	Number	%
Stillbirth	130	0.7	10	1.8	140	0.7
Discharged within 28 days	17,795	97.6	448	79.4	18,243	97.0
In hospital at 28 days	283	1.5	99	17.6	382	2.0
Neonatal death	31	0.2	7	1.2	38	0.2
Total	18,239	100.0	564	100.0	18,803	100.0

28 Perinatal mortality

High crude perinatal mortality rates were associated with low birthweight births (Table 21b), low gestation births (Table 21c) and multiple births (Table 27c). The perinatal mortality rate for all births (livebirths of any gestation and stillbirths of at least 400g birthweight/20 weeks gestation) in 2006 was 9.5 per 1,000 births and the neonatal mortality rate was 2.0 per 1,000 live births. The perinatal mortality rates for other specified minimum birthweights or gestational ages (where birthweight was unavailable) are provided in Table 28a. The perinatal mortality rate recommended by the World Health Organisation (WHO) for use in international comparisons refers only to births of at least 1,000g birthweight (or, if birthweight is unavailable, 28 weeks gestation) and to neonatal deaths within the first 7 days of life. This rate was 3.1 per 1,000 births in 2006, with a neonatal mortality rate of 0.7 per 1,000 live births. *The perinatal mortality rate for births to Aboriginal mothers was 14.3 per 1,000 births in 2006 compared with 9.3 per 1,000 births for births to non-Aboriginal mothers (Table 28b).*

Table 28a: Perinatal mortality, South Australia, 2006 (all births of specified birthweight/gestation)

Specified birthweight/gestation	Total births	Live births	Stillbirths		Neonatal deaths		Perinatal deaths	
	Number	Number	Number	Deaths per 1,000 births	Number	Deaths per 1,000 live births	Number	Deaths per 1,000 births
≥400g/20 weeks*	18,803	18,663	140	7.4	38	2.0	178	9.5
≥500g/22 weeks (WHO National Statistics)	18,721	18,649	72	3.8	26	1.4	98	5.2
≥1,000g/28 weeks (WHO International Statistics)	18,613	18,568	45	2.4	16	0.9	61	3.3
					13**	0.7	58**	3.1

* includes live births of any gestation. There were 50 births of birthweight <400g.

** only neonatal deaths within the first 7 days of life are included

Table 28b: Perinatal mortality by race, South Australian births, 2006

Race	Total births	Stillbirths	Neonatal deaths	Alive at 28 days	Perinatal deaths	
	Number	Number	Number	Number	Number	Deaths per 1,000 births
Caucasian	16,771	123	34	16,614	157	9.4
Aboriginal	559	6	2	551	8	14.3
Asian	950	8	1	941	9	9.5
Other	522	3	1	518	4	7.7
Unknown	1	0	0	1	0	0
Total	18,803	140	38	18,625	178	9.5

29 Home births

Supplementary Birth Records were received from home birth midwives for 82 planned home confinements (83 births) which occurred at home in 2006. There were four unplanned home births in South Australia in 2006 that have been excluded from the planned home birth statistics.

Ascertainment of planned home births occurring at home in South Australia for the year 2006 is estimated to be 88.3% (83 out of 94 home births). This estimate has been derived from a comparison with data from the Births, Deaths and Marriages Registration Division on births registered, which did not occur in hospital (and were not BBAs - babies born before arrival at the hospital into which the mother had been booked). In addition, 20 women who planned to deliver at home were transferred to hospital care before delivery. Statistics for all 82 planned home confinements 2006 are provided in Tables 29-32.

Table 29: Planned home confinements by age of mother, South Australia, 2006

Age (years)	Delivered at home		Delivered in hospital		Total	
	Number	%	Number	%	Number	%
<20	2	2.4	0	0	2	2.0
20-24	6	7.3	3	15.0	9	8.8
25-29	22	26.8	5	25.0	27	26.5
30-34	25	30.5	5	25.0	30	29.4
35-39	24	29.3	6	30.0	30	29.4
40-44	3	3.7	1	5.0	4	3.9
45+years	0	0	0	0	0	0
Total	82	100.0	20	100.0	102	100.0

Table 30: Method of delivery in planned home confinements, South Australia, 2006

Method of delivery	Delivered at home		Delivered in hospital		Total	
	Number	%	Number	%	Number	%
Normal spontaneous vaginal	82	100.0	12	60.0	94	92.2
LSCS emergency	0	0	6	30.0	6	5.9
Ventouse	0	0	2	10.0	2	1.9
Total	82	100.0	20	100.0	102	100.0

Table 31: Birthweight distribution of planned home births, South Australia, 2006

Birthweight	Delivered at home		Delivered in hospital		Total	
	Number	%	Number	%	Number	%
<1500	0	0	1	5.0	1	1.0
2,000-2,499	1	1.2	0	0	1	1.0
2,500-2,999	4	4.8	2	10.0	6	5.8
3,000-3,499	23	27.7	4	20.0	27	26.2
3,500-3,999	31	37.4	6	30.0	37	35.9
4,000-4,499	19	22.9	5	25.0	24	23.3
4,500+	5	6.0	1	5.0	6	5.8
Unknown	0	0	1	5.0	1	1.0
Total	83	100.0	20	100.0	103	100.0

Table 32: Perinatal outcome in planned home births, South Australia, 2006

Perinatal outcome	Delivered at home		Delivered in hospital		Total	
	Number	%	Number	%	Number	%
Live birth, survived neonatal period	83	100.0	20	100.0	103	100.0
Total	83	100.0	20	100.0	103	100.0

30 Birthing unit births

Statistics presented for births in birthing units in South Australia (Tables 33-36) relate to the birthing units at the Women's and Children's Hospital, the Lyell McEwin Health Service and Flinders Medical Centre. The units at the Women's and Children's Hospital and the Lyell McEwin Health Service were established in 1992 and 1993 respectively under the Alternative Birthing Services Programme. In October 1996 the birthing unit at Flinders Medical Centre commenced deliveries. These statistics relate to all 2,430 planned birthing unit confinements. Of these, 1,272 confinements occurred in the birthing units while 1,158 women (47.7%) gave birth in labour wards. Some of these women were transferred to labour wards because of medical or obstetric complications. With the commencement of the Midwifery Group Practice model of care at Women's and Children's Hospital in 2004, more of these women who gave birth in labour wards than previously did so because the birthing unit was not available at the time. These women have been included in the statistics here as they gave 'birthing unit' as their intended place of birth. Of the women who gave birth in labour wards, 32.8% had Caesarean sections and 15.0% had instrumental deliveries. These statistics have also been included in the statistics for the respective hospitals. Two and a half percent of all the babies were low birthweight and there were nine perinatal deaths (perinatal mortality rate 3.7 per 1,000 births).

Table 33: Planned birthing unit confinements by age of mother, South Australia, 2006

Age (years)	Delivered in birthing unit		Delivered in labour ward		Total	
	Number	%	Number	%	Number	%
<20	112	8.8	89	7.7	201	8.3
20-24	291	22.9	257	22.2	548	22.5
25-29	373	29.3	327	28.2	700	28.8
30-34	339	26.6	306	26.4	645	26.5
35-39	131	10.3	162	14.0	293	12.1
40-44	24	1.9	17	1.5	41	1.7
45+	2	0.2	0	0	2	0.1
Total	1,272	100.0	1,158	100.0	2,430	100.0

Table 34: Method of delivery in planned birthing unit confinements, South Australia, 2006

Method of delivery	Delivered in birthing unit		Delivered in labour ward		Total	
	Number	%	Number	%	Number	%
Normal spontaneous vaginal	1253	98.5	603	52.1	1,856	76.4
Forceps	2	0.2	71	6.1	73	3.0
Assisted breech	0	0	1	0.1	1	0.0
LSCS elective	0	0	47	4.1	47	1.9
LSCS emergency	0	0	333	28.7	333	13.7
Ventouse	16	1.2	103	8.9	119	4.9
Breech spontaneous	1	0.1	0	0	1	0.0
Total	1,272	100.0	1,158	100.0	2,430	100.0

Table 35: Birthweight distribution of planned birthing unit births, South Australia, 2006

Birthweight (g)	Delivered in birthing unit		Delivered in labour ward		Total	
	Number	%	Number	%	Number	%
<,1500	0	0	8	0.7	8	0.3
1,500-1,999	1	0.1	10	0.9	11	0.4
2,000-2,499	10	0.8	33	2.8	43	1.8
2,500-2,999	124	9.7	149	12.8	273	11.2
3,000-3,499	490	38.5	394	33.9	884	36.3
3,500-3,999	463	36.4	369	31.7	832	34.2
4,000-4,499	160	12.6	168	14.4	328	13.5
4,500+	24	1.9	32	2.8	56	2.3
Total	1,272	100.0	1,163	100.0	2,435	100.0

Table 36: Perinatal outcome in planned birthing unit births, South Australia, 2006

Perinatal outcome	Delivered in birthing unit		Delivered in labour ward		Total	
	Number	%	Number	%	Number	%
Stillbirth	0	0	8	0.7	8	0.3
Discharged within 28 days	1,270	99.8	1,146	98.5	2,416	99.2
Prolonged hospitalisation (in hospital at 28 days)	2	0.2	8	0.7	10	0.4
Neonatal death	0	0	1	0.1	1	0.0
Total	1,272	100.0	1,163	100.0	2,435	100.0

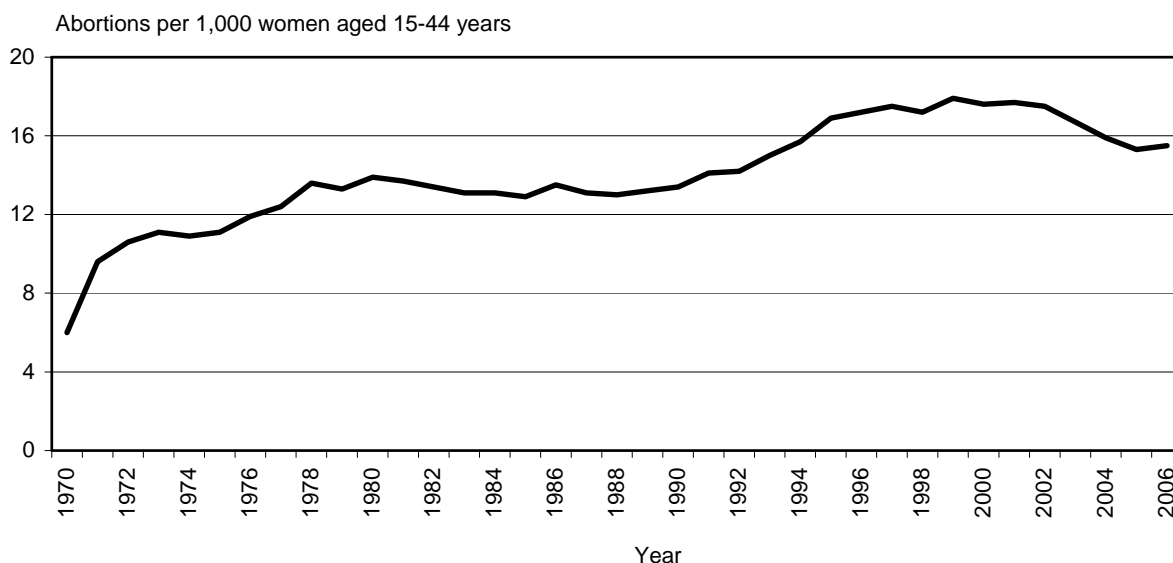
III TERMINATIONS OF PREGNANCY

1 Numbers and rates

There were 4,888 terminations of pregnancy notified in South Australia in 2006. This was 173 more than in 2005. The abortion rate was 15.5 abortions per 1,000 women aged 15-44 years. After specific abortion legislation was introduced in 1970, the abortion rate rose to a peak of 13.9 in 1980, followed by a period of relative stability in the 1980s. Another increase in the abortion rate commenced in 1991 (Table 37 and Fig 7) and reached a peak of 17.9 in 1999. The rate declined significantly from 17.7 in 2001 to 15.3 in 2005. (Recent validation of numbers of terminations resulted in small corrections to the numbers notified in 1997-2005)

Table 37: Abortion rate per 1,000 women aged 15-44 years, South Australia, 1970-2006

Year	Number of abortions	Abortions per 1,000 women aged 15-44 years
1970	1,440	6.0
1971	2,409	9.6
1972	2,692	10.6
1973	2,847	11.1
1974	2,867	10.9
1975	3,000	11.1
1976	3,289	11.9
1977	3,494	12.4
1978	3,895	13.6
1979	3,880	13.3
1980	4,081	13.9
1981	4,096	13.7
1982	4,061	13.4
1983	4,036	13.1
1984	4,091	13.1
1985	4,079	12.9
1986	4,327	13.5
1987	4,229	13.1
1988	4,263	13.0
1989	4,342	13.2
1990	4,463	13.4
1991	4,696	14.1
1992	4,717	14.2
1993	4,959	15.0
1994	5,140	15.7
1995	5,475	16.9
1996	5,545	17.2
1997	5,609	17.5
1998	5,488	17.2
1999	5,679	17.9
2000	5,580	17.6
2001	5,579	17.7
2002	5,467	17.5
2003	5,216	16.7
2004	4,931	15.9
2005	4,715	15.3
2006	4,888	15.5

Figure 7: Abortion rate in South Australia, 1970-2006

2 Age of women

The age distribution of women who had terminations is shown in Table 38. Among the five-year age groups (Table 39), the highest abortion rate was among women aged 20-24 years (25.5 per 1,000 women) followed by teenage women 15-19 years (19.6 per 1,000 women) and women aged 25-29 years (19.1 per 1,000 women). Compared with 2005, abortion rates have fallen for age groups between 20 and 29 years, but increased in teenage women and women aged 30-39 years. The abortion proportion (abortions as a proportion of abortions and live births) was 0.21; it was highest among teenagers (0.53), and was also high among women aged 20-24 years (0.32) and older women aged 40 years or more (0.29). This indicates that about 53% of known teenage pregnancies were terminated. This proportion was highest for younger teenagers (0.76 for those aged <15 years).

Table 38: Terminations of pregnancy by age, South Australia, 2006

Age (years)	Number	%
13	3	0.1
14	13	0.3
15	49	1.0
16	131	2.7
17	200	4.1
18	287	5.9
19	315	6.4
20-24	1,355	27.7
25-29	910	18.6
30-34	807	16.5
35-39	584	11.9
40-44	222	4.5
45+	12	0.2
Total	4,888	100.0

The distribution of abortions and live births by age in South Australia in 2006 (Table 39 and Figure 8A) demonstrates that the largest proportion of abortions occurred in the age group 20-24 years while the largest proportion of live births occurred among those 30-34 years, who had the highest fertility (live birth) rate of 116.6 per 1,000 women. Teenagers accounted for 20.4% of the abortions and 4.7% of the live births in South Australia in 2006. The teenage pregnancy rate (per 1,000 women aged 15-19 years) declined in the 1970s and 1980s with the decline in the teenage birth rate but increased in the 1990s till 1996. After that it has declined again, and, from 2003, this was associated with a decline in the teenage abortion rate (Figure 8B). The teenage pregnancy rate was 37.0 per 1,000 women in 2006, a slight increase from 36.3 in 2005, which was the lowest rate recorded since abortion statistics became available in 1970 to derive a pregnancy rate.

Table 39: Abortion and live birth rates and abortion proportions by age, South Australia, 2006

Age (years)	Number of abortions	Estimated resident female population June 30 2006*	Abortion rate per 1,000 women	Number of live births**	Fertility rate per 1,000 women	Abortions + live births	Abortion proportion
<15	16	na	na	5	na	21	0.76
15-19	982	50,875	19.6**	877	17.3**	1,859	0.53
20-24	1,355	53,083	25.5	2,923	55.1	4,278	0.32
25-29	910	47,591	19.1	5,082	106.8	5,992	0.15
30-34	807	50,927	15.8	5,939	116.6	6,746	0.12
35-39	584	55,336	10.6	3,261	58.9	3,845	0.15
40-44	222	57,898	4.0**	547	9.9**	769	0.29
45+	12	na	na	26	na	38	0.32
Total	4,888	315,710	15.5**	18,660	59.1**	23,548	0.21

* Australian Bureau of Statistics. Population Estimates by Age and Sex, South Australia 2006. Canberra: ABS, 2007 (Catalogue No 3235.0).

** Terminations of pregnancy are excluded from the numbers of live births. The abortion and live birth rates for women aged 15-19 years include terminations and live births at younger ages, and the rates for women aged 40-44 years include terminations and live births at older ages, while the total rates include all terminations and live births.

Figure 8A: Abortions and live births by age, South Australia, 2006

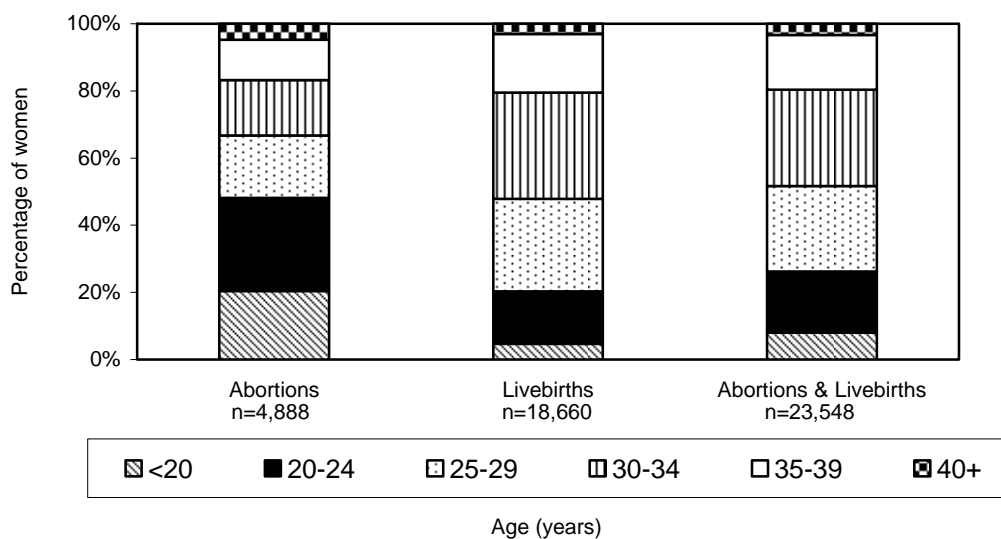
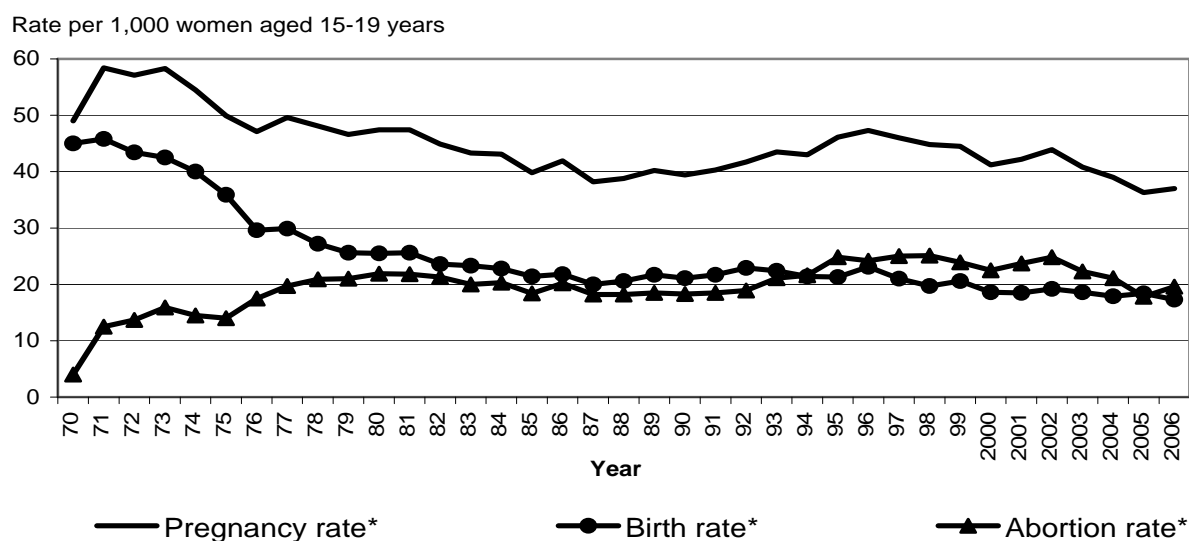


Figure 8B: Teenage pregnancy, abortion and birth rates, South Australia, 1970-2006

*Abortions and births to women aged less than 15 years are included in the numerator

3 Marital status

Terminations were performed in the majority of cases (62.5%) for single women (Table 40). In 2.0% of cases the marital status was not known.

Table 40: Terminations by marital status, South Australia, 2006

Marital status	Number	%
Never married	2,463	50.4
Married	1,188	24.3
De facto	549	11.2
Widowed	4	0.1
Divorced/Separated	587	12.0
Not known	97	2.0
Total	4,888	100.0

4 Place of residence and place where termination performed

While 83.0% of terminations were performed for metropolitan residents (Table 41), a larger proportion (94.3%) was performed in metropolitan hospitals (Table 42), which include the Pregnancy Advisory Centre at which 2,690 terminations (55.0% in the state) were performed.

Table 41: Terminations by place of residence, South Australia, 2006

Residence of women	Number	%
Metropolitan	4,053	82.9
Country	835	17.1
Total	4,888	100.0

Table 42: Terminations by hospital category, South Australia, 2006

Hospital where termination performed	Number	%
Metropolitan teaching	4,417	90.4
Metropolitan private	191	3.9
Country	280	5.7
Total	4,888	100.0

The proportion of terminations performed by obstetricians was 19.8%, which has declined from 68.5% in 1991, while the proportion performed by medical practitioners in family advisory clinics has increased from 23.8% in 1991 to 75.3% in 2006 (Table 43). These proportions are similar to those in 2005.

Table 43: Terminations by category of doctor, South Australia, 2006

Category of doctor performing termination	Number	%
Obstetrician/gynaecologist	968	19.8
Trainee obstetrician/gynaecologist	123	2.5
Medical practitioner in family advisory clinic	3,680	75.3
General practitioner	117	2.4
Total	4,888	100.0

5 The reason for termination

The number of terminations performed for fetal reasons was 141 (2.9% of terminations), of which 137 (97.2%) were for specified fetal or chromosomal abnormalities (Table 44).

Table 44: Reason for termination for fetal reasons, South Australia, 2006

Reason for termination	Number	%
Identified chromosomal abnormality	62	44.0
Other identified fetal abnormality	75	53.2
Possibility of damage from drugs	3	2.1
Possibility of damage from other causes	1	0.7
Total	141	100.0

6 Gestation, method and complications

The majority of terminations (91.1%) was performed within the first 14 weeks of pregnancy and most frequently (in 88.9% of cases) by vacuum aspiration. There were 78 late terminations (performed at 20 weeks gestation or later): 51% of these were for fetal reasons. Fifteen complications were reported for 13 women (0.3%). The types of complications are listed in Table 45. Complications are believed to be undernotified as the notification forms are usually completed about the time the woman is discharged from hospital after the procedure.

Table 45: Complications of terminations, South Australia, 2006

Complications	Number	% of complications
Sepsis	1	6.7
Haemorrhage - intra-operative	1	6.7
- post-operative	3	20.0
Perforation of or trauma to body of uterus	1	6.7
Other (mainly retained products of conception)	9	60.0
Total	15	100.0

7 Previous terminations. Total abortion rate and Total first abortion rate

Of the 4,888 women who had terminations, 1,873 (38.3%) had had a previous termination (Table 46a). Among the teenagers 14.6% had had a previous termination, while about half of those in all the five-year age groups over 24 years had had previous terminations. The total abortion rate (TAR) for 2006 was 473.0 per 1,000 women aged 15-44 years (Table 46b). This represents the number of abortions 1,000 women would have during their lifetime if they experienced the abortion rates of the different age groups for 2006. As a woman may have more than one abortion in her lifetime, to estimate how prevalent abortion is at these age-specific abortion rates for 2006, a total first abortion rate (TFAR, Table 46c) may be calculated after exclusion of women with repeat terminations. This TFAR for 2006 was 291.5 per 1,000 women aged 15-44 years. This suggests that about 29% of women would have an abortion in their lifetime if they experienced the abortion rates of the different age groups for 2006.

Table 46a: Women with previous terminations by age, South Australia, 2006

Age (years)	Number	%	% of age group
< 15	1	0.1	6.3
15 - 19	145	7.7	14.8
20 - 24	469	25.0	34.6
25 - 29	453	24.2	49.8
30 - 34	410	21.9	50.8
35 - 39	302	16.1	51.7
40+	93	5.0	39.7
Total	1,873	100.0	38.3

Further details of abortions in South Australia in 2006 may be obtained from the Fourth Annual Report of the South Australian Abortion Reporting Committee – for the year 2006.⁶

Table 46b: Calculation of total abortion rate (TAR) for 2006 for South Australia*

Age (years)	Number of women who had terminations	Estimated female resident population 30 th June 2006	Abortion rate per 1,000 women
15-19	998	50,875	19.6
20-24	1,355	53,083	25.5
25-29	910	47,591	19.1
30-34	807	50,927	15.8
35-39	584	55,336	10.6
40-44	234	57,898	4.0
Total	4,888	315,710	15.5

*In these calculations, abortions to women under 15 years are included in the age group 15-19 yrs and abortions to women aged 45 years or more are included in the age group 40-44 years, as is traditional.

Total abortion rate = sum of abortion rates for 5-year age groups x 5 = 94.6X5=473.0 per 1,000 women aged 15-44 years.

Table 46c: Calculation of total first abortion rate (TFAR) for 2006 for South Australia*

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 June 30 th 2006	First abortion rate per 1,000 women
15-19	998	146	852	50,875	16.7
20-24	1,355	469	886	53,083	16.7
25-29	910	453	457	47,591	9.6
30-34	807	410	397	50,927	7.8
35-39	584	302	282	55,336	5.1
40-44	234	93	141	57,898	2.4
Total	4,888	1,873	3,015	315,710	9.6

* In these calculations, abortions to women under 15 years are included in the age group 15-19 yrs and abortions to women aged 45 years or more are included in the age group 40-44 years, as is traditional.

Total first abortion rate (TFAR) = sum of first abortion rates for 5-year age groupsX5 = 58.3x 5 = 291.5 per 1,000 women aged 15-44 yrs.

IV OBSTETRIC PROFILES BY HOSPITAL CATEGORY

Obstetric profiles for 5 hospital categories for 2006 are provided in Table 47 and Figures 9-28.

These hospital categories are:

1. Metropolitan teaching Level III hospitals with neonatal intensive care facilities, ie the Women's & Children's Hospital and Flinders Medical Centre,
2. Other metropolitan teaching hospitals, ie the Lyell McEwin Health Service and Modbury Hospital,
3. Metropolitan private hospitals,
4. The two major country hospitals (Mount Gambier and Whyalla) and
5. Other country hospitals (mainly smaller).

A list of maternal and baby factors identified either as risk factors for poor perinatal outcome in earlier analyses,⁷ or of general interest, is provided with "means" for all state hospital births as well as proportions for the 5 hospital categories.

The "mean" is the proportion for all state hospital confinements (for maternal factors) or births (for baby factors),

e.g. % Aboriginal mothers

$$\frac{\text{Number of confinements of Aboriginal mothers in state hospitals}}{\text{Total confinements in state hospitals}} \times 100$$

Where indicated (+) in Table 47, it is the mean (number of confinements or births) for the 25 hospitals or groups of hospitals for which obstetric profiles have been provided, and which have also been included in the provision of the 10th and 90th percentile values. These are as follows:

1. Women's & Children's Hospital
2. Flinders Medical Centre
3. Lyell McEwin Health Service
4. Modbury Hospital
5. Ashford Hospital
6. Burnside War Memorial Hospital Inc
7. Calvary Healthcare Adelaide
8. Flinders Private Hospital
9. North Eastern Community Hospital
10. Mount Gambier & District Health Service Inc
11. The Whyalla Hospital & Health Services Inc
12. Barossa Health (Tanunda Centre)
13. Lower North Health Centre (Clare)
14. Gawler Health Service
15. Millicent & District Hospital & Health Services Inc
16. Mount Barker District Soldiers' Memorial Hospital Inc
17. Murray Bridge Soldiers' Memorial Hospital Inc

18. Naracoorte Health Service Inc
19. Port Augusta Hospital & Regional Health Service Inc
20. Port Lincoln Health Service Inc
21. Port Pirie Regional Health Service Inc
22. Riverland Regional Health Service (Berri)
23. South Coast District Hospital Inc (Victor Harbor)
24. Country hospitals with 50-99 births per year
25. Country hospitals with <50 births per year

The 10th percentile is the proportion below which 10% of the 25 hospital proportions, ie the two lowest hospital proportions, would be found if the 25 proportions were ranked from highest to lowest. The 90th percentile is the proportion above which 10% of the 25 hospital proportions, ie the two highest proportions, would be found if the 25 proportions were ranked from highest to lowest. As the two Level III hospitals which account for 37.5% of hospital births have proportions of some factors (such as prolonged hospitalisation and use of neonatal intensive care) which are much greater than for the other 23 hospitals, occasionally the mean for all hospitals will be seen to be higher than the 90th percentile.

The table and figures provide obstetric profiles for the 5 different categories of hospitals. These have been provided since 1986 to hospitals with 100 or more births per year, together with their individual hospital profiles, including crude and standardized perinatal mortality ratios,⁸ the latter with exclusion of perinatal deaths from congenital abnormalities³ and terminations of pregnancy. For country hospitals with less than 100 births per year, group reports have been provided.

Each hospital's statistics for each factor may be compared with those for state hospitals and for categories of hospitals, eg whether a hospital's proportion for any factor falls within the range of the more common proportions prevailing in hospitals in the state (ie between the 10th and the 90th percentiles).

Table 47: Obstetric profiles by hospital category, South Australia, 2006: live births of any gestation and stillbirths of $\geq 400\text{g}$ or ≥ 20 weeks gestation

Factors	All state hospitals			Metropolitan hospitals			Country hospitals	
	Mean	10th percentile	90th percentile	Level III teaching	Other teaching	Private	Major	Other
Maternal factors								
Confinements (n=18,433)	737 ⁺	126	2,071	6,862	2,747	4,943	819	3,062
% Aboriginal mothers	3.0	0	7.6	3.2	3.5	0.2	4.5	6.2
% Antenatal visits <7*	8.1	0.5	13.0	12.8	9.4	0.8	7.8	8.2
% Teenage mothers	4.8	0.4	10.7	5.0	9.3	0.4	8.1	6.8
% Mothers ≥ 35 years	20.4	10.7	32.1	19.6	13.5	30.3	15.1	13.5
% Single mothers	13.1	3.2	19.9	19.6	17.3	3.5	10.5	11.2
% 4+ prior live births	2.9	0.5	6.1	3.1	5.2	0.5	4.0	4.0
% 1+ prior perinatal deaths	1.6	0.4	2.3	2.2	1.6	0.9	1.8	1.2
% Obstetric complications	30.5	15.2	34.2	40.0	31.5	21.9	26.0	23.4
% Labour complications	34.9	20.3	43.7	44.4	35.4	28.7	21.0	26.9
% Induction	29.0	23.5	38.5	29.2	25.3	30.9	27.6	29.2
% Emergency LSCS	17.5	8.1	22.4	18.3	15.8	20.5	14.2	13.1
% Elective LSCS	15.6	7.6	24.9	12.1	12.3	23.2	13.1	14.7
% Total LSCS	33.1	19.0	42.7	30.5	28.1	43.7	27.2	27.8
% Ultrasound examination*	98.1	95.2	99.5	98.5	98.0	98.1	97.7	97.5
% Amniocentesis*	4.6	1.2	5.7	4.8	3.3	6.9	2.5	2.3
% Episiotomy	11.8	6.4	17.0	10.6	9.6	17.1	9.4	9.0
% Repair of perineal tear	25.6	17.0	30.9	27.2	21.9	26.5	27.2	23.4
% Epidural analgesia	30.8	7.5	45.2	31.5	23.8	43.6	25.5	16.5
% Spinal analgesia	0.8	0	2.7	0.4	0.7	1.1	0.7	1.2
% Private patients	32.3	2.2	100.0	7.0	3.6	100.0	14.4	10.0
% Primiparous women	41.3	30.6	45.6	42.2	37.3	46.2	39.2	35.3
% Previous LSCS	17.3	11.1	22.1	16.0	15.5	21.0	15.0	16.4
% PPH	7.1	3.3	9.1	10.9	5.2	4.0	5.1	6.0
Baby factors								
Births (n=18,716)	749 ⁺	126	2,096	7,017	2,782	5,012	831	3,074
% Birthweight <2,500g	7.0	0.9	7.9	11.1	7.2	3.8	6.3	3.0
% Gestational age <37 weeks at birth	8.3	1.4	9.3	13.1	7.6	5.2	7.8	3.0
% Prolonged hospitalisation (>27 days)	2.1	0	1.7	4.6	0.7	0.6	0.6	0.4
% Neonatal intensive care (Level III or W&CH paediatric intensive care)	2.6	0	2.9	5.3	1.2	0.9	0.7	1.0
% Birth defect	2.3	0.9	3.0	3.2	2.2	1.6	1.6	1.7

* adjusted for missing values

+ mean number of confinements or births for the 25 hospitals or groups of hospitals

Figure 9: Percentage of Aboriginal mothers by hospital category

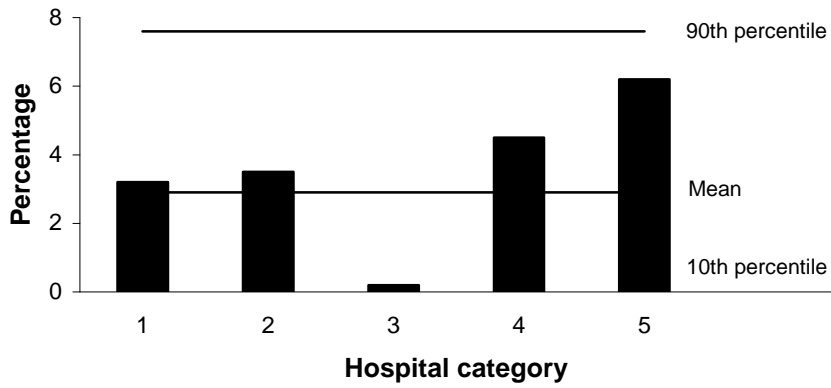


Figure 10: Percentage of mothers with <7 antenatal visits by hospital category

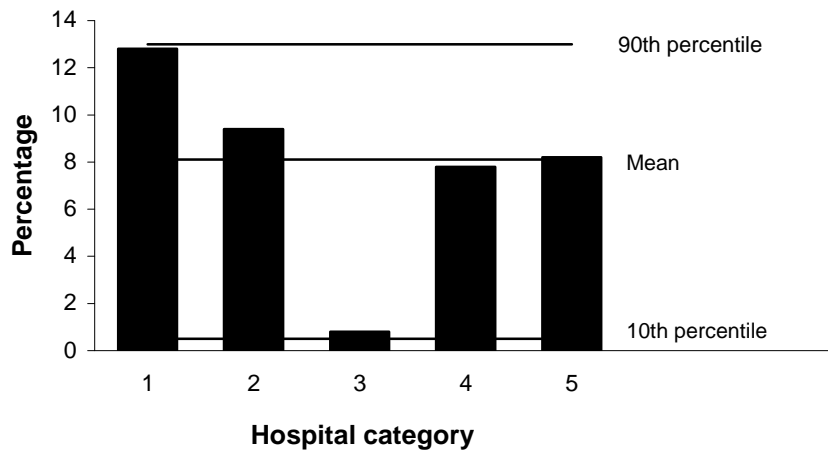


Figure 11: Percentage of teenage mothers by hospital category

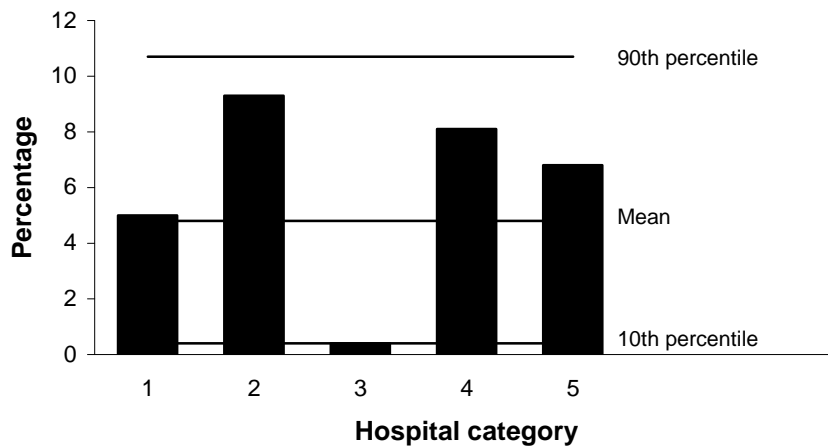


Figure 12: Percentage of mothers 35 years or more by hospital category

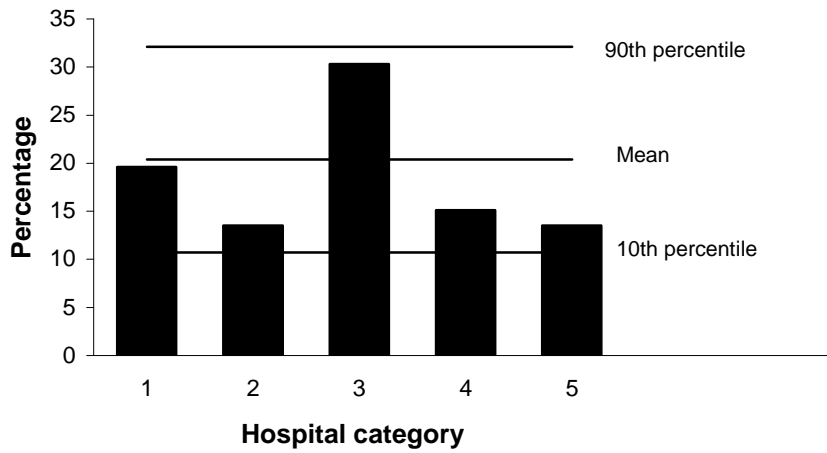


Figure 13: Percentage of single mothers by hospital category

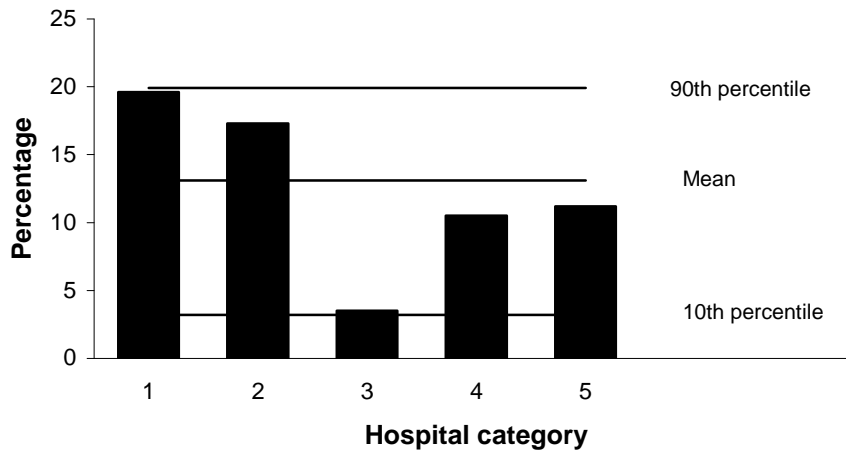


Figure 14: Percentage of mothers with 4 or more prior livebirths by hospital category

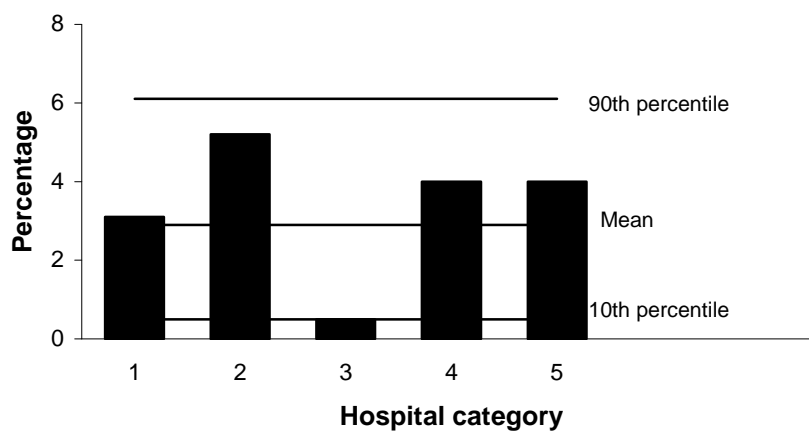


Figure 15: Percentage of mothers with 1 or more prior perinatal deaths by hospital category

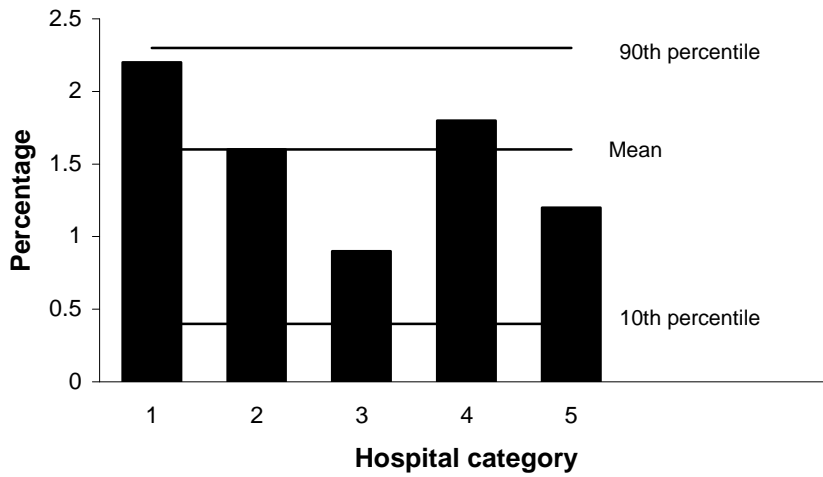


Figure 16: Percentage of mothers with obstetric complications by hospital category

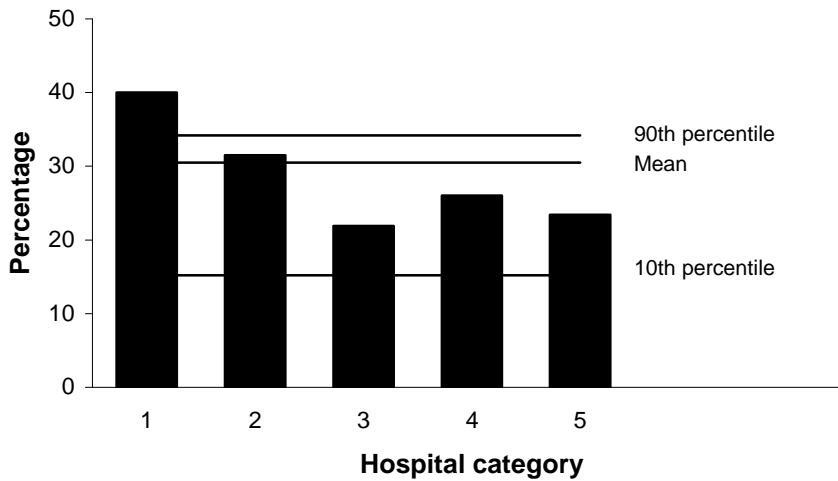


Figure 17: Percentage of mothers with complications during labour or delivery by hospital category

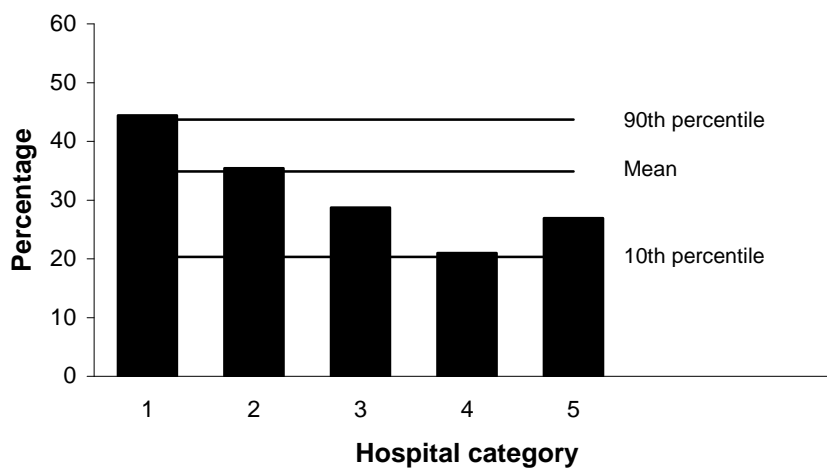


Figure 18: Percentage of mothers with induction of labour by hospital category

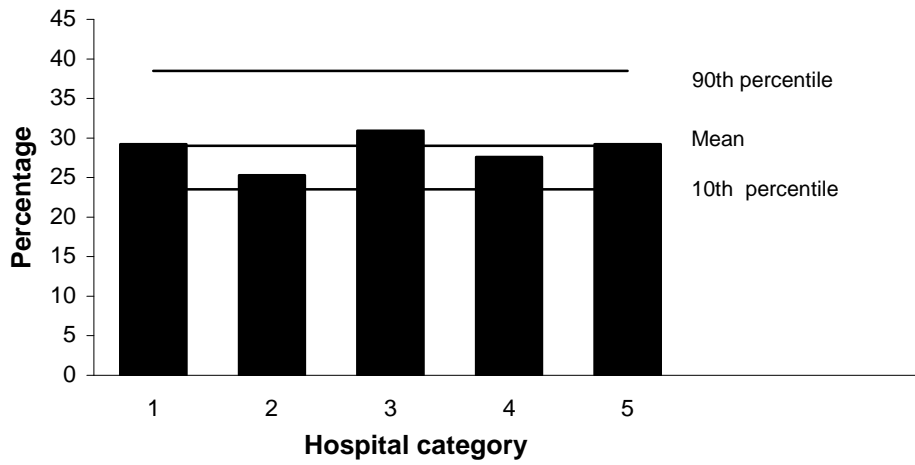


Figure 19: Percentage of mothers having epidural analgesia by hospital category

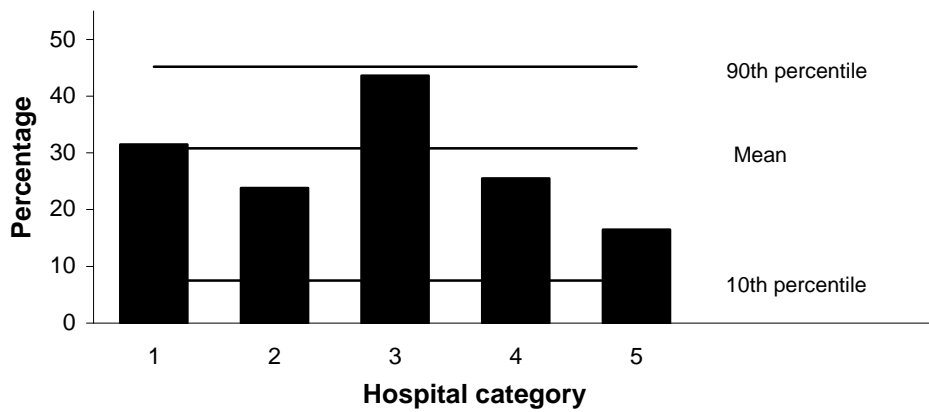


Figure 20: Percentage of breech deliveries by hospital category

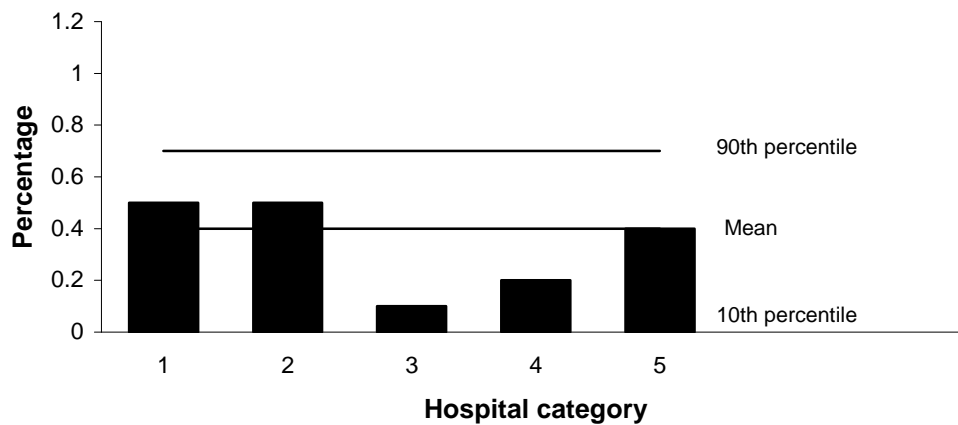


Figure 21: Percentage of emergency LSCS by hospital category

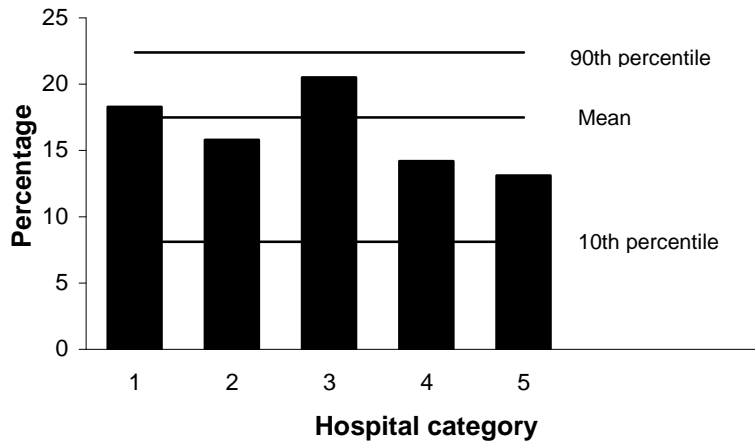


Figure 22: Percentage of elective LSCS by hospital category

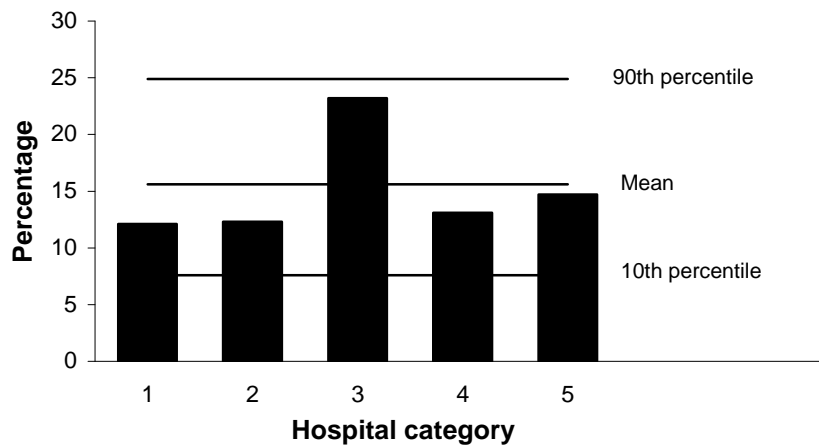


Figure 23: Percentage of total LSCS by hospital category

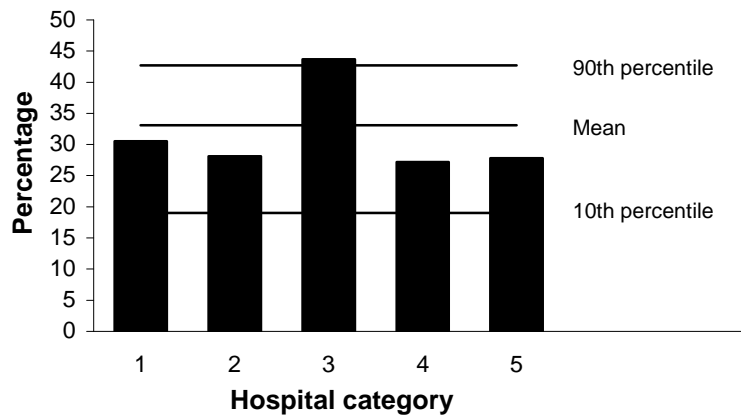


Figure 24: Percentage of births with birthweight below 2,500g by hospital category

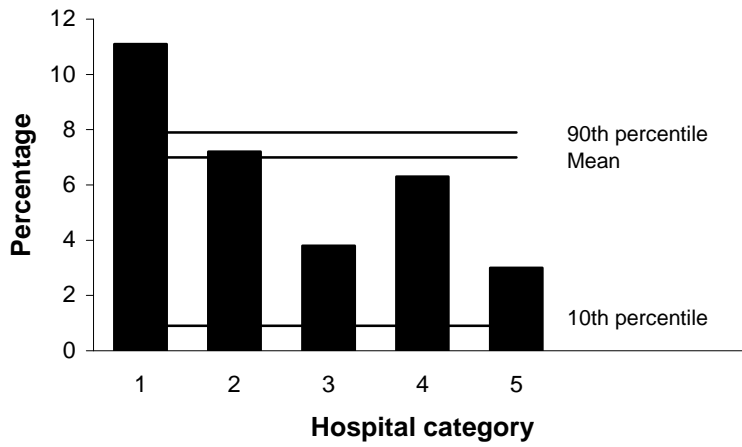


Figure 25: Percentage of births with gestation less than 37 weeks by hospital category

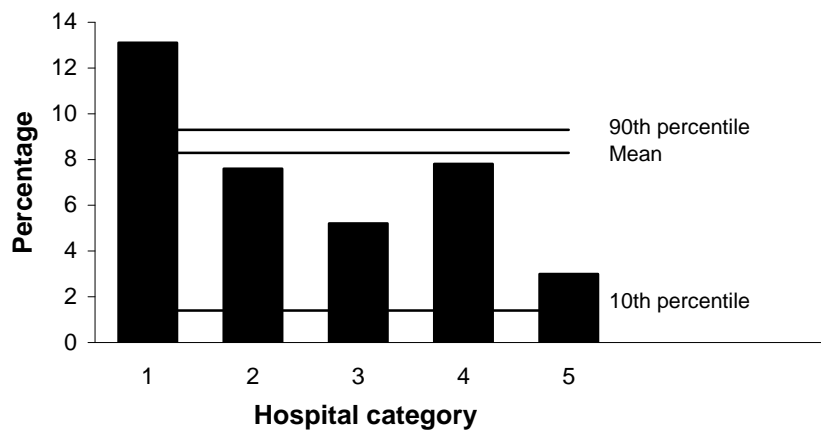


Figure 26: Percentage of births with prolonged hospitalisation by hospital category

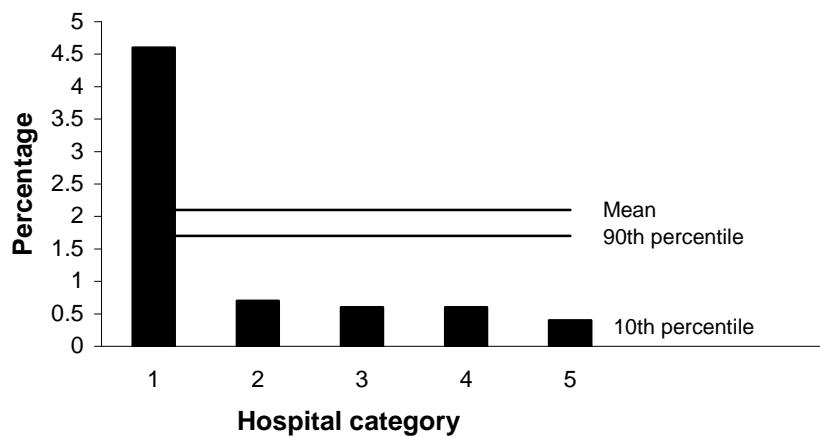


Figure 27: Percentage of livebirths requiring neonatal intensive care by hospital category

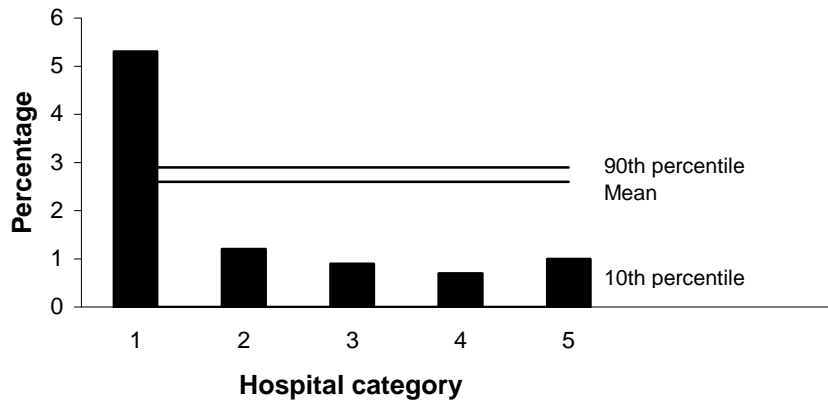
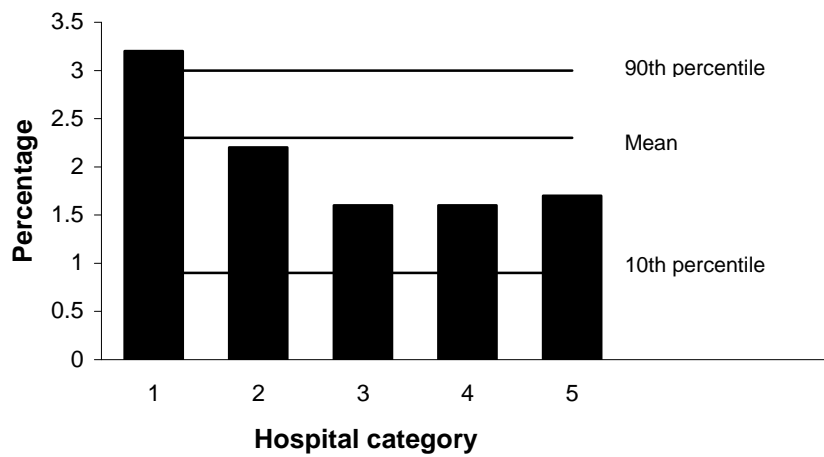


Figure 28: Percentage of births with birth defects by hospital category



V CLINICAL AND MATERNITY PERFORMANCE INDICATORS

1 Clinical indicators

These clinical indicators of The Australian Council on Healthcare Standards (ACHS Obstetrics and Gynaecology Indicators 'Clinical Indicators - A User's Manual Version 4') are reported for the state in pages 53-56. They are also reported for hospital categories and individual hospitals in the Pregnancy and Neonatal Care Bulletin 2006.

INDICATOR 1: INDUCTION OF LABOUR OTHER THAN FOR DEFINED INDICATIONS

Rationale: These indicators have been included because induction of labour is a common obstetric intervention and one which is often stated by community critics to be unnecessarily high.

❖ **Clinical indicator 1.1: Induction of labour other than for defined indications among all inductions**

Numerator: The number of women undergoing induction of labour for indications other than those defined (n=2,616). These are diabetes, premature rupture of membranes, hypertensive disorders (including chronic renal disease), intrauterine growth restriction, isoimmunisation, fetal distress (as documented by the clinician), fetal demise, chorioamnionitis and prolonged pregnancy (41 completed weeks or more).

Patients having augmentation of labour are excluded in both numerator and denominator data.

Denominator: The total number of women undergoing induction of labour for any reason (excluding augmentation of labour) (n = 5,344).

$$\text{Clinical indicator 1.1} = \frac{2,616 \times 100}{5,344} = 49.0\% \text{ (95\%CI 47.6\%-50.3\%).}$$

❖ **Clinical indicator 1.2: Induction of labour other than for defined indications among all women who delivered**

Numerator: The number of women undergoing induction of labour for indications other than those listed above (excluding augmentation of labour) (n=2,616).

Denominator: The total number of women delivering (including augmentation of labour) (n=18,519).

$$\text{Clinical indicator 1.2} = \frac{2,616 \times 100}{18,519} = 14.1\% \text{ (95\%CI 13.6\%-14.6\%).}$$

INDICATOR 2: RATE OF VAGINAL DELIVERY FOLLOWING PRIMARY CAESAREAN SECTION

Rationale: This indicator has been included to monitor the conduct of labour and trial of scar in those women who have had a previous primary (first) caesarean section.

❖ **Clinical indicator 2.1: Rate of vaginal delivery following primary caesarean section**

Numerator: The number of women delivering vaginally following a previous primary (first) caesarean section and having no intervening pregnancies greater than 20 weeks gestation (n=376).

Denominator: The total number of women delivering who have had a previous primary (first) caesarean section and no intervening pregnancies greater than twenty weeks gestation (n=2,290).

$$\text{Clinical indicator 2.1} = \frac{376 \times 100}{2,290} = 16.4\% \text{ (95\%CI 14.9\%-18.0\%).}$$

INDICATOR 3: PRIMARY CAESAREAN SECTION FOR FAILURE TO PROGRESS

Rationale: This indicator is to monitor the adequacy of trial of labour. There are two indicators, one for failure to progress after a period of labour with cervical dilatation of 3cm or less and the other with cervical dilatation of more than 3cm. As information on cervical dilatation is not collected, the two indicators have been combined.

❖ **Clinical indicator 3.0: Primary caesarean section for failure to progress among primary non-elective caesarean sections**

Numerator: The number of women undergoing primary (first) caesarean section for failure to progress (clinician's documented statement), which may include CPD, uterine inertia, persistent occipitoposterior position (n=1,431).

Denominator: The total number of women undergoing primary non-elective caesarean section (n=2,590).

$$\text{Clinical indicator 3.0} = \frac{1,431 \times 100}{2,590} = 55.3\% \text{ (95\%CI 53.3\%-57.2\%).}$$

INDICATOR 4: PRIMARY CAESAREAN SECTION FOR FETAL DISTRESS

Rationale: To determine the comparative frequency of caesarean section for fetal distress.

❖ **Clinical indicator 4.1: Primary caesarean section for fetal distress among all women who delivered**

Numerator: The number of women undergoing primary caesarean section for fetal distress in labour as evidenced by the clinician's documented diagnosis of fetal distress (n=933).

Denominator: The total number of women delivering including those delivering vaginally (n=18,519).

$$\text{Clinical indicator 4.1} = \frac{933 \times 100}{18,519} = 5.0\% \text{ (95\% CI 4.7\%-5.4\%).}$$

❖ **Clinical indicator 4.2: Primary caesarean section for fetal distress among primary caesarean sections**

Numerator: The number of women undergoing primary caesarean section for fetal distress as defined above (n=933).

Denominator: The total number of women delivering by primary caesarean section only (n = 3,475).

$$\text{Clinical indicator 4.2} = \frac{933 \times 100}{3,475} = 26.8\% \text{ (95\%CI 25.4\%-28.4\%).}$$

INDICATOR 5: INCIDENCE OF AN INTACT LOWER GENITAL TRACT IN PRIMIPAROUS PATIENTS DELIVERING VAGINALLY

Rationale: This indicator has been included because a high incidence of an intact perineum is considered a desirable outcome.

❖ **Clinical indicator 5.1: Incidence of an intact lower genital tract in primiparous women delivering vaginally**

Numerator: The number of primiparous patients not requiring surgical repair or suture of the lower genital tract (those structures below and not including the cervix) following delivery (n=1,423).

Denominator: The total number of primiparous women delivering vaginally (n=4,965).

$$\text{Clinical indicator 5.1} = \frac{1,423 \times 100}{4,965} = 28.7\% \text{ (95\%CI 27.4\%-29.9\%).}$$

INDICATOR 6: APGAR SCORE

Rationale: This indicator has been included as a measure of the outcome of labour, with particular emphasis on the assessment of baby well-being.

❖ **Clinical indicator 6.1: Apgar score of 4 or below at five minutes after delivery among all babies except antepartum fetal deaths**

Numerator: The number of babies born with an Apgar score of 4 or below at five minutes post delivery (n=56).

Denominator: The total number of babies born (excluding fetal deaths in utero diagnosed prior to commencement of labour) (n=18,732).

$$\text{Clinical indicator 6.1} = \frac{56 \times 100}{18,732} = 0.3\% \text{ (95\%CI 0.2\%-0.4\%).}$$

INDICATOR 7: TERM BABIES TRANSFERRED OR ADMITTED TO A NEONATAL INTENSIVE CARE UNIT FOR REASONS OTHER THAN CONGENITAL ABNORMALITY

Rationale: This indicator has been included as an index of the overall management of labour in terms of outcome.

❖ **Clinical indicator 7.1: Term babies transferred or admitted to a neonatal intensive care unit for reasons other than congenital abnormality**

Numerator: The number of term babies (37 weeks gestation or later) transferred/admitted to a neonatal intensive care unit for reasons other than congenital abnormality (n=73).

Denominator: The total number of term live babies born (n=17,236).

$$\text{Clinical indicator 7.1} = \frac{73 \times 100}{17,236} = 0.4\% \text{ (95\%CI 0.3\%-0.5\%).}$$

2 Maternity performance indicators, hospitals with at least 500 births per year

The first two of these indicators have been selected from the Victorian set of maternity performance indicators,⁹ while three others are ACHS clinical indicators. These six indicators are as follows:

❖ 1. Induction of labour proportion for standard primiparae

$$= \frac{\text{Number of standard primiparae undergoing induction of labour}}{\text{Number of standard primiparae who gave birth}}$$

❖ 2. Caesarean section rate for standard primiparae

$$= \frac{\text{Number of standard primiparae undergoing caesarean section}}{\text{Number of standard primiparae who gave birth}}$$

The standard primipara is aged ≥ 20 and ≤ 34 years, with a singleton pregnancy, delivered at gestation ≥ 37 and ≤ 41 weeks, with an infant not small for gestational age (classified using birthweight percentiles rather than clinical suspicion of light for dates).⁹ The birthweight percentiles used are the national birthweight-gestation percentiles.¹⁰

“Using the standard primipara (rather than all women giving birth) as the basis for internal hospital comparison of maternity controls for substantial differences in case mix (pre risk-adjustment) and increases the validity of those comparisons.”⁹

❖ 3. VBAC: proportion of women delivering vaginally following a previous primary (first) caesarean section and no intervening births.

This is as defined for Clinical indicator 2 (page 54) and was 16.4% for the state in 2006 (and 16.3% for state hospitals) in 2006.

❖ 4. PRIMIP no repair: proportion of women not requiring surgical repair following vaginal delivery.

This is as defined for Clinical indicator 5 (page 55) and was 28.7% for the state in 2006 (28.4% for state hospitals).

❖ 5. TERM NICU: proportion of term babies admitted to neonatal intensive care (NICU) for reasons other than congenital abnormality.

This is as defined for Clinical indicator 7 (page 56) and was 0.4% for the state (and state hospitals) for 2006.

❖ 6. SPMR: Standardized perinatal mortality ratio for all births.

This is as defined⁸ in the Pregnancy and Neonatal Care Bulletin 2006. It adjusts for the difference between the distribution of births by birthweight between the hospital and state hospital births. As perinatal mortality is much higher in babies of low birthweight, this adjustment ensures that a hospital is directly comparable with other hospitals and state hospitals as a whole if it has a higher proportion of low birthweight babies than state hospital births.

$$\text{SPMR} = \frac{\text{Observed number of deaths}}{\text{Expected number of deaths}} \times 100$$

To obtain the expected number of deaths for a hospital, the state hospital perinatal mortality rate for 2006 for each of the birthweight groups in Table 21b is applied to the number of births in each corresponding birthweight group for the hospital. This gives an expected

number of deaths in each birthweight group. These expected deaths are then totalled to give a total number of expected deaths for the hospital.

SPMRs provided in this report exclude deaths attributed to congenital abnormalities (as determined by the Maternal, Perinatal and Infant Mortality Committee³), which are the least preventable, as well as terminations of pregnancy. An SPMR above 100 means that after adjustment for birthweight differences and deaths attributed to congenital abnormalities and terminations of pregnancy, perinatal mortality for that hospital is higher than that for state hospital births eg an adjusted SPMR of 120 means that it is 20% higher.

A 95% confidence interval (CI) which includes the value 100 in its range means that the hospital's perinatal mortality is not (statistically) significantly different from that for state hospital births for 2006. These confidence intervals have been calculated using tabular values of 95% confidence limit factors for estimates of a poisson distributed variable.¹¹

Statistics for the six maternity performance indicators for 2006 are provided for the ten hospitals, A – J, with at least 500 births in 2006 in Figures 29A – 29F. Metropolitan teaching hospitals have been named with their permission and are as follows:

- A. Women's and Children's
- B. Flinders Medical Centre
- C. Lyell McEwin Health Service
- D. Modbury

None of the elevations in the SPMR for the individual hospitals for 2006 was statistically significant when compared with statewide hospital data. The SPMR for Women's and Children's Hospital was significantly lower than that for the state for the five-year period 2002-2006: 83 (95% CI 73 - 96).

Figure 29A: Induction of labour: % of confinements of standard primiparae in which labour was induced, SA hospitals with ≥ 500 births per year, 2006

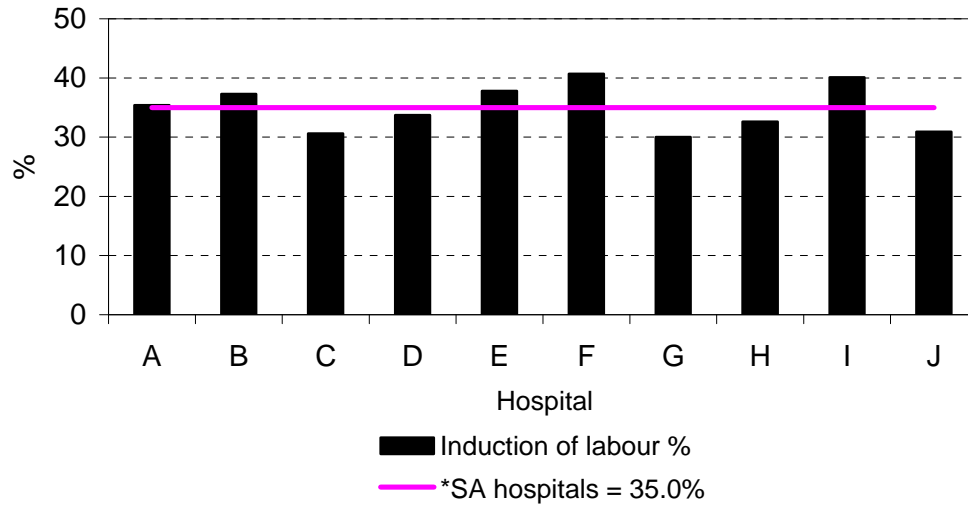


Figure 29B: Caesarean sections for standard primiparae: % of confinements of standard primiparae in which caesarean section was performed, SA hospitals with ≥ 500 births per year, 2006

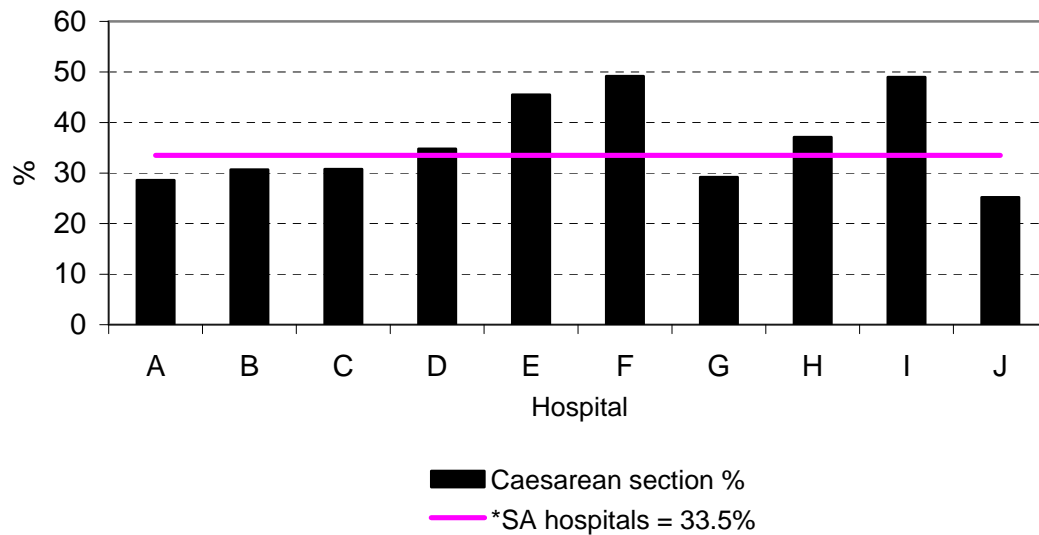


Figure 29C: VBAC: Proportion of women delivering vaginally following a previous primary (first) caesarean section and no intervening births, SA hospitals with ≥ 500 births per year, 2006

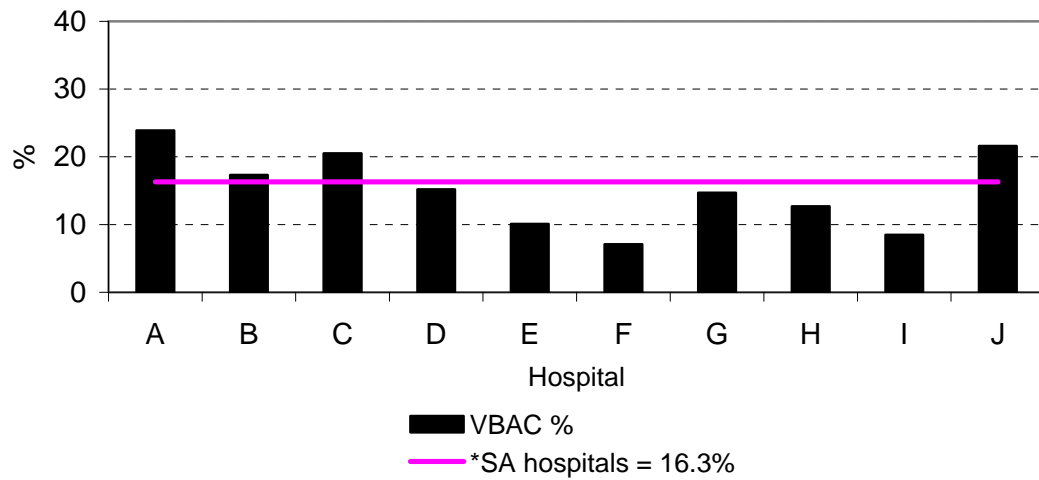


Figure 29D: PRIMIP no repair: proportion of primiparous women not requiring surgical repair following vaginal delivery, SA hospitals with ≥ 500 births per year, 2006

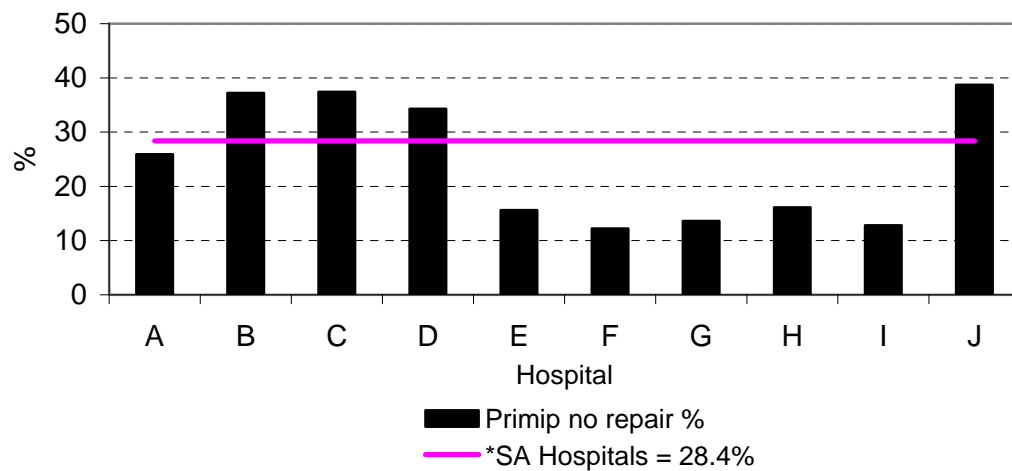


Figure 29E: TERM NICU: proportion of term babies admitted to NICU for reasons other than congenital abnormality, SA hospitals with ≥ 500 births per year, 2006

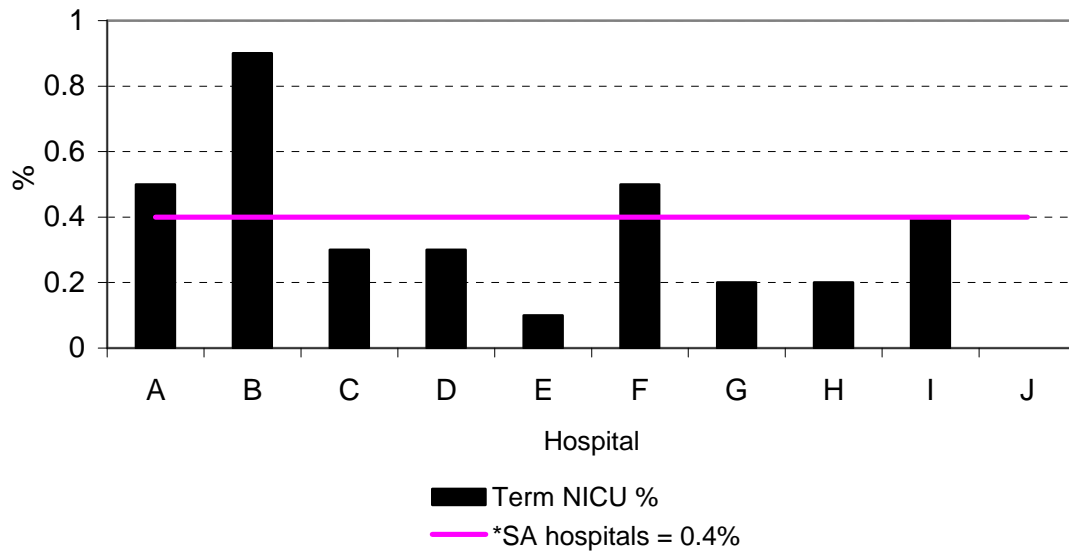
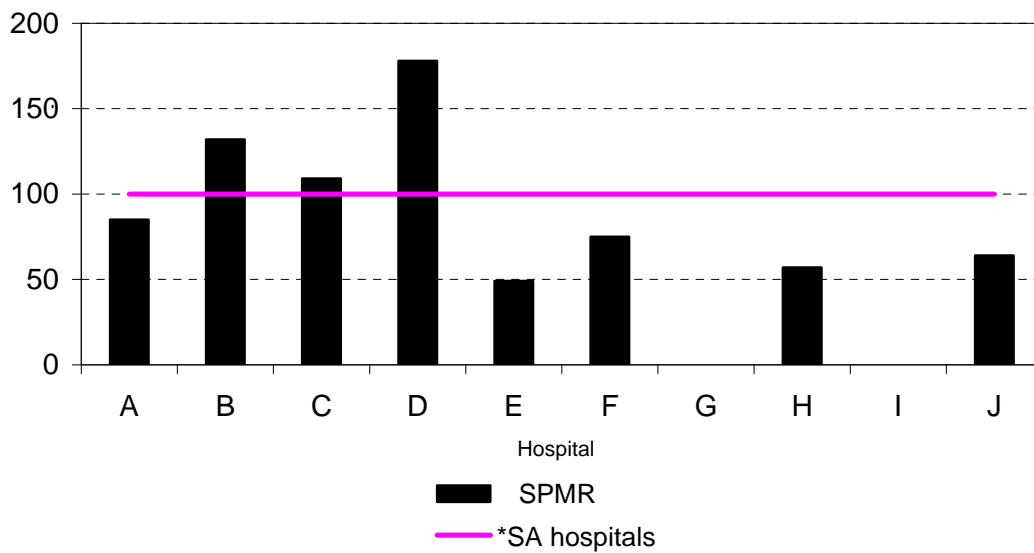


Figure 29F: SPMR (Standardized Perinatal Mortality Ratio) for all births, SA hospitals with ≥ 500 births per year, 2006



VI TRENDS IN PERINATAL STATISTICS IN SOUTH AUSTRALIA, 1981-2006

Perinatal statistics are presented in Tables 48 and 49 for both socio-demographic and obstetric aspects for each year from 1997-2006, as well as for 1981, when the perinatal data collection was commenced. Some features are illustrated in Fig 30.1 – 30.8 for the years 1985-2006. The trends noted between 1981 and 2006 are as follows:

- 1 The total fertility rate of 1.82 live births per woman in 2006, as in 2005, was the highest in the last decade.
- 2 The increase in the proportion of confinements of Asian mothers from 1.8% to 5.1% and of Aboriginal mothers from 1.5% to 3.0% in 2006.
- 3 The decrease in the proportion of teenage confinements from 7.8% in 1981 to 4.8% in 2006. The teenage pregnancy rate declined in the 1980s and then rose, with the teenage abortion rate, in the 1990s till 1996, after which it declined, mainly due to the decline in the teenage birth rate. Recently the teenage abortion rate has also declined. The teenage pregnancy rate in 2005 was the lowest since 1981 and increased slightly in 2006.
- 4 The increase in the age of women giving birth. The proportion of women who gave birth who were 35 years or more increased from 4.6% to 20.4%, and among primiparous women from 1.2% to 12.6%. The mean age among women giving birth increased from 26.55 years to 30.01 years and among primiparous women from 24.42 years to 28.2 years.
- 5 The increase in the proportion of confinements of single women from 9.6% to the peak of 14.9% in 1996, after which it decreased. It was 13.0% in 2006.
- 6 In the last decade, the proportion of births in metropolitan teaching hospitals and private hospitals increased while the proportion in country hospitals, especially in small country hospitals, declined. The number of births in birthing units in teaching hospitals increased from 125 (0.6%) in 1992 to 1,272 (6.8%) in 2006. Home births increased from 44 (0.2%) in 1997 to 87 (0.5%) in 2006.
- 7 The increase in the proportion of multiple births, related to assisted conception pregnancies, and the older age of mothers, from 2.0% in 1981 to a peak of 3.6% in 2002 and 2003, after which it declined to 3.0% in 2006.
- 8 The induction rate increased from 22.1% in 1981 to 29.3% in 2002, after which it declined slightly and was 28.9% in 2006. Forty-nine percent of inductions in 2006 were performed for other than defined indications.
- 9 The fall in the proportion of normal spontaneous vaginal deliveries (from 66.1% to 56.0%), breech deliveries (from 1.1% to 0.4%) and forceps deliveries (from 15.2% to 3.7%), with an increase in the proportion delivered by ventouse, from 0.7% to 7.0%, and by caesarean section, from 16.9% to 32.9%.
- 10 The increase between 1991 and 2006 in the proportions of low birthweight (from 6.5% to 7.0%) and preterm babies (from 6.9% to 8.2%).
- 11 The proportion of births with congenital abnormalities identified before discharge from hospital after birth has been relatively stable at 2.3%-2.5% during the last decade.
- 12 The increase in the proportion of babies utilising Level II care from 6.7% in 1982 to 16.6% in 2002 and 2003, after which it declined to 15.3% in 2006.

- 13 The proportion of babies utilising neonatal intensive care has remained at 0.2% to 0.3% in the last decade, and the proportion in hospital at 28 days has been between 2.0% and 2.5%.
- 14 The considerable fall in the perinatal mortality rate, despite the increasing proportion of preterm births. The perinatal mortality rate for national statistics (for babies of at least 500g birthweight or 22 weeks gestation if birthweight unavailable) has fallen from 11.6 in 1981 to 4.9 per 1,000 births in 2006, while the rate for international statistics (for births of 1,000g or 28 weeks if birthweight unavailable) has fallen from 7.2 to 3.1 per 1,000 births during the same period. This fall is reflected in the standardized perinatal mortality ratio which has been calculated in Table 49 for each year utilising perinatal mortality rates for 500g birthweight groups for the years 1981-1989 combined as the standard. It was 63.0 in 2006 compared with 117.6 in 1981. The fall in neonatal mortality has been particularly outstanding.

Table 48: Socio-demographic aspects of perinatal statistics, South Australia, 1981 and 1997 – 2006

Characteristic	Year										
	1981	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1 Total births	19,052	18,674	18,734	18,519	17,872	17,704	17,745	17,844	17,522	18,196	18,803
2 Live births	18,905	18,535	18,613	18,404	17,765	17,584	17,623	17,710	17,409	18,067	18,663
3 Confinements	18,857	18,394	18,420	18,233	17,578	17,427	17,421	17,517	17,229	17,897	18,519
4 Total fertility rate per woman	1.75	1.73	1.75	1.75	1.71	1.71	1.73	1.75	1.74	1.82	1.82
5 Place of birth (%)											
Teaching hospital	52.2%	50.9%	53.4%	53.6%	54.6%	51.6%	49.6%	50.6%	49.9%	51.6%	52.1%
Private hospital	19.7%	24.2%	22.6%	22.3%	21.9%	25.2%	27.9%	28.1%	27.2%	26.5%	26.7%
Country hospital	27.8%	24.9%	24.0%	24.0%	23.5%	22.9%	22.2%	21.3%	22.5%	21.6%	20.8%
Domiciliary	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.3%	0.3%	0.4%	0.3%	0.5%
	(65)	(44)	(36)	(39)	(35)	(37)	(48)	(60)	(67)	(63)	(87)
6 Race (%)											
Aboriginal	1.5%	2.1%	2.2%	2.4%	2.5%	2.3%	2.5%	2.7%	2.8%	2.7%	3.0%
(Confinements)	(277)	(394)	(416)	(447)	(446)	(399)	(445)	(468)	(484)	(487)	(548)
(Births)	(280)	(394)	(421)	(450)	(450)	(401)	(452)	(473)	(491)	(492)	(559)
Asian	1.8%	3.8%	4.1%	4.3%	4.5%	4.4%	4.8%	4.7%	4.8%	5.3%	5.1%
7 Age											
Mean age (years)	26.55	29.12	29.28	29.30	29.50	29.52	29.62	29.77	29.81	29.86	30.01
Teenage (%)	7.8%	5.4%	5.1%	5.6%	5.3%	5.4%	5.6%	5.4%	5.3%	5.2%	4.8%
≥35 years (%)	4.6%	14.2%	15.0%	15.0%	16.2%	16.3%	17.0%	17.6%	17.9%	18.7%	20.4%
8 Marital status (%)											
Never married	7.6%	12.3%	11.6%	12.0%	12.0%	12.3%	12.3%	11.9%	11.8%	12.5%	11.7%
Widowed/ divorced/ separated (%)	2.0%	1.6%	1.7%	1.5%	1.7%	1.6%	1.6%	1.5%	1.3%	1.3%	1.3%
(Single)	(9.6%)	(13.8%)	(13.3%)	(13.5%)	(13.7%)	(13.9%)	(13.9%)	(13.3%)	(13.0%)	(13.8%)	(13.0%)
9 Primiparae											
Mean age (years)	24.42	27.20	27.28	27.38	27.61	27.66	27.77	27.91	28.13	28.02	28.20
Teenage	15.4%	11.2%	10.4%	11.3%	10.6%	10.9%	11.3%	10.9%	10.0%	10.1%	9.5%
≥35 years	1.2%	8.0%	8.3%	8.0%	9.3%	9.5%	9.9%	10.6%	11.0%	11.4%	12.6%

Table 49: Obstetric aspects of perinatal statistics, South Australia, 1981 and 1997 – 2006

Characteristic	Year										
	1981	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	Plurality										
Multiple births (%)	2.0%	3.0%	3.3%	3.1%	3.3%	3.1%	3.6%	3.6%	3.3%	3.3%	3.0%
Twins	(363)	(528)	(614)	(564)	(560)	(550)	(632)	(626)	(578)	(570)	(552)
Triples	(21)	(24)	(9)	(6)	(21)	(3)	(12)	(21)	(6)	(21)	(12)
Quadruplets	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
2	Induction of labour (%)										
	22.1%	25.0%	27.3%	27.9%	27.3%	28.3%	29.3%	29.0%	27.9%	28.3%	28.9%
3	Method of delivery										
Normal spontaneous	66.1%	62.5%	62.8%	62.3%	61.7%	59.5%	58.7%	57.8%	55.9%	55.8%	56.0%
LSCS elective	8.2%	10.3%	10.0%	10.4%	10.4%	11.9%	12.6%	13.3%	14.0%	14.6%	15.5%
LSCS emerg	8.7%	13.3%	13.8%	14.5%	14.8%	15.8%	16.6%	16.7%	17.6%	17.6%	17.4%
Forceps	15.2%	9.3%	8.2%	7.1%	6.4%	6.1%	5.9%	4.8%	5.0%	4.2%	3.7%
Breech	1.1%	0.7%	0.4%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
Ventouse	0.7%	4.0%	4.7%	5.2%	6.3%	6.3%	5.9%	6.9%	7.1%	7.3%	7.0%
Total LSCS	(16.9%)	(23.5%)	(23.9%)	(24.9%)	(25.2%)	(27.8%)	(29.2%)	(30.0%)	(31.5%)	(32.3%)	(32.9%)
4	Birthweight <2,500g										
Singletons	4.9%	5.5%	5.3%	5.2%	5.6%	5.5%	5.4%	5.3%	5.3%	5.9%	5.5%
Multiples	52.1%	56.5%	54.7%	49.6%	55.9%	46.3%	50.5%	53.0%	55.8%	57.7%	53.4%
5	Gestational age <37 weeks										
Singletons	4.8%	6.4%	6.4%	6.7%	6.9%	6.7%	6.6%	6.7%	7.0%	7.3%	6.8%
Multiples	41.1%	55.8%	54.4%	51.8%	57.3%	50.8%	52.2%	54.6%	58.4%	58.4%	54.4%
6	Congenital abnormalities										
	3.4%	2.3%	2.5%	2.5%	2.3%	2.5%	2.4%	2.3%	2.5%	2.5%	2.3%
7	Level II care										
	na	13.5%	14.5%	16.6%	15.8%	15.2%	15.8%	16.6%	16.6%	16.2%	15.3%
8	Level III care										
	3.3%	2.5%	2.8%	2.6%	3.0%	2.6%	2.8%	2.7%	2.9%	2.9%	2.5%
9	W&CH ICU care										
	na	0.2%	0.2%	0.3%	0.2%	0.3%	0.2%	0.2%	0.2%	0.3%	0.2%
10	Hospitalisation for 28 days or more										
	4.2%	2.0%	2.0%	2.1%	2.5%	2.1%	2.2%	2.2%	2.3%	2.4%	2.0%
11	Neonatal deaths										
	96	59	46	38	57	64	54	42	52	63	38
12	Stillbirths										
	147	139	121	115	106	120	122	134	113	129	140
13	Perinatal deaths										
	243	198	167	153	163	184	176	176	165	192	178
14	Perinatal mortality rate per 1,000 births										
≥400g/20 weeks	12.8	10.6	8.9	8.3	9.1	10.4	9.9	9.9	9.4	10.6	9.5
≥500g/22 weeks*	11.6	6.6	6.5	5.7	6.1	6.9	6.8	6.5	5.7	6.2	4.9
≥1,000g/28 weeks*	7.2	4.0	3.5	3.1	3.6	3.9	4.0	3.9	3.5	3.7	3.1
15	Standardized perinatal mortality ratio										
	117.6	72.1	69.1	60.2	62.0	70.6	70.3	68.1	66.9	66.5	63.0

* only neonatal deaths within the first 7 days of life are included, as recommended by the World Health Organisation for national and international statistics.

Trends in Perinatal Statistics in SA, 1985 – 2006

Figure 30.1: Percentage of teenage mothers among women giving birth in SA

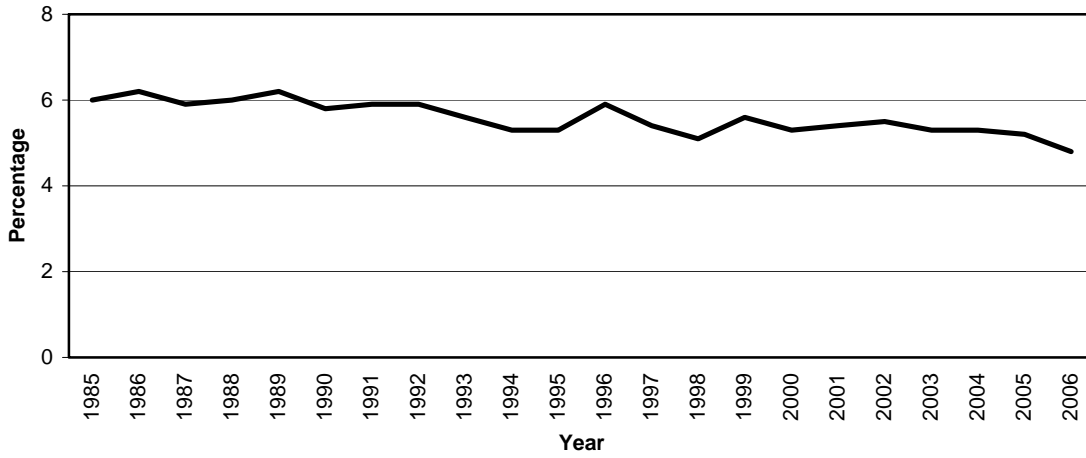


Figure 30.2: Percentage of mothers aged 35 years and over among women giving birth in SA

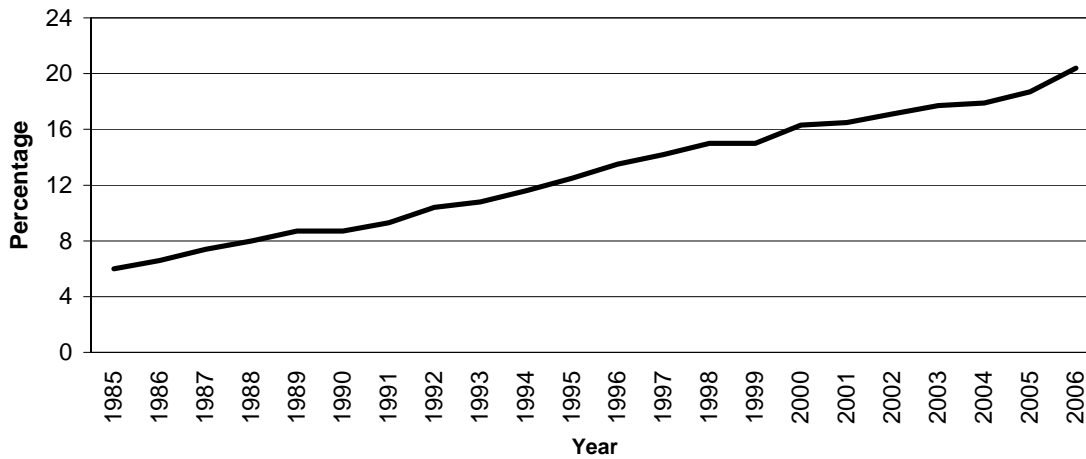


Figure 30.3: Percentage of primiparous women aged 35 years and over in SA

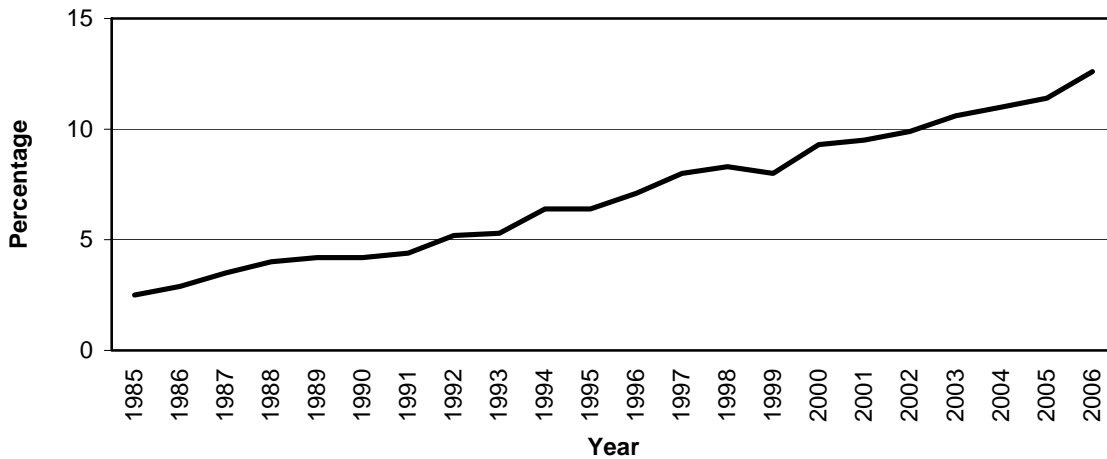


Figure 30.4: Percentage of confinements of Aboriginal women and Asian women in SA

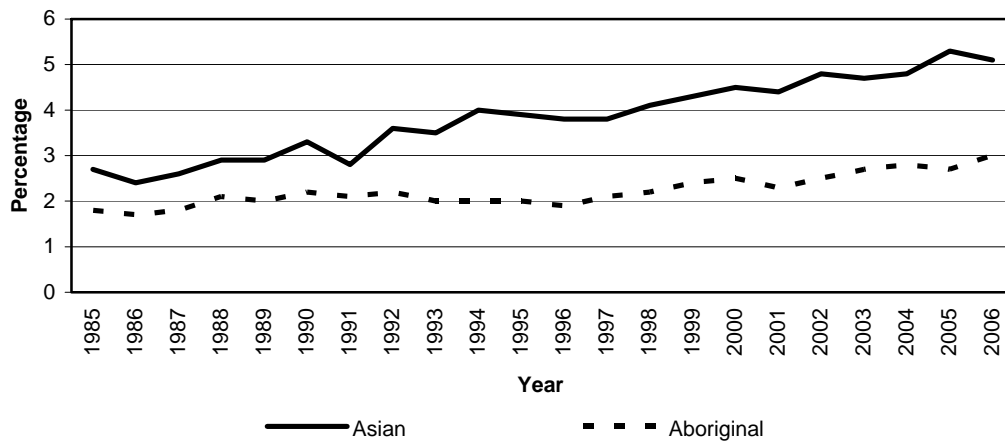


Figure 30.5: Percentage of mothers never married and with no de facto partner among women giving birth in SA

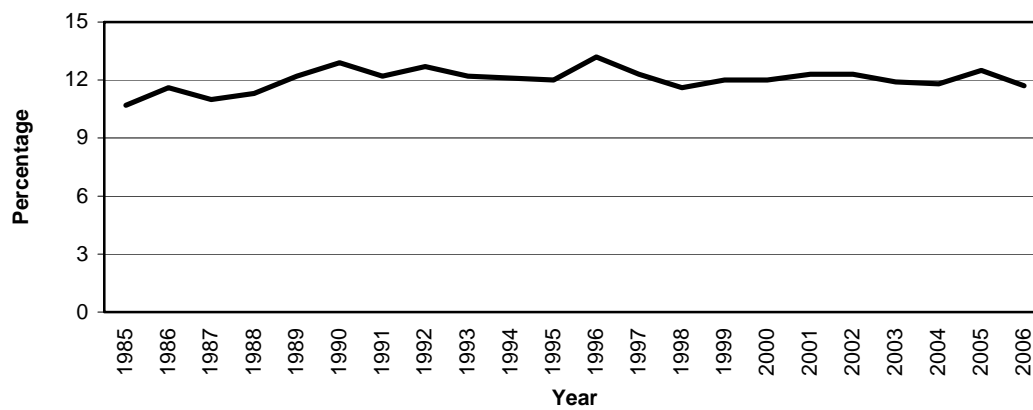


Figure 30.6: Percentage of multiple births among SA births

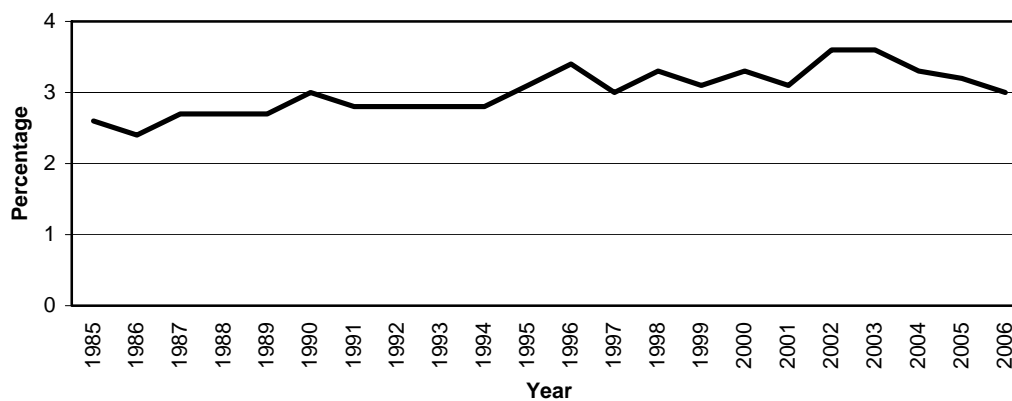
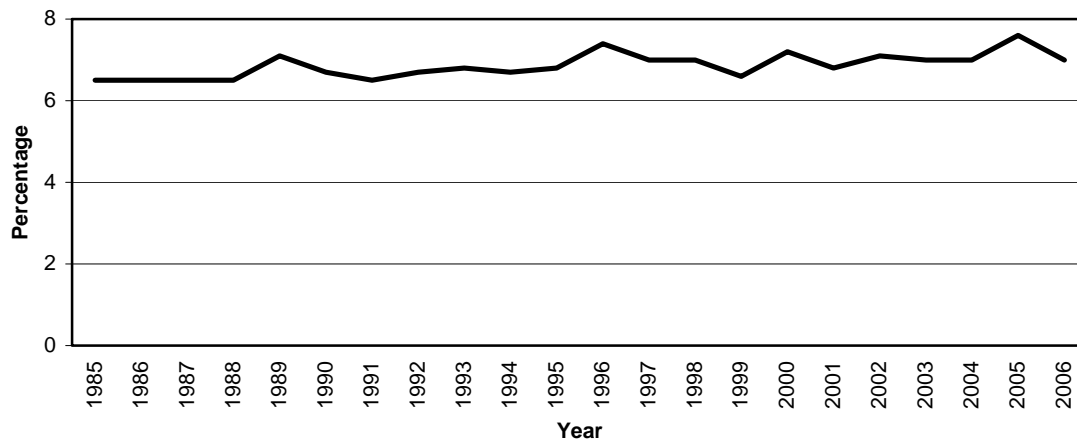
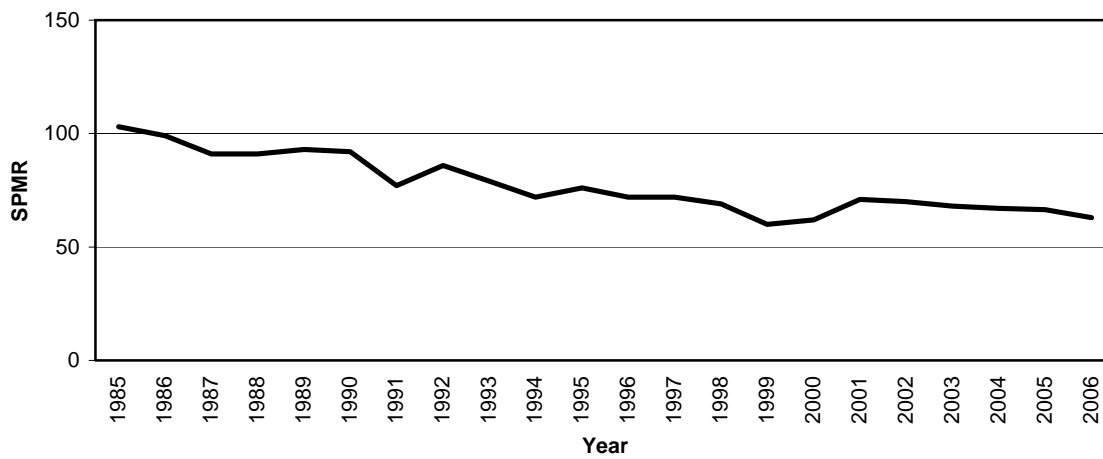


Figure 30.7: Percentage of low birthweight babies among SA births**Figure 30.8: SA standardised perinatal mortality ratio (SPMR)**

VII SUMMARY STATISTICS FOR 2006

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

1 Number of births

Reported number of births (from monthly notifications): 18,803

Notified births with Supplementary Birth Records: 18,803

Notified confinements with SBRs: 18,519

Crude birth rate: 11.9 live births per 1,000 population.

Total fertility rate: 1.82 live births per woman

2 Place of birth

Home births: 87 home births in all (0.5%), of which 83 were planned home births (0.4% of births in the state).

Metropolitan teaching hospitals: 9,799 (52.1%)

Metropolitan private hospitals: 5,012 (26.7%)

Country hospitals: 3,905 (20.8%)

3 Sex

Males 9,591, Females 9,211. Indeterminate 1. Male: Female sex ratio = 1.04:1

4 Plurality and condition at birth

Condition at birth	Plurality			Total
	Singleton	Twins	Triplets	
Live birth	18,109	543	11	18,663
Stillbirth	130	9	1	140
Total	18,239	552	12	18,803

5 Race of mother

Race	Number of confinements	%
Caucasian*	16,516	89.2
<i>Aboriginal</i>	548	3.0
Asian	940	5.1
Other	515	2.8
Total	18,519	100.0

* Includes one woman of unknown race

6 Obstetric interventions in 18,519 confinements

Induction of labour was performed in 5,344 (28.9%) and labour was augmented in another 3,984 (21.5%) confinements.

Forceps were utilised in 693 (3.7%), ventouse in 1,297 (7.0%) and episiotomy was performed in 2,183 confinements (11.8%, or 17.6% of women who gave birth vaginally).

Caesarean section was performed in 6,097 confinements (32.9%), of which 2,876 (15.5%) were elective, and 3,221 (17.4%) emergency operations.

7 Low birthweight (<2,500g)

Number of singleton births of low birthweight =1,011 (5.5% of singleton births).

Number of multiple births of low birthweight =301 (53.4% of multiple births).

Number of all births of low birthweight =1,312 (7.0% of all births).

8 Congenital abnormalities

Births notified with congenital abnormalities: 432 (2.3 %).

9 Perinatal morality rates (numbers of deaths in parentheses)

	Birthweight/Gestation	Stillbirth rate per 1,000 births	Neonatal death rate per 1,000 live births	Perinatal mortality rate per 1,000 births
1	≥400g/20 weeks (including live births of any gestation)	(140) 7.4	(38) 2.0	(178) 9.5
2	≥500g/22 weeks if birthweight unavailable (WHO National Statistics*)	(72) 3.8	(20) 1.1*	(92) 4.9*
3	≥1,000g/28 weeks if birthweight unavailable (WHO International/ Standard Statistics*)	(45) 2.4	(13) 0.7*	(58) 3.1*

* Only neonatal deaths within the first 7 days of life are included.

10 Terminations of pregnancy

Total number of terminations notified: 4,888

Abortion rate per 1,000 women (15-44 years): 15.5

Total abortion rate per 1,000 women (15-44 years): 473.0

Total first abortion rate per 1,000 women (15-44 years): 291.5

Abortion proportion: 0.21

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2. The South Australian Birth Defects Register. Annual Report 2004. Adelaide: Women's and Children's Hospital, 2007.
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PUBLICATIONS

The following is a list of publications from 1985 from the Pregnancy Outcome Unit or which utilised data from the Unit.

Annual Reports

1. Pregnancy Outcome in South Australia (from 1985), website: www.health.sa.gov.au/pehs/pregnancyoutcome.htm.
2. Maternal, Perinatal and Infant Mortality in South Australia. Annual Report of the Maternal, Perinatal & Infant Mortality Committee (from 1985), website: www.health.sa.gov.au/pehs/pregnancyoutcome.htm.
3. Committee appointed to examine and report on abortions notified in South Australia Annual Report (from 1985 to 2002). South Australian Abortion Reporting Committee Annual Report (from 2003).
4. Pregnancy and Neonatal Care Bulletin (from 1985): for individual hospitals.

The Unit provides birth defects data to the South Australian Birth Defects Register at the Women's and Children's Hospital and perinatal and birth defects data to the National Perinatal Statistics Unit in Sydney.

These reports are as follows:

1. The South Australian Birth Defects Register Annual Report (from 1986). Clinical Genetics Service, Women's and Children's Hospital, King William Road, North Adelaide, South Australia 5006. Telephone (08) 81616518
Website: www.wch.sa.gov.au/services/az/divisions/labs/geneticmed/
2. Australia's Mothers and Babies (from 1991). AIHW National Perinatal Statistics Unit, Sydney Children's Hospital, Level 2, McNevin Dickson Building, Randwick Hospital Campus, Randwick NSW 2031. Telephone (02) 9382 1014
Website: www.aihw.gov.au/npsu/

Other reports/papers

1 Birth defects

1. Jonas O, Stern LM, Macharper T. A South Australian Study of Pregnancy and Birth Risk Factors associated with Cerebral Palsy. *Int J Rehab Research* 1989; 12 (2): 159-166.
2. Chan A, Robertson EF, Haan EA, Keane RJ, Ranieri E, Carney A. Prevalence of neural tube defects in South Australia, 1966 – 91: effectiveness and impact of prenatal diagnosis. *BMJ* 1993; 307: 703-6.
3. Bower C, Norwood F, Knowles S, Chambers H, Haan E, Chan A. Amniotic band syndrome: a population-based study in two Australian States. *Paediatr Perinat Epidemiol* 1993; 7: 395-403.
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11. Byron-Scott R, Haan E, Chan A, Bower C, Scott H, Clark K. A population-based study of abdominal wall defects in South Australia and Western Australia. *Paediatr Perinat Epidemiol.* 1998; 12: 136-151.
12. Cheffins T, Chan A, Keane RJ, Haan EA, Hall R. The impact of rubella immunisation on the incidence of rubella, congenital rubella syndrome and rubella-related terminations of pregnancy in South Australia. *Br J Obstet Gynaecol* 1998; 105: 998-1004.
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14. Byron-Scott R. et al. A validation study of congenital heart defects in South Australia. *Proceedings, Australian Birth Defects Society. Annual Scientific Meeting. Sydney 1998.*
15. Byron-Scott R. et al. A comparison of selected birth defects in Aboriginal and non-Aboriginal babies in South Australia. *Proceedings, Australian Birth Defects Society. Annual Scientific Meeting, Sydney 1998.*
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Appendix 1: Definitions

Confinements: The number of women giving birth.

Primigravida: A woman pregnant for the first time.

Multigravida: A woman who has been pregnant more than once.

Parity: the total number of previous pregnancies resulting in live births or stillbirths.

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

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

Caesarean section: Delivery of a child by an abdominal operation.

Elective caesarean section: One which takes place as a planned procedure before the spontaneous onset of labour.

Emergency caesarean section: One which is undertaken for a complication:

- (a) before the onset of labour or
- (b) during labour, whether that labour is of spontaneous onset or following induction of labour.

Gestational age: The duration of pregnancy in completed weeks from the first day of the last normal menstrual period.

Preterm: less than 37 completed weeks gestation.

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: Birthweight of less than 2,500g.

Very low birthweight: Birthweight of less than 1,500g.

Congenital abnormality: Any defect probably of prenatal origin; thus structural, chromosomal and biochemical defects are included. An exclusion list of isolated minor abnormalities is provided by the Unit. Abnormalities are classified as major if they are either lethal or significantly affect the individual's function or appearance.

Apgar score: A numerical scoring system applied after birth (usually at 1 minute and again at 5 minutes) to evaluate the condition of the baby, as specified below:

Sign	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

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.

Crude birth rate:

$$= \frac{\text{Number of live births in any year}}{\text{Average population in that year}} \times 1,000$$

Age-specific fertility rate:

$$\frac{\text{Number of live births to women in an age group in a year}}{\text{Estimated resident population of women of that age group in the same year}} \times 1,000$$

General fertility rate:

$$\frac{\text{Total number of live births in a year}}{\text{Estimated resident population of women aged 15 - 44 years in the same year}} \times 1,000$$

Total fertility rate (TFR): the sum of age-specific fertility rates (live births at each age of mother per female population of that age). 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.

Neonatal death: Death of a liveborn infant within 28 days of birth.

Neonatal death rate:

$$= \frac{\text{Number of neonatal deaths in any year}}{\text{Number of live births in that year}} \times 1,000$$

Fetal death: Death prior to the complete expulsion or extraction from its mother 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.

Early fetal death: Death in a fetus of less than 400g birthweight, or of less than 20 weeks gestation. A miscarriage is a spontaneous early fetal death.

Late fetal death or stillbirth: Death in a fetus of at least 400g birthweight, or of at least 20 weeks gestation.

Late fetal death rate or stillbirth rate:

$$= \frac{\text{Number of late fetal deaths or stillbirths in any year}}{\text{Number of live births and stillbirths in that year}} \times 1,000$$

Perinatal death: Includes late fetal death (stillbirth) and neonatal death.

Perinatal mortality rate (PMR):

$$= \frac{\text{Number of stillbirths and neonatal deaths}}{\text{Number of stillbirths and live births}} \times 1,000$$

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

For national statistics, the rate refers to all births of at least 500g birthweight, or when birthweight is unavailable, of at least 22 weeks gestation (as recommended by WHO) and neonatal deaths occurring within seven days of birth.

For international comparisons, the rate refers to all births of at least 1,000 g 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).

Maternal death is 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.¹

Maternal deaths are divided into two groups:

1. Direct obstetric deaths: those resulting from obstetric complications of the pregnant state (pregnancy, labour and puerperium) from interventions, omissions, incorrect treatment, or from a chain of events resulting from any of the above.
2. Indirect obstetric deaths: those resulting from previous existing disease or disease that developed during pregnancy and which was not due to direct obstetric causes, but which was aggravated by physiologic effects of pregnancy.

As an extension of the WHO definition, accidental and incidental deaths occurring in pregnant women are also reviewed by the Maternal, Perinatal and Infant Mortality Committee so as to avoid missing indirect deaths which may be difficult to distinguish from incidental deaths. Examples of incidental deaths are deaths from drowning and road accidents, where the pregnancy is unlikely to have contributed significantly to the death, although it may be possible to postulate a remote association.

Termination of pregnancy: Termination performed by a medical practitioner in a prescribed hospital in South Australia, on specified grounds under the Criminal Law Consolidation Act and notified under the Criminal Law Consolidation (Medical Termination of Pregnancy) Regulations 1996. Fetuses of at least 400g birthweight or 20 weeks gestation aborted for congenital abnormalities or medical reasons are included in the South Australian perinatal data collection.

Abortion rate:

$$= \frac{\text{Number of induced abortions in a group of women in a year}}{\text{Estimated resident population of same group in the same year}} \times 1,000$$

The abortion rate per 1,000 women in the reproductive age group 15-44 years has been calculated in this report using as the numerator all abortions; the denominator used has been the estimated resident population for women aged 15-44 years in that year.

Abortion proportion:

$$= \frac{\text{Abortions}}{\text{Abortions} + \text{live births}}$$

This is often called the **abortion ratio**, which is strictly: $\frac{\text{Abortion}}{\text{Live births}}$

Total abortion rate = the sum of the five-year age-specific abortion rates multiplied by 5.

This represents the number of abortions 1,000 women would have during their lifetime if they experienced the rates of the year shown.

¹ World Health Organization. International Statistical Classification of Diseases and Related Health Problems. Tenth Revision. Volume 2. Geneva: WHO, 1993, p 134.

Race

1. **Caucasian:** individuals of European descent.
2. **Aboriginal:** this includes part-Aboriginals as well as full blood Aboriginals. An Aboriginal is a person of Aboriginal descent who identifies as an Aboriginal and is accepted as such by the community in which he or she lives.
3. **Asian:** (exclude Asia Minor) - In this category, include women originating from all Asian countries, including the Indian subcontinent (India, Bangladesh, Pakistan, Nepal, Sri Lanka), who were formerly listed as 'Other' race.
4. **Torres Strait Islander (TSI):** A Torres Strait Islander is a person of Torres Strait Islander descent who identifies as a Torres Strait Islander and is accepted as such by the community in which he or she lives.
5. **Aboriginal & TSI:** persons of both Aboriginal **and** Torres Strait Islander descent.
6. **Other:** Races other than (1) - (5). Include women from the Middle East and Africa.

Guidelines for use regarding Indigenous Status - categories (2), (4) and (5).

There are three components to the definition:

- descent
- self identification
- community acceptance

It is not possible to collect the three components of the definition in a single question. The Australian Bureau of Statistics (ABS) proposes that the focus of a single question should be the descent, the first component of the definition. The ABS therefore proposes the use of the following alternative questions, depending on whether the person is present or not.

Where the person is present

“Are you of Aboriginal or Torres Strait Islander origin?”;

OR

where the person is not present and someone who knows the person well responds for him/her

“Is the person of Aboriginal or Torres Strait Islander origin?”

If the response is “Yes”, then clarify whether the person is of Aboriginal origin (2), Torres Strait Islander origin (4) or both Aboriginal **and** Torres Strait Islander origin (5).

Self reporting of descent is not equivalent to self reporting of identity but because of the absence of a second ‘identity’ question some respondents will interpret the ‘origin’ question to mean both descent and identification. What identification in the context of the variable Indigenous Status should measure is an individual’s self assessed historical and cultural affiliation.

4	0	6			

Mother's name..... Surname Given name

Hospital/Place of birth.....

Child's surname (if different).....

Mother's Case Record Number

Mother's address.....

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

Postcode

--	--	--	--	--	--

 SLA

--	--	--	--	--	--

For multiple births, please complete a separate baby form for each baby.

Personal information above this line is confidential

MOTHER'S INFORMATION

1 Mother's date of birth

--	--	--	--	--	--

 day month year

2 Race
 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 No. of previous pregnancies

--	--	--	--

8 No. of previous pregnancies resulting in births > 20 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 delivery in last birth
 0. No previous birth
 1. Vaginal
 2. Caesarean
 9. Not known

13 No. of previous caesareans

THIS PREGNANCY

14 Date of last menstrual period

--	--	--	--	--	--

 day month year

15 Intended place of birth
 1. Hospital
 2. Birth centre
 3. Home
 4. Other (specify) _____
 5. Not booked

16 Number of antenatal visits

--	--	--	--

17 Type of antenatal care
 1. No antenatal care
 2. Hospital clinic
 3. Obstetrician in private practice
 4. General practitioner
 5. Birth centre
 6. Home birth midwife
 7. Obstetrician/midwife (shared care) in private practice
 8. GP/midwife (shared care)
 9. Other (specify) _____
 10. Not stated

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 no. of tobacco cigarettes smoked per day in 2nd half of pregnancy
 None
 No. per day =

--	--	--	--

 <1 (occasional)

--	--	--	--

 Unknown no.

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 - Abrupton
 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 delivery

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 day month year

23 Procedures performed in this pregnancy

Tick if Yes Tick if Unknown
 1. MSAFP (NTD etc)
 2. Triple/Quadruple screen (Down's etc)
 3. Ultrasound examination
 4. Chorion villus sampling
 5. Amniocentesis
 6. Cordocentesis
 7. Other surgical procedures (specify) _____

LABOUR AND DELIVERY

24 Onset of labour
 1. Spontaneous
 2. No labour (LSCS)
 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 delivery
 1. Vertex
 2. Breech
 3. Face
 4. Brow
 5. Other
 6. Unknown

27 Method of delivery

1. Normal spontaneous
 2. Forceps
 3. Assisted breech
 4. LSCS (elective)
 5. LSCS (emergency)
 If LSCS state reason/s

28 Complications of labour, delivery and puerperium
 1. None
 2. PPH (Primary) (600mls or more)
 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 delivery

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) _____

33 Anaesthesia for delivery

1. None
 2. Local anaesthesia to perineum
 3. Pudendal
 4. Epidural (lumbar/caudal)
 5. Spinal
 6. General anaesthesia
 7. Other (specify) _____

34 Mother's outcome for birth hospital/home birth

1. Discharged
 2. Transferred
 3. Died
 Transferred to

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 on

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 day month year

35 MOTHER'S FINAL DISCHARGE/ DEATH

Date

--	--	--	--	--	--

 day month year

BABY DETAILS

1 Case record number

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

3 Date of delivery

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 day month year

4 Hour of birth (24 hour clock)

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5 Sex

1. Male
 2. Female
 3. Indeterminate

6 Birthweight (grams)

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7 Gestation at birth (best clinical estimate in weeks)

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CONDITION AT BIRTH

8 Apgar Score 1 minute

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5 minute

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9 Time to establish regular breathing (to nearest minute)

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10 Resuscitation at delivery

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) _____

11 Condition occurring during birth

1. None
 2. Fracture
 3. Dislocation
 4. Nerve injury
 5. Other (specify) _____

12 Congenital abnormalities

1. Nil apparent
 2. Yes (specify) _____

13 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

14 Nursery care required

1. Level 1 only
 2. Special nursery (Level 2)
 No. of days

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 3. Neonatal Intensive Care Unit (NICU) - FMC/WCH (Level 3)
 No. of days

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 4. Paediatric Intensive Care Unit (PICU) - WCH
 No. of days

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15 Was transfer to NICU/PICU for a congenital abnormality?

Yes
 No

OUTCOME OF BABY

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

17 Baby transferred to

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 on

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 day month year

18 Date of final discharge (or death)

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 day month year

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

S.A. PREGNANCY OUTCOME STATISTICS UNIT, SOUTH AUSTRALIAN DEPARTMENT OF HEALTH

PO Box 6, Rundle Mall, Adelaide SA 5000

CONGENITAL ABNORMALITY FORM

ACC NO. 4

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BABY'S SURNAME.....

BABY'S FIRST NAME.....

SEX.....IF 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.....

.....

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

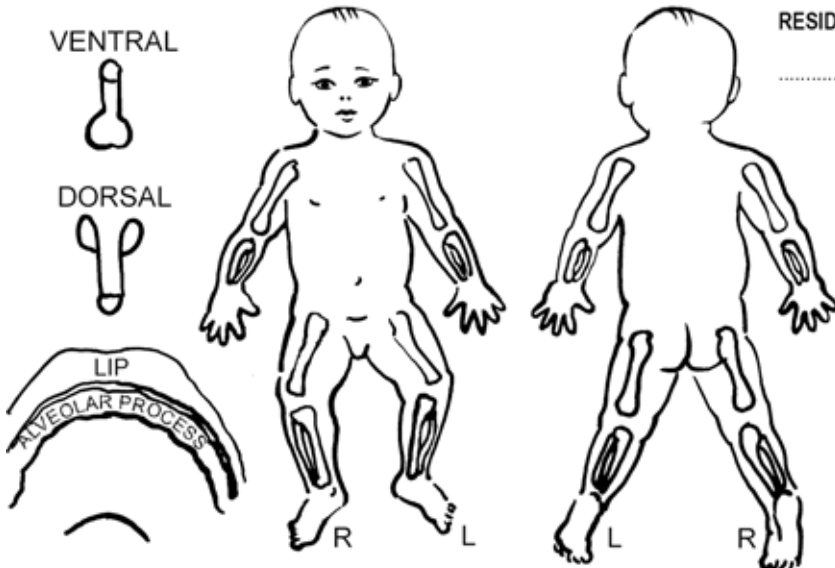
6. Cordocentesis

8. Other (specify).....

9. Not known

Comments.....

.....



CONGENITAL ABNORMALITIES / BIRTH DEFECTS PRESENT

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

Office use only

1.....

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2.....

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10.....

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

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

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