



Pregnancy Outcome

in South Australia
2014

November 2016

Pregnancy Outcome Unit,
SA Health

October 2016
Pregnancy Outcome in South Australia 2014
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Address:

Pregnancy Outcome (Statistics) Unit
Epidemiology Branch
SA Health, Government of South Australia
Citi Centre Building
11 Hindmarsh Square
Adelaide 5000
South Australia

Postal Address:

Pregnancy Outcome (Statistics) Unit
SA Health, Government of South Australia
PO Box 6, Rundle Mall
Adelaide 5000
South Australia

Telephone: (08) 8226 6382

Fax: (08) 8226 6672

Web: www.sahealth.gov.au

E-mail: Pregnancy.Stats@health.sa.gov.au

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Wendy Scheil
Kerry Jolly
Joan Scott
Britt Catcheside
Leonie Sage
Robyn Kennare

November 2016

**Pregnancy Outcome Unit
SA Health**

Staff

Wendy Scheil	Head/Senior Medical Consultant
Joan Scott	Senior Midwife
Leonie Sage	Senior Midwife, Abortion Statistics
Maureen Fisher	Administrative Officer
Judith Thompson	Administrative Officer
Kerry Jolly	Midwife
Robyn Kennare	Senior Midwife, Maternal, Perinatal & Infant Mortality Committee

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Contents

Acknowledgements	2
Executive Summary	10
1. Numbers and fertility rates.....	10
2. Place of birth.....	10
3. Teenage women.....	10
4. Older women and first time mothers.....	10
5. Country of birth and race.....	10
6. Smoking during pregnancy and Body Mass Index.....	10
7. Antenatal care and length of stay.....	11
8. Aboriginal women and babies.....	11
9. Procedures.....	11
10. Method of birth.....	11
11. Multiple births.....	11
12. Abortions.....	12
13. Perinatal mortality.....	12
I. Introduction.....	13
1. The Perinatal Statistics Collection.....	13
2. The Abortion Statistics Collection.....	13
II. Mothers and Babies: Characteristics & Outcomes.....	14
1. Place of residence of mother.....	14
2. Place of birth of baby.....	15
3. Maternal and baby race.....	20
4. Maternal age.....	21
5. Country of birth.....	23
6. Marital status and type of patient.....	25
7. Occupation of father and mother.....	26
8. Previous pregnancy outcomes.....	27
9a. Gestation at first antenatal visit.....	28
9b. Body Mass Index (BMI).....	28
9c. Antenatal visits.....	29
9d. Type of antenatal care.....	29
10. Smoking.....	30
11. Medical conditions.....	31
12. Obstetric complications.....	31

13. Procedures performed in current pregnancy.....	32
14a. Onset of labour	32
14b. Reasons for induction of labour	33
15a. Presentation and method of birth	34
15b. Reason for caesarean section.....	36
16. Complications of labour and birth and perineal status after birth	37
17. Fetal monitoring during labour	38
18. Analgesia for labour and anaesthesia for birth	38
19. Postnatal length of stay of women	39
20. Sex of baby	40
21. Birthweight and gestation	40
22. Birth injuries	41
23. Treatment given in neonatal period.....	41
24. Level of care utilised	41
25. Length of stay of babies	42
26. Congenital anomalies	42
27. Multiple births	43
28. Perinatal mortality	45
29. Home births	47
30. Birthing unit births.....	49
III. Terminations of Pregnancy	51
1. Numbers and rates	51
2. Age of women	52
3. Place of residence and place where termination performed.....	54
4. The reason for termination	55
5. Gestation, method and complications.....	55
6. Previous terminations. Total termination of pregnancy rate and total first termination of pregnancy rate...57	
IV. Obstetric Profiles by Hospital Category	59
V. Clinical and Maternity Performance Indicators.....	68
1. Clinical indicators	68
1: Smoking in pregnancy	68
2: Antenatal care in the first trimester for all women giving birth	69
3: Episiotomy for women having their first baby and giving birth vaginally	69
4: Apgar score of less than 7 at 5 minutes for births at or after term.....	70
5: Induction of labour for selected primiparae.....	70

6: Caesarean section for selected primiparae	70
7: Normal (non-instrumental) vaginal birth for selected primiparae.....	70
8: Instrumental vaginal birth for selected primiparae	71
9: General anaesthetic for women giving birth by caesarean section	71
10: Small babies among births at or after 40 weeks gestation.....	71
2. Maternity performance indicators, hospitals with at least 550 births per year	72
VI. Trends in Perinatal Statistics in South Australia, 1981-2014	76
Trends in Perinatal Statistics in South Australia (SA), 1985 – 2014	79
VII. Summary Statistics for 2014.....	82
1. Number of births	82
2. Place of birth	82
3. Sex	82
4. Plurality and condition at birth	82
5. Race of women	82
6. Obstetric interventions in 20,448 women who gave birth	83
7. Low birthweight (<2,500g).....	83
8. Congenital anomalies	83
9. Perinatal mortality rates (numbers of deaths in parentheses)	83
10. Terminations of pregnancy.....	83
References	84
Publications	85
Annual Reports.....	85
Other reports/papers	85
1. Birth defects	85
2. Termination of pregnancy	88
3. Perinatal epidemiology.....	88
4. Perinatal mortality.....	91
5. Caesarean section.....	92
Appendix 1: Definitions	92
Appendix 2: 2014 Supplementary Birth Record Form.....	96
Appendix 3: Congenital Abnormality Form	97

Tables

Table 1: Births and crude birth rate by ABS Statistical Geographical Boundaries (ASGS 2014) regions, South Australia, 2014.....	14
Table 2: Total births notified in 2014, by place of birth and plurality, South Australia	15
Table 3a: Hospital births by Perinatal Service Delineation, South Australia, 2014.....	18
Table 3b: Hospital births in South Australia in 2014 by race and hospital.....	19
Table 4a: Race of women who gave birth, South Australia, 2014	21
Table 4b: Race and birthplace category of women who gave birth, South Australia, 2014	21
Table 4c: Age and race of women who gave birth, South Australia, 2014	22
Table 4d: Age –specific fertility rates (ASFR), South Australia, 2014	23
Table 5a: Country of birth, major groups, women who gave birth, South Australia, 2014	23
Table 5b: Specified country of birth, women who gave birth, South Australia, 2014.....	24
Table 6a: Marital status and age, women who gave birth, South Australia, 2014	25
Table 6b: Type of patient and marital status, women who gave birth, South Australia, 2014	25
Table 7: Occupation of father and mother, women who gave birth, South Australia, 2014.....	26
Table 8a: Parity by race, women who gave birth, South Australia, 2014	27
Table 8b: Previous pregnancy outcomes, women who gave birth, South Australia, 2014	27
Table 9a: Gestation at first antenatal visit, women who gave birth, by race,	28
Table 9b: BMI of women who gave birth, South Australia, 2014	28
Table 9c: Antenatal visits by race, women who gave birth, South Australia, 2014.....	29
Table 9d: Type of antenatal care, women who gave birth, South Australia, 2014.....	29
Table 10a: Tobacco smoking status at first antenatal visit, non-Aboriginal and Aboriginal women who gave birth, South Australia, 2014	30
Table 10b: Average number of tobacco cigarettes smoked per day in the second half of pregnancy, non-Aboriginal and Aboriginal women who gave birth, South Australia, 2014.....	30
Table 11: Medical conditions in current pregnancy, women who gave birth, South Australia, 2014	31
Table 12: Frequency of some obstetric complications, women who gave birth, South Australia, 2014	31
Table 13: Procedures performed in current pregnancy, women who gave birth, South Australia, 2014	32
Table 14a: Onset of labour, women who gave birth, South Australia, 2014.....	32
Table 14b: Method of induction of labour, women who gave birth, South Australia, 2014.....	32
Table 14c: Augmentation of labour after spontaneous onset, women who gave birth, South Australia, 2014.....	33
Table 15a: Method of birth, women who gave birth, South Australia, 2014	34
Table 15b: Method of birth by presentation, all births, South Australian 2014.....	35
Table 15c: Method of birth in breech presentation, by plurality, all births, South Australia, 2014	35
Table 16: Frequency of some complications of labour and birth, women who gave birth, South Australia, 2014	37

Table 17a: CTG performed during labour, women who gave birth, South Australia, 2014	38
Table 17b: Fetal scalp pH taken during labour, women who gave birth, South Australia, 2014	38
Table 18a: Analgesia for labour, women who gave birth, South Australia, 2014	38
Table 18b: Anaesthesia for birth, women who gave birth, South Australia, 2014	39
Table 19a: Postnatal length of stay by type of patient, women who gave birth in South Australian hospitals, 2014	39
Table 19b: Average postnatal length of stay by type of patient & type of birth, women who gave birth in South Australian hospitals, 2014.....	39
Table 20: Sex of baby, all births, South Australia, 2014.....	40
Table 21: Birthweight distribution of all births, South Australia, 2014.....	40
Table 22: Birth injuries in 20,604 live births, South Australia, 2014.....	41
Table 23: Neonatal treatment given, all live births, South Australia, 2014	41
Table 24: Level of nursery care utilised by birthweight, all live births, South Australia, 2014.....	41
Table 25: Length of stay of liveborn babies in hospital, South Australia, 2014	42
Table 26: Selected congenital anomalies notified to the perinatal statistics collection 2004-2014, South Australia.	43
Table 27a: Birthweight by plurality, all births, South Australia, 2014	44
Table 27b: Gestation at birth by plurality all births, South Australia, 2014	44
Table 27c: Perinatal outcome by plurality, all births, South Australia, 2014	44
Table 28a: Perinatal mortality by birthweight, all births, South Australia, 2014	45
Table 28b: Perinatal mortality by gestational age at birth, South Australia, 2014	46
Table 28c: Perinatal mortality, South Australia, 2014 (all births of specified birthweight/gestation).....	46
Table 28d: Perinatal mortality by race, all births, South Australia, 2014	47
Table 29: Planned home births by age of women, South Australia, 2014.....	47
Table 30: Method of birth in planned home births, South Australia, 2014	48
Table 31: Birthweight distribution of planned home births, South Australia, 2014.....	48
Table 32: Perinatal outcome in planned home births, South Australia, 2014.....	48
Table 33: Planned birthing unit births by age of women, South Australia, 2014	49
Table 34: Method of birth in planned birthing unit births, South Australia, 2014.....	49
Table 35: Birthweight distribution of planned birthing unit births, South Australia, 2014.....	50
Table 36: Perinatal outcome in planned birthing unit births, South Australia, 2014.....	50
Table 37: Number of pregnancy terminations, and rate per 1,000 women aged 15-44 years, South Australia, 1970-2014.....	51
Table 38: Terminations of pregnancy by age, South Australia, 2014	52
Table 39: Termination of pregnancy and live birth rates and termination of pregnancy proportions by age, South Australia, 2014.....	53

Table 40: Terminations by place of residence, South Australia, 2014.....	54
Table 41: Terminations by hospital category, South Australia, 2014	54
Table 42: Terminations by category of doctor, South Australia, 2014	55
Table 43: Reason for termination for fetal reasons, South Australia, 2014	55
Table 44a: Complications of termination procedures, South Australia, 2014.....	56
Table 44b: Complications by method of termination procedure, South Australia, 2014	56
Table 45a: Women with previous terminations by age, South Australia, 2014	57
Table 45b: Calculation of total induced abortion rate (TAR), South Australia, 2014.....	58
Table 45c: Calculation of total first induced abortion rate (TFAR), South Australia, 2014.....	58
Table 46: Obstetric profiles by hospital category, South Australia, 2014: live births and stillbirths of $\geq 400\text{g}$ or ≥ 20 weeks gestation	61
Table 47: Socio-demographic aspects of perinatal statistics, South Australia, 1981 and 2005-2014	77
Table 48: Obstetric aspects of perinatal statistics, South Australia, 1981 and 2004 – 2014	78

Figures

Figure 1a: South Australian hospitals with obstetric beds in 2014	16
Figure 1b: Hospitals with obstetric beds in 2014, Central Region of SA 2014	17
Figure 2: Distribution of hospital births by hospital category, South Australia, 2014.....	18
Figure 3: Age and race of women who gave birth, 2014.....	22
Figure 4: Reasons for induction of labour, SA, 2014	33
Figure 5a: Method of birth, women who gave birth, South Australia, 2014	34
Figure 5b: Reason for caesarean section, 2014	36
Figure 5c: Reason for elective caesarean section, 2014.....	36
Figure 5d: Reason for emergency caesarean section, 2014	37
Figure 6: Perinatal mortality rate by birthweight, all births, South Australia, 2014.....	45
Figure 7: Pregnancy termination rate per 1,000 women aged 15-44 years, South Australia, 1970-2014.....	51
Figure 8a: Termination of pregnancy and live births by age, South Australia, 2014	53
Figure 8b: Teenage pregnancy, termination of pregnancy and birth rates, South Australia, 1970-2014	54
Figure 9: Percentage of Aboriginal women by hospital category.....	62
Figure 10: Percentage of women with <7 antenatal visits by hospital category	62
Figure 11: Percentage of teenage women by hospital category	62
Figure 12: Percentage of women 35 years or more by hospital category.....	63
Figure 13: Percentage of single women by hospital category.....	63
Figure 14: Percentage of women with 4 or more prior livebirths by hospital category.....	63

Figure 15: Percentage of women with 1 or more prior perinatal deaths by hospital category	64
Figure 16: Percentage of women with obstetric complications by hospital category.....	64
Figure 17: Percentage of women with complications during labour or birth by hospital category.....	64
Figure 18: Percentage of women with induction of labour by hospital category	65
Figure 19: Percentage of women having epidural analgesia by hospital category.....	65
Figure 20: Percentage of breech births by hospital category	65
Figure 21: Percentage of emergency caesarean sections by hospital category	66
Figure 22: Percentage of elective caesarean sections by hospital category	66
Figure 23: Percentage of total caesarean sections by hospital category.....	66
Figure 24: Percentage of births with birthweight below 2,500g by hospital category.....	66
Figure 25: Percentage of births with gestation less than 37 weeks by hospital category.....	67
Figure 26: Percentage of births with prolonged hospitalisation by hospital category	67
Figure 27: Percentage of live births requiring neonatal intensive care by hospital category.....	67
Figure 28: Percentage of births with birth defects by hospital category.....	67
Figure 29a: Induction of labour proportion for selected primiparae, SA hospitals with ≥ 550 births per year, 2014.....	73
Figure 29b: Caesarean section rate for selected primiparae, SA hospitals with ≥ 550 births per year, 2014..	73
Figure 29c: VBAC: Proportion of women who had a vaginal birth following a previous primary (first) caesarean section & no intervening births, SA hospitals with ≥ 550 births per year, 2014.....	74
Figure 29d: Proportion of selected primiparae with an intact perineum after a vaginal birth, SA hospitals with ≥ 550 births per year, 2014.....	74
Figure 29e: TERM NICU: proportion of term babies admitted to NICU for reasons other than congenital abnormality, SA hospitals with ≥ 550 births per year, 2014	74
Figure 29f: SPMR (Standardized Perinatal Mortality Ratio) for all births, SA hospitals with ≥ 550 births per year, 2014	75
Figure 29g: SPMR (Standardized Perinatal Mortality Ratio) for all births, SA hospitals with ≥ 550 births per year, 2010-2014	75
Figure 30.1: Percentage of teenage women among women giving birth in SA	79
Figure 30.2: Percentage of women aged 35 years and over among women giving birth in SA.....	79
Figure 30.3: Percentage of primiparous women aged 35 years and over in SA	79
Figure 30.4: Percentage of Aboriginal women and Asian women among women giving birth in SA	80
Figure 30.5: Percentage of women never married and with no de facto partner among women giving birth in SA.....	80
Figure 30.6: Percentage of multiple births among births in SA.....	80
Figure 30.7 Percentage of low birthweight babies among births in SA	81
Figure 30.8: SA standardised perinatal mortality ratio (SPMR).....	81

Executive Summary

This report on pregnancy outcomes in South Australia for 2014 provides statistics derived mainly from the South Australian perinatal statistics collection of births. These are compiled from notifications submitted by hospital and homebirth midwives and neonatal nurses. For a more complete picture of pregnancy outcome, some figures from the abortion statistics collection are also included. More statistics on abortions in the state in 2014 are available in the Annual Report of the Abortion Reporting Committee for the Year 2014. Comparisons of selected pregnancy characteristics and outcomes are provided for six 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. Comparisons of maternity performance indicators are also provided for hospitals with at least 550 births per year.

1. Numbers and fertility rates

The number of births notified in South Australia in 2014 was 20,749, 486 more than the previous year. The number of women who gave birth was 20,448. The total fertility rate was 1.83 live births per woman, slightly lower than 2013's rate of 1.85. 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

Compared to 2013, the numbers of births increased at all metropolitan teaching hospitals. Births increased at two of the metropolitan private hospitals, decreased at two and remained steady at the last. 1,232 women (6%) gave birth in birthing units in teaching hospitals and 96 (0.5%) had planned home births.

3. Teenage women

Six hundred and thirty four teenage women gave birth; accounting for 3.1% of women who gave birth. 553 teenage women had terminations of pregnancy, accounting for 10.3% of terminations. In 2014, the proportion of 'known' pregnancies terminated was 47% for teenagers compared with 18% for women of all ages. The teenage pregnancy rate declined in the 1970s and 1980s before increasing in the early 1990s and declining again after 1996. The teenage pregnancy rate in 2014 of 22.1 per 1,000 women aged 15-19 years, was the lowest rate recorded since 1970.

4. Older women and first time mothers

The mean age of women giving birth increased from 26.6 years in 1981 to 29.9 years in 2014. For first time mothers it increased from 24.4 years to 28.4 years over the same period. The proportion of women aged 35 years or more increased from 4.6% in 1981 to a high of 21.1% in 2009 and was 20.6% in 2014. Among first time mothers, this proportion increased from 1.2% to 12.8% in 2009 and was also 12.9% in 2014. As in the previous decade, more women gave birth in the 30-34 years than in the 25-29 years age group.

5. Country of birth and race

Seventy-four percent of women who gave birth in 2014 were Australian-born. Of women born overseas who gave birth, the largest proportions came from India (4% of women), the United Kingdom and Ireland (2.4%), China (2.7%), Vietnam (1.4%), New Zealand and the Philippines (1.0%), Afghanistan and Sudan (0.8%), Iran, Malaysia and Pakistan (0.6%) and Cambodia and Nepal (0.4%). Of the women who gave birth in the state in 2014, 13.0% (2,655 women) were Asian, compared with 2% in 1981. They gave birth mainly in teaching hospitals.

6. Smoking during pregnancy and Body Mass Index

The proportion of women smoking at the first antenatal visit has declined steadily from 25% in 1998 to 10.1% in 2014. Additionally 2.8% of women had quit smoking before the first antenatal visit.

Statistics on Body Mass Index were available for 84% of women who gave birth in 2014 (a vast improvement from 42% in 2007). They indicated that 44% of all women giving birth were overweight, including 12.1% classified as obese and 8.5% severely or morbidly obese.

7. Antenatal care and length of stay

Week of gestation at the first antenatal visit was reported for 95% of women who gave birth. Seventy-nine percent of these women attended for antenatal care within the first 14 weeks of pregnancy while ninety-nine percent of women attended at least one antenatal visit. Of those women for whom the number of antenatal visits was reported, 91% of women attended seven or more antenatal visits. Although many women had more than one type of antenatal care, the most common types used were hospital clinics (43%), obstetricians in private practice (27%) and general practitioners (21.2%). The median length of stay of women after a birth was three days; it was two days for those who had a vaginal birth and four days for those who had a caesarean section. It was two days longer among private patients for both vaginal births and caesarean births.

8. Aboriginal women and babies

Seven hundred and twelve Aboriginal women gave birth in South Australia in 2014, accounting for 3.5% of all women who gave birth in the state. Fifteen percent of Aboriginal women were teenagers (compared with 2.8% of non-Aboriginal women). Of the Aboriginal women for whom week of gestation at the first antenatal visit was reported, 55% attended for antenatal care within the first 14 weeks of pregnancy (compared with 80% of non-Aboriginal women). Of the Aboriginal women for whom the number of antenatal visits was reported, 69% attended at least seven antenatal visits during pregnancy (compared with 91% of non-Aboriginal women). In 2014, at the first antenatal visit, 44 % of Aboriginal women reported that they smoked a decrease from 45% in 2013). This proportion was 8.8% among non-Aboriginal women. In 2014, the proportion of preterm births (<37 weeks gestation) was 17.9% among babies of Aboriginal women compared with 8.9% among babies of non-Aboriginal women. Among live born babies (excluding terminations of pregnancy), the proportions of low birthweight babies (<2,500g) were 14.8% and 6.3% respectively. The perinatal mortality rate of babies of Aboriginal women was 12.5 per 1,000 births in 2014 compared with 8.7 per 1,000 births for births to non-Aboriginal women.

For the first time in 2012, the Indigenous status of the baby was also collected independently of the mother. There were 947 Indigenous babies, representing 4.6% of all babies born in 2014. They comprised 917 (96.8%) Aboriginal, 9 (1%) Torres Strait Islander and 21 (2.2%) Aboriginal and Torres Strait Islander.

9. Procedures

Ninety-eight percent of women who gave birth had an ultrasound examination; 32% had labour induced while another 17.5% had spontaneous labour augmented; epidurals were used for pain relief during labour for 29% of women, and 14% had an episiotomy (22% of women who gave birth vaginally). The main reasons for induction of labour were prolonged pregnancy (16%), hypertension (13%), diabetes or gestational diabetes (10%), poor fetal growth (8%) and premature rupture of membranes (9%). Forty-eight percent of inductions of labour were performed for other than defined indications.

10. Method of birth

Fifty-four percent of women had normal spontaneous vaginal births. Six percent gave birth by ventouse and another 5.3% by forceps (compared with 1% and 15% respectively in 1981 when records began). In 2014 the proportion of women giving birth by caesarean section was 34%, a proportion that has been relatively stable for several years. Of those who had previously given birth, 31% had previously had a caesarean section. Only 15.9% of women had a vaginal birth following a previous first caesarean without intervening births, compared with 30% in 1998 (when first collected). The main reasons given for caesarean section were previous caesarean section (37%) failure to progress in labour or cephalopelvic disproportion (26%) fetal distress (14%) and malpresentation (11%).

11. Multiple births

In 2014 multiple births accounted 2.9% of births while women with twins or triplets accounted for 1.4% of women who gave birth in 2014. These proportions increased in the 1980s and 1990s as a result of the use of assisted conception and the increasing proportion of older women (who have higher rates of multiple pregnancies than younger women) having children. The peak proportion of multiple births was recorded in 2002 and 2003 (3.6%). The subsequent decline in the proportion of multiple births was probably related to the increasing use of single embryo transfer in assisted conception practice.

12. Abortions

There were 4650 terminations of pregnancy recorded, 31 fewer than in 2013. The induced abortion rate was 13.8 per 1,000 women aged 15-44 years, compared with 14.4 per 1,000 women aged 15-44 years in 2013. The rate remained relatively stable from 2005 (15.3) until 2011 (15.5) and has since continued to decline. Approximately 97% of terminations were performed in metropolitan public hospitals, including the Pregnancy Advisory Centre, and 77% were performed by doctors in family advisory clinics in these hospitals. Ninety-one percent of terminations were performed within the first 14 weeks of pregnancy and 2.3% (107) were performed at or after 20 weeks gestation. Forty-nine percent of terminations performed at or after 20 weeks gestation were for fetal reasons. Approximately 18% of reported pregnancies ended as terminations in 2014.

13. Perinatal mortality

The perinatal mortality rate for all births in 2014 was 8.9 per 1,000 births, the stillbirth rate seven per 1,000 births and the neonatal mortality rate 1.9 per 1,000 live births. For international comparison, the World Health Organisation recommends including only stillbirths 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 comparison for South Australia for 2014 was 2.2 per 1,000 births, with an early neonatal mortality rate of 0.4 per 1,000 live births.

I. Introduction

This report summarises the statistics for 2014 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 listing 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 form (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.¹

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 This Register collects statistics on birth defects up to the child's fifth birthday in addition to those noted at birth.

Perinatal data are provided under legislation, the South Australian Health Care Regulations 2008, Part 5 Pregnancy outcome data and statistics. The South Australian Perinatal Statistics Collection includes all births occurring in South Australia, including those to women who normally reside interstate. Births of South Australian residents which occur in other states are not included. The perinatal data have been collected since 1981, but there have been changes in the data items collected over the years.

Perinatal death certificates are obtained from the Births, Deaths and Marriages Registration Division, chromosome analysis reports from the Genetics and Molecular Pathology Directorate at Women's and Children's Hospital, autopsy reports from pathology departments and Coroner's autopsy reports and findings from the Coroner's Office. 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 2014'.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 2012, are included in this collection. This Collection commenced in 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 woman'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. Mothers and Babies: Characteristics & Outcomes

The births in 2014 in South Australia described in this report include live births, stillbirths and terminations of pregnancy of at least 400g birthweight or 20 weeks gestation. Sixty births of less than 400g birthweight have been included, consisting of 49 stillbirths and 11 live births. The 11 live births were born at 20-28 weeks gestation and all died in the neonatal period. SBRs were received for all 20,749 births reported by hospital and home birth midwives in their monthly notification lists. These comprised 20,604 live births and 145 stillbirths. The number of women who gave birth was 20,448 (523 more women than in 2013). Findings relating to Aboriginal women and babies in the text of this report have been *italicised* for easy identification, in accordance with the request of the Aboriginal Health Council of South Australia.

1. Place of residence of mother

This table uses the ABS Statistical Geographical Boundaries (ASGS 2014), with SA4 boundaries for the four Adelaide Metropolitan Regions, and SA3 boundaries to present the nine non-metropolitan components in South Australia. The distribution of births according to the mother's place of residence by these Regions is provided in Table 1 together with the estimated resident population and crude birth rate. The crude birth rate in 2014 for South Australia was 12.2 per 1,000 population. It was lowest in the Fleurieu – Kangaroo Island, and Yorke Peninsula regions. It was highest in the Adelaide - North Region and was also high in Eyre Peninsula, South West, and Outback – North and East Regions.

Table 1: Births and crude birth rate by ABS Statistical Geographical Boundaries (ASGS 2014) regions, South Australia, 2014

ASGS 2014 (Mother's residence)	Total births		Live births	Estimated resident population, June 30, 2014+	Crude birth rate per 1,000 population
	Number	Percent	Number	Number	
Adelaide - Central and Hills	2,893	13.9	2,876	295,327	9.7
Adelaide - North	6,299	30.4	6,265	418,797	15.0
Adelaide - South	4,305	20.7	4,275	358,924	11.9
Adelaide - West	2,793	13.5	2,775	231,583	12.0
Barossa	387	1.9	384	34,666	11.1
Lower North	233	1.1	233	22,632	10.3
Mid North	326	1.6	322	27,494	11.7
Yorke Peninsula	239	1.2	234	25,022	9.4
Eyre Peninsula and South West	807	3.9	800	58,555	13.7
Outback - North and East	375	1.8	371	29,479	12.6
Fleurieu - Kangaroo Island	408	2.0	406	49,287	8.2
Limestone Coast	805	3.9	794	64,913	12.2
Murray and Mallee	748	3.6	744	69,035	10.8
Interstate	131	0.6	125	na	na
Total	20,749	100.0	20,604	1,685,714	12.2

+ Australian Bureau of Statistics. Population estimates by age and sex, South Australia, 2014. Canberra: ABS, 2014 (Catalogue No 3235.0).

na: not applicable

2. Place of birth of baby

Of the 20,749 births in 2014, 102 (0.5%) were home births and of those, 96 were planned homebirths. The remaining 20,647 births occurred in hospitals or in 90 cases, before arrival at hospitals into which the women had been booked. These 90 'Born Before Arrival'(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 2014 are provided in Figures 1a and 1b.

Table 2: Total births notified in 2014, by place of birth and plurality, South Australia

Condition at birth	Home births		Hospital births			Total
	Singleton	Twin	Singleton	Twin	Triplet	
Live birth	102	-	19,920	561	21	20,604
Stillbirth	0	-	132	13	0	145
Total births	102	-	20,052	574	21	20,749

Of the 20,647 hospital births, 80.9% occurred in metropolitan hospitals (teaching and private) and 19.1% in country hospitals. This distribution is summarised in Table 3a and Figure 2. Table 3b provides the numbers of births and women by race in individual hospitals. Metropolitan hospitals are listed in order of number of births and country hospitals in alphabetical order within their Perinatal Service Delineation and category of number of births. Fifty-eight percent of hospital births in South Australia in 2014 occurred in metropolitan teaching hospitals. Maternity and neonatal services at SA hospitals are delineated according to six levels of service, as defined in the policy, 'Standards for Maternal and Neonatal Services in SA, 2010'.⁴ The Women's and Children's Hospital is defined as providing Level 5 maternity services and Level 6 neonatal services, as it provides a high risk pregnancy service and neonatal intensive care, but has no maternity intensive care facility on site. The Lyell McEwin Hospital provides Level 6 maternity services and Level 5 neonatal services with maternity intensive care services and special care neonatal services. Flinders Medical Centre provides Level 6 maternity and neonatal services with both maternity and neonatal intensive care services. All the metropolitan private maternity hospitals have special care nurseries, as do Mt Gambier and Port Augusta hospitals.

Compared with 2013, the total number of births increased overall at the three metropolitan teaching hospitals. The total number of births in metropolitan private hospitals also increased, births increasing at Ashford and Calvary, remaining stable at North Eastern Community and decreasing marginally at Burnside and Flinders Private.

The total number of births in country hospitals increased slightly. In the Level 4:4 country centres, there were increased births at both Mount Gambier and Port Augusta. Decreases occurred at the majority of hospitals with more than 100 births per year (ie. Gawler Health Service, Barossa Health (Tanunda), Murray Bridge, Naracoorte, the Northern Yorke Peninsula Regional Health Service (Wallaroo) and Whyalla). Number of births remained stable at Riverland General Hospital (Berri), and increases were seen at Mount Barker, Port Lincoln, Port Pirie and South Coast District (Victor Harbor). At smaller country centres with <100 births per year, numbers increased at Kangaroo Island, Mid North Health (Jamestown) and Southern Flinders Health (Crystal Brook). A decrease in birth numbers occurred at Kapunda, Loxton, Millicent and Waikerie. Numbers remained relatively constant at Ceduna and Lower North Health Centre (Clare).

Figure 1a: South Australian hospitals with obstetric beds in 2014

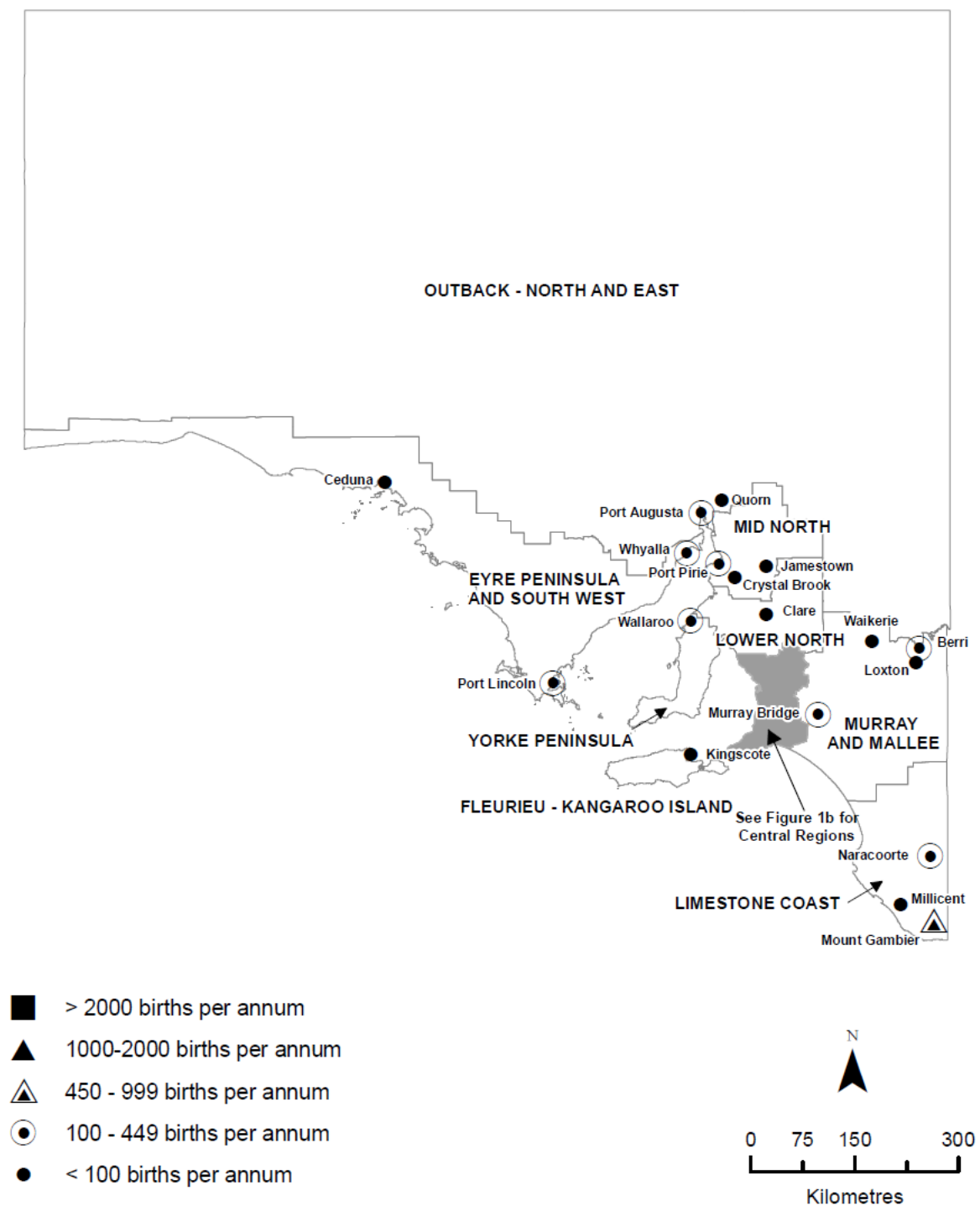


Figure 1b: Hospitals with obstetric beds in 2014, Central Region of SA 2014

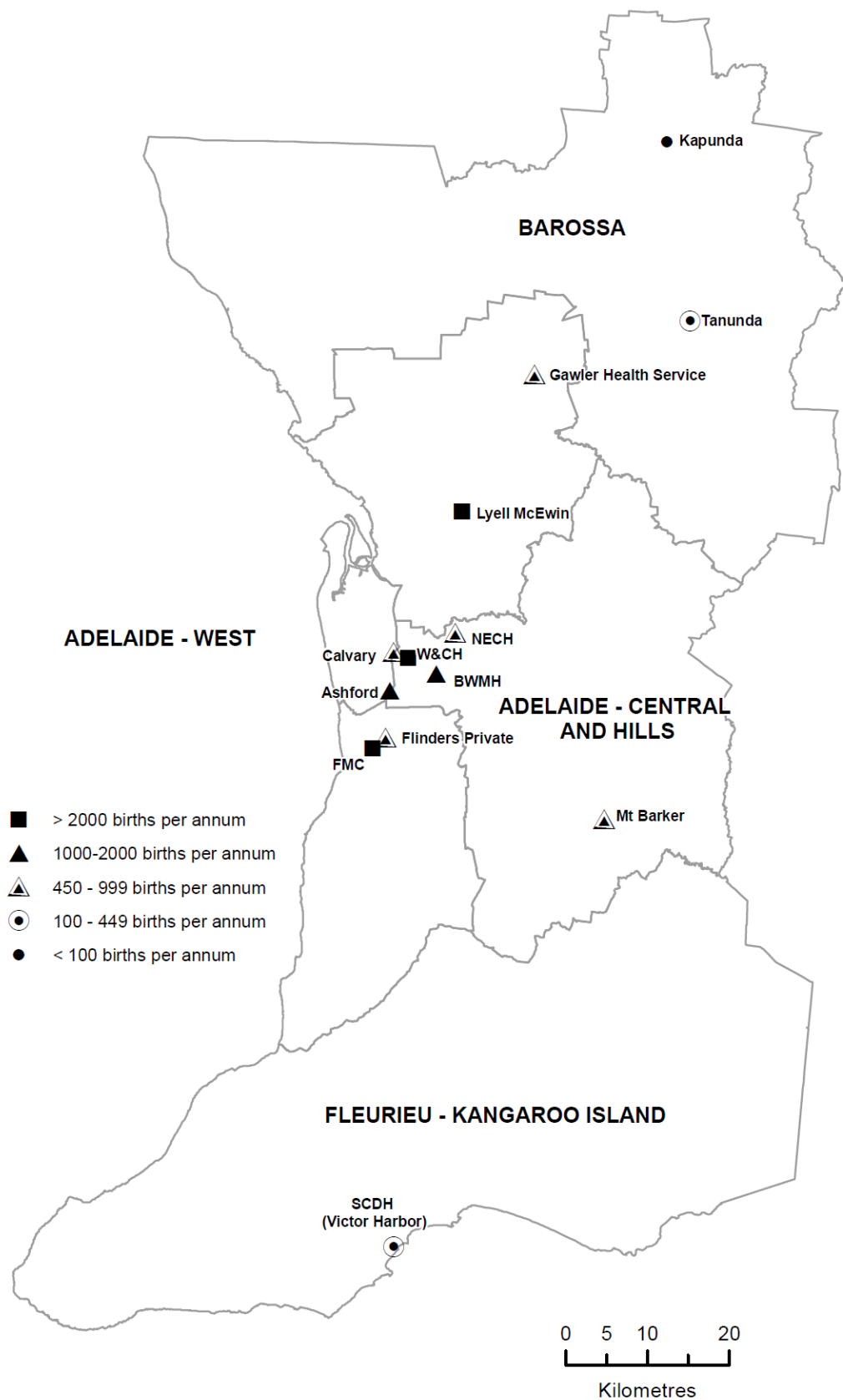


Table 3a: Hospital births by Perinatal Service Delineation, South Australia, 2014

Hospital category	Number of births	Percent hospital births
Metropolitan teaching	12,034	58.3
Women's & Children's Hospital (W&CH)	(4,863)	(23.6)
Flinders Medical Centre (FMC)	(3,632)	(17.6)
Lyell McEwin Hospital (LMH)	(3,538)	(17.1)
Metropolitan private	4,659	22.6
Country	3,954	19.1
Level 4:4	(951)	4.6
Level 3:3>100 births per annum	(2,571)	12.5
Level 3:3<100 births per annum	(421)	2.0
Other Country	(11)	0.0
Total	20,647	100.0

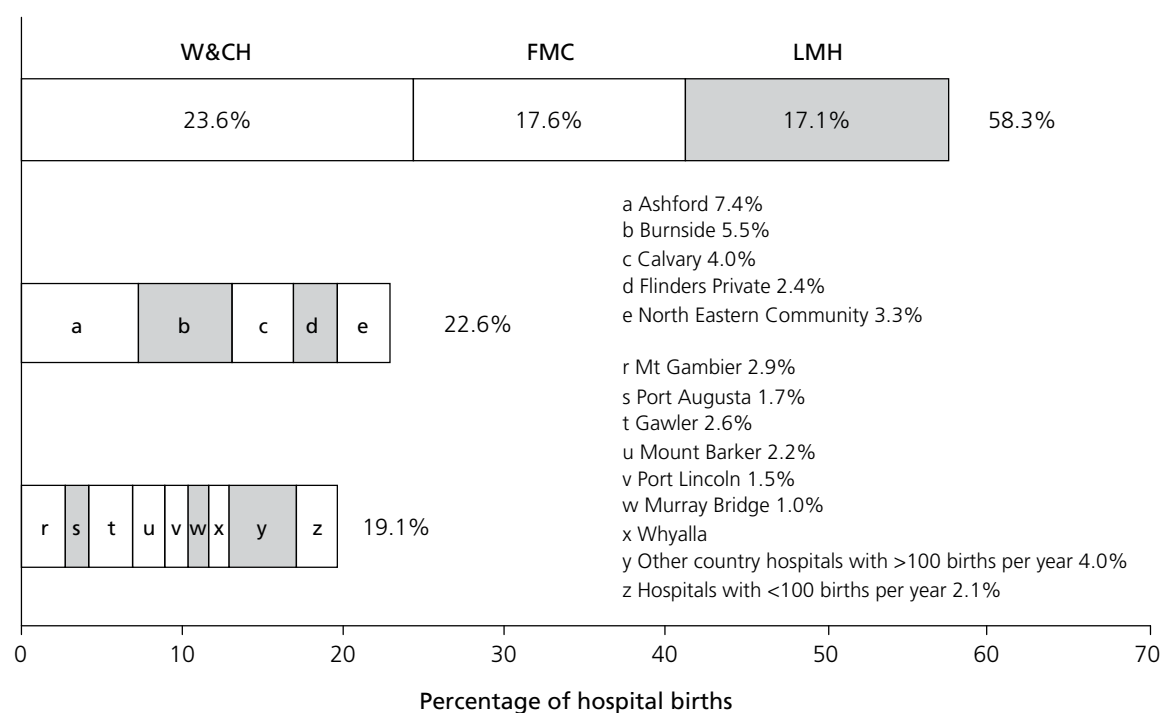
Figure 2: Distribution of hospital births by hospital category, South Australia, 2014 (n=20,647)

Table 3b: Hospital births in South Australia in 2014 by race and hospital*

Hospital	Caucasian	Aboriginal	Asian	Other	Total births	Total number of women who gave birth
Metropolitan teaching						
Women's & Children's Hospital (W&CH)	2,830	202	1,307	524	4,863	4,734
Lyell McEwin Hospital (LMH)	2,583	143	497	409	3,632	3,594
Flinders Medical Centre (FMC)	2,802	101	381	254	3,538	3,486
The Queen Elizabeth Hospital (TQEH)	0	0	0	1	1	1
Total	8,215	446	2,185	1,188	12,034	11,815
Metropolitan private						
Ashford	1,353	5	130	30	1,518	1,496
Burnside War Memorial (BWMH)	1,034	1	94	17	1,146	1,128
Calvary	732	2	63	20	817	803
Flinders Private	446	0	31	13	490	484
North Eastern Community (NECH)	637	1	34	16	688	683
Total	4,202	9	352	96	4,659	4,594
Country						
Level 4:4* Country						
Mt. Gambier	539	21	20	21	601	592
Pt Augusta	231	98	9	12	350	344
Subtotal	770	119	29	33	951	936
Level 3:3* Country ≥100 births						
Barossa Health (Tanunda Centre)	101	0	2	0	103	103
Gawler Health Service‡	515	13	12	5	545	545
Mt. Barker	420	7	13	13	453	453
Murray Bridge Soldiers' Memorial	169	16	16	12	213	213
Naracoorte	135	3	15	4	157	156
Northern Yorke Peninsula Regional Health Service (Wallaroo)	106	6	4	4	120	120
Pt. Lincoln	281	24	11	2	318	120
Pt. Pirie	138	16	4	2	160	318
Riverland Regional (Berri)	134	14	14	8	170	160
South Coast District (Victor Harbor)	92	0	5	3	100	170
Whyalla	197	22	7	6	232	232
Subtotal	2,288	121	103	59	2,571	2,570

* Perinatal Service Delineation – see text for further explanation.

‡ 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.

Table 3b continued

Hospital	Caucasian	Aboriginal	Asian	Other	Total births	Total women who gave birth
Level 3:3* Country <100 births						
1-99 births per annum						
Ceduna	27	11	2	2	42	42
Kangaroo Island	35	2	3	0	40	40
Kapunda	33	1	0	0	34	34
Lower North Health Centre (Clare)	79	1	1	0	81	81
Loxton	86	3	0	0	89	89
Mid North Health (Jamestown)	48	3	0	0	51	51
Southern Flinders Health Service (Crystal Brook)	38	2	0	0	40	40
Waikerie	38	0	1	5	44	44
Subtotal	384	23	7	7	421	421
Other Country						
Amata	0	1	0	0	1	1
Balaklava	1	0	0	0	1	1
Cowell District	1	0	0	0	1	1
Eastern Eyre Health (Kimba)	1	0	0	0	1	1
Millicent	3	0	0	0	3	2
Peterborough	1	0	0	0	1	1
Quorn	3	0	0	0	3	3
Subtotal	10	1	0	0	11	10
Total (country)	3,452	264	139	99	3,954	3,937
Grand total	15,869	719	2,676	1,383	20,647	20,346

* Perinatal Service Delineation – see text for further explanation

3. Maternal and baby race

The distribution of women who gave birth, by race 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 (691 women), Torres Strait Islander (9 women) and those who are Aboriginal and Torres Strait Islander (12 women). Aboriginal women accounted for 3.5% of women and gave birth mainly in metropolitan teaching hospitals and country hospitals. Asian women accounted for 13% of women, and gave birth mainly in metropolitan teaching hospitals, but 13.2% gave birth in private hospitals.*

For the first time in 2012, the Indigenous status of the baby was also collected independently of the mother. In 2014 there were 947 Indigenous babies, representing 4.6% of all babies born. They comprised 917 (96.8%) Aboriginal, 9 (1%) Torres Strait Islander and 21 (2.2%) Aboriginal and Torres Strait Islander.

Table 4a: Race of women who gave birth, South Australia, 2014

Race	Number of women	% Women
Caucasian	15,717	76.9
<i>Aboriginal</i>	712	3.5
Asian	2,655	13.0
Other	1,364	6.6
Total	20,448	100.0

Table 4b: Table 4b: Race and birthplace category of women who gave birth, South Australia, 2014

Birthplace	Race of women								Total	
	Caucasian		<i>Aboriginal</i>		Asian		Other			
	Number	%	<i>Number</i>	%	Number	%	Number	%	Number	%
Metropolitan teaching hospital	8,042	51.2	439	61.7	2,163	81.5	1,171	85.9	11,815	57.8
Metropolitan private hospital	4,142	26.4	9	1.3	351	13.2	92	6.7	4,594	22.5
Country hospital	3,436	21.9	263	36.9	139	5.2	99	7.3	3,937	19.2
Home	97	0.6	1	0.1	2	0.1	1	0.1	102	0.5
Total	15,717	(76.9)	712	(3.5)	2,655	(13.0)	1,364	(6.6)	20,448	100.0

4. Maternal age

Among the five-year age groups, the largest number of women who gave birth was in the 30-34 years age group (Table 4c). The proportion of women in this age group (34%) has exceeded that of the 25-29 years age group (28.6%) since 2001. Teenage women accounted for 3.1% of women who gave birth and older women aged 35 years or more accounted for 20.6% (Table 4c and Figure 3). *Aboriginal women were generally younger than non-Aboriginal women: 15% were teenagers and only 9% were 35 years or older.* Among Asian women, on the other hand, only 0.3% were teenagers but 19.4% were 35 years or older.

The age-specific fertility rates have increased in 30-34, 35-39 and 40+ age groups. The fertility rates decreased in the 15-19, 20-24 and 25-29 groups, when compared with 2013 (Table 4d). The rate was highest in the age group 30-34 years (125.7 per 1,000 women), followed by the 25-29 years age group (100.9 per 1,000 women). The general fertility rate (see Appendix 1) was 61.3 per 1,000 women aged 15-44 years down from 61.7 in 2013. The total fertility rate (see Appendix 1) was 1.83 live births per woman, lower than 2013 which at 1.85 was the same as 2010, but still below replacement level (2.1).

Table 4c: Age and race of women who gave birth, South Australia, 2014

Age (years)	Caucasian		<i>Aboriginal</i>		Asian		Other		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
<15	1	0.0	1	0.1	0	0.0	0	0.0	2	0.0
15-19	485	3.1	106	14.9	8	0.3	33	2.4	632	3.1
20-24	2,261	13.7	214	30.1	181	6.8	203	14.9	2,759	13.5
25-29	4,426	28.2	209	29.4	809	30.5	427	31.3	5,871	28.7
30-34	5,323	33.9	118	16.6	1,091	41.1	439	32.2	6,971	34.1
35-39	2,678	17.0	55	7.7	467	17.6	212	15.5	3,412	16.7
40-44	610	3.9	9	1.3	92	3.5	48	3.5	759	3.7
45+	33	0.2	0	0.0	7	0.3	2	0.1	42	0.2
Total	15,717	(76.9)	712	(3.5)	2,655	(13.0)	1,364	(6.7)	20,448	100.0

Figure 3: Age and race of women who gave birth, 2014 (n=20,448)

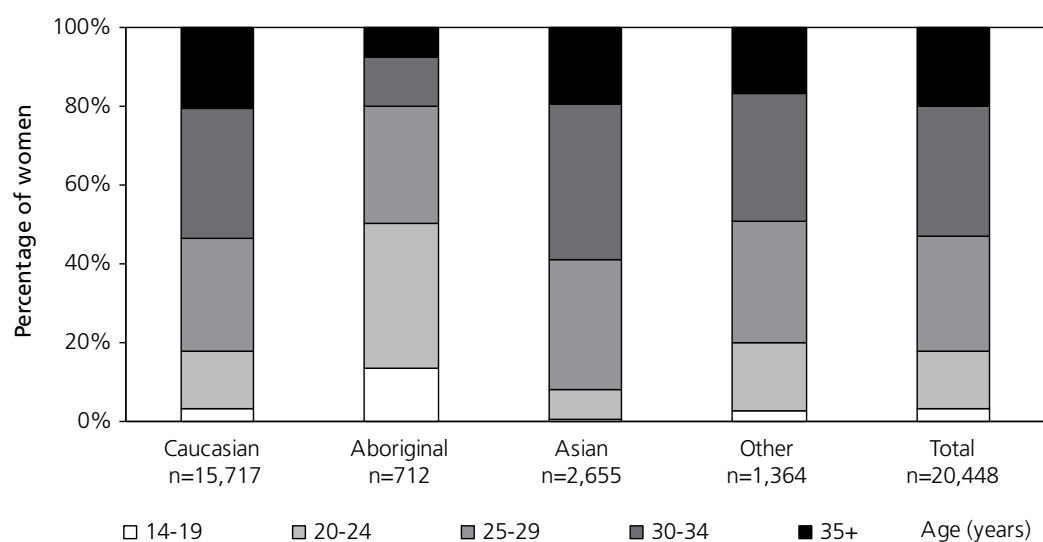


Table 4d: Age –specific fertility rates (ASFR), South Australia, 2014

Age (years)	Number of live births	Estimated resident female population*	Age-specific fertility rate per 1,000 women (ASFR)‡
<15	2	na	na
15-19	630	58,613	# 11.8
20-24	2,771	58,816	47.1
25-29	5,898	58,902	100.1
30-34	7,042	56,023	125.7
35-39	3,453	51,536	67.0
40-44	760	56,995	# 14.1
45+	44		
Total	20,600	340,885	60.4

* Australian Bureau of Statistics. Population Estimates by Age and Sex, South Australia 2014. Canberra: ABS, 2014 (Catalogue No 3235.0).

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

‡ Sum of 5-year ASFRs = 365.8 per 1,000 women. Total fertility rate = $365.8 \times 5 = 1,829.2$ live births per 1,000 women = 1.83 live births per woman.

5. Country of birth

The distribution of women by country of birth is provided in Table 5a by major group, and in Table 5b by specified countries of birth that had 40 or more women who gave birth. Of the 25.8% of women born outside Australia, the largest proportion was born in India (4% of women). Other countries contributing relatively large proportions of migrant women were the China (2.7%), United Kingdom and Ireland (2.4%), Vietnam (1.4%) the Philippines (1%), New Zealand (1%), Sudan (0.8%), Afghanistan (0.8%), Iran, Malaysia, Pakistan (0.6% each), Cambodia, Nepal, Sri Lanka, South Africa and Thailand (0.4% each), Bangladesh, Congo, Indonesia, Japan, Myanmar (Burma), South Korea and the United States of America (0.3% each), and Burundi, Canada, Germany, Iraq and Poland.

Table 5a: Country of birth, major groups,* women who gave birth, South Australia, 2014

	Country of birth	Number	%
1	Oceania and Antarctica	15,405	75.3
2	Europe and the USSR	911	4.5
3	The Middle East and North Africa	497	2.4
4	Southeast Asia	936	4.6
5	Northeast Asia	752	3.7
6	Southern Asia	1,320	6.4
7	Northern America	103	0.5
8	South America, Central America and the Caribbean	117	0.6
9	Africa (excluding North Africa)	405	2.0
	Unknown	2	0.0
	Total	20,448	100.0

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

Table 5b: Specified country of birth,* women who gave birth, South Australia, 2014

Specified country of birth		Number	% of women	% of migrant women who gave birth (n=5,279)
1100	Australia	15,169	74.2	
6104	India	809	4.0	15.3
5101	China	551	2.7	10.4
2101	UK/Ireland	486	2.4	9.2
4110	Vietnam	285	1.4	5.4
4107	Phillipines	208	1.0	3.9
1301	New Zealand	195	1.0	3.7
3207	Sudan	165	0.8	3.1
6101	Afghanistan	154	0.8	2.9
3103	Iran	126	0.6	2.4
6107	Pakistan	116	0.6	2.2
4105	Malaysia	115	0.6	2.2
9220	South Africa	86	0.4	1.6
4102	Cambodia	85	0.4	1.6
6108	Sri Lanka	85	0.4	1.6
4109	Thailand	77	0.4	1.5
6106	Nepal	72	0.4	1.4
4103	Indonesia	67	0.3	1.3
5103	Japan	67	0.3	1.3
5105	South Korea	67	0.3	1.3
7104	USA	65	0.3	1.2
6102	Bangladesh	64	0.3	1.2
4106	Myanmar (Burma)	64	0.3	1.2
9106	Congo	54	0.3	1.0
2305	Germany	50	0.2	0.9
2504	Poland	49	0.2	0.9
9114	Liberia	45	0.2	0.9
3104	Iraq	43	0.2	0.8
3111	Saudi Arabia	43	0.2	0.8
2212	Yugoslavia	41	0.2	0.8
	All other countries	943	4.6	17.9
	Unknown	2	0.0	0.0
Total		20,448	100.0	100.0

* ASCCSS, Australian Bureau of Statistics

6. Marital status and type of patient

While 91.1% women who gave birth in 2014 were married or in a de facto relationship, 8.9% were single (7.8% were never married and 1.1% were widowed, separated or divorced, Table 6a). Of never married women, a fifth were teenagers and a third were in their early twenties. Relatively more single women were hospital/public patients than married women and women in de facto relationships (93% v 71.5%, Table 6b). Almost 27 percent (26.6%) of all women were private patients.

Table 6a: Marital status and age, women who gave birth, South Australia, 2014

Age (years)	Marital status of women								Total	
	Never married		Married/de facto		Widowed/ separated /divorced		Unknown			
	Number	%	Number	%	Number	%	Number	%	Number	%
<20	305	19.1	326	1.8	3	1.4	0	0.0	634	3.1
20-24	489	30.6	2,232	12.0	38	17.4	0	0.0	2,759	13.5
25-29	353	22.1	5,461	29.3	54	24.8	3	25.0	5,871	28.7
30-34	283	17.7	6,610	35.5	71	32.6	7	58.3	6,971	34.1
35-39	134	8.4	3,239	17.4	38	17.4	1	8.3	3,412	16.7
40-44	35	2.2	710	3.8	13	6.0	1	8.3	759	3.7
45+	1	0.1	40	0.2	1	0.5	0	0.0	42	0.2
Total	1,600	(7.8)	18,618	(91.1)	218	(1.1)	12	(0.1)	20,448	100.0

Table 6b: Type of patient and marital status, women who gave birth, South Australia, 2014

Type of patient	Marital status of women								Total	
	Never married		Married/ de facto		Widowed/ separated/ divorced		Unknown			
	Number	%	Number	%	Number	%	Number	%	Number	%
Hospital/ public	1,488	93.0	13,316	71.5	204	93.6	11	91.7	15,019	73.4
Private	112	7.0	5,302	28.5	14	6.4	1	8.3	5,429	26.6
Total	1,600	(7.8)	18,618	(91.1)	218	(1.1)	12	(0.1)	20,448	100.0

7. Occupation of father and mother

This categorisation 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 (24.1 versus 0.5%) were included in the occupation 'home duties'. Larger proportions were also found for the groups of clerks and salespeople and personal service workers. More fathers were managers and administrators, tradespeople, plant and machine operators and labourers. Occupation was unknown for 9.6% of fathers and 3.7% of mothers.

Table 7: Occupation* of father and mother, women who gave birth, South Australia, 2014

	Occupation	Father		Mother	
		Number	%	Number	%
1	Managers and administrators	2,998	14.7	1,584	7.7
2	Professionals	3,161	15.5	3,457	16.9
3	Para professionals	1,185	5.8	1,521	7.4
4	Tradespersons	3,536	17.3	590	2.9
5	Clerks	464	2.3	2,034	9.9
6	Salespersons and personal service workers	1,239	6.1	2,952	14.4
7	Plant and machine operators and drivers	1,163	5.7	59	0.3
8	Labourers and related workers	2,441	11.9	505	2.5
9	Students	594	2.9	850	4.2
	Pensioners	94	0.5	53	0.3
	Home duties	110	0.5	4,922	24.1
	Unemployed	1,058	5.2	859	4.2
	Other	449	2.2	312	1.5
	Unknown	1,956	9.6	750	3.7
	Total	20,448	100.0	20,448	100.0

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

8. Previous pregnancy outcomes

Forty-two 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 29.2% and 36.7% respectively giving birth for the first time.* The proportion of women giving birth for the first time was the highest among Asian women (48.6%).

The proportion of women of parity 4 or greater was much higher among Aboriginal women (13.5%) and women of 'other' races (11%), than among Caucasian women (2.8%) and Asian women (1.2%) (Table 8a).

Table 8a: Parity by race, women who gave birth, South Australia, 2014

Parity	Race of women								Total	
	Caucasian		<i>Aboriginal</i>		Asian		Other			
	Number	%	<i>Number</i>	%	Number	%	Number	%	Number	%
0-primigravida	4,793	30.5	147	20.6	943	35.5	372	27.3	6,255	30.6
0-multigravida	1,742	11.1	61	8.6	349	13.1	128	9.4	2,280	11.2
1	5,686	36.2	192	27.0	995	37.5	396	29.0	7,269	35.5
2	2,278	14.5	124	17.4	271	10.2	211	15.5	2,884	14.1
3	769	4.9	92	12.9	65	2.4	106	7.8	1,032	5.0
4	257	1.6	42	5.9	19	0.7	74	5.4	392	1.9
≥5	192	1.2	54	7.6	13	0.5	77	5.6	336	1.6
Total	15,717	76.9	712	3.5	2,655	13.0	1,364	6.7	20,448	100.0

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

Table 8b: Previous pregnancy outcomes, women who gave birth, South Australia, 2014 (multigravidae only, n= 14,193)

Previous pregnancy outcome	Number	%
Miscarriage	4,959	34.9
Termination of pregnancy	2,860	20.2
Stillbirth	204	1.4
Neonatal death	73	0.5
Ectopic pregnancy	349	2.5

Of the 11,913 women who had previously given birth, 3,635 (30.5%) had a previous caesarean section.

9a. Gestation at first antenatal visit

In 2014 gestation at the first antenatal visit was reported as 'unknown' for 5.5% of women (Table 9a). If these women with an unknown number of visits are excluded, among the remaining women, 78.8% attended within the first 14 weeks. *This proportion was much lower for Aboriginal women (54.7%) than for non-Aboriginal women (79.7%).*

Table 9a: Gestation at first antenatal visit, women who gave birth, by race, South Australia, 2014 (n=20,448)

Gestation at first antenatal visit	Race of women						Total		
	Non-Aboriginal			Aboriginal					
	Number	%	Adjusted % (excluding 'unknown') (n=18,667)	Number	%	Adjusted % (excluding 'unknown') (n=662)	Number	%	Adjusted % (excluding 'unknown') (n=19,329)
<14 weeks gestation	14,877	75.4	79.7	362	50.8	54.7	15,239	74.5	78.8
14 weeks or greater*	3,790	19.2	20.3	300	42.1	45.3	4,090	20.0	21.2
Unknown	1,069	5.4		50	7.0		1,119	5.5	
Total	19,736	96.5	100.0	712	3.5	100.0	20,448	100.0	100.0

*includes 48 women with no antenatal care

9b. Body Mass Index (BMI)

Reported height and weight at the first antenatal visit were used to calculate the Body Mass Index (BMI, see Appendix 1) for women who gave birth. This was considered valid only for women who attended the first antenatal visit before 20 weeks gestation. Among these 18,425 women (90.1% of all women who gave birth), height and weight were not reported for 1,227 women (6.7%). Therefore BMI could only be calculated for 17,198 women who gave birth in 2014 (84%). Table 9b shows that 8,984 women recorded a BMI ≥ 25.0 (44% of all women giving birth), 4,205 (20.6%) had a BMI ≥ 30.0 , and 1,728 (8.5%) had a BMI ≥ 35.0 .

Table 9b: BMI of women who gave birth, South Australia, 2014

BMI (based on height and weight at first antenatal visit where gestation at first antenatal visit was <20 weeks)	Number	%	Adjusted % (excluding 'unknown') (n=17,198)
<18.5 (underweight)	461	2.5	2.7
18.5 – 24.9 (normal)	7,753	42.1	45.1
25.0 – 29.9 (overweight)	4,779	25.9	27.8
30.0 – 34.9 (obese)	2,477	13.4	14.4
35.0 – 39.9 (severely obese)	1,060	5.8	6.2
40 or more (morbidly obese)	668	3.6	3.9
Unknown	1,227	6.7	
Total	18,425	100.0	

9c. Antenatal visits

Women who gave birth are grouped in Table 9c according to the number of reported antenatal visits: no visits, 1 - 6 visits and 7 or more visits. However, for 4.6% of women (7.3% of Aboriginal women), the number of antenatal visits attended was not reported. *If women for whom the number of antenatal visits was not reported are excluded, 69.4% of Aboriginal women compared with 91.2% of non-Aboriginal women were reported to have made seven or more visits.* A low frequency of antenatal visits may be taken, particularly in term births, as an indication of inadequate antenatal care. Although the exact number of antenatal visits was reported for 19,516 (95.4%) women, 20,400 (99.8%) women report having attended at least one antenatal visit.

Table 9c: Antenatal visits by race, women who gave birth, South Australia, 2014

Antenatal visits	Race of women								Total	
	Caucasian		<i>Aboriginal</i>		Asian		Other			
	Number	%	<i>Number</i>	%	Number	%	Number	%	Number	%
None	23	0.1	18	2.5	4	0.2	3	0.2	48	0.2
1-6	1,135	7.2	184	25.8	291	11.0	196	14.4	1,806	8.8
≥7	13,875	88.3	458	64.3	2,232	84.1	1,097	80.4	17,662	86.4
Unknown number of visits	684	4.4	52	7.3	128	4.8	68	5.0	932	4.6
Total	15,717	(76.9)	712	(3.5)	2,655	(13.0)	1,364	(6.7)	20,448	100.0

9d. Type of antenatal care

In 2012 the types of antenatal care collected were updated to better reflect current obstetric practice. Table 9d shows that the main types of antenatal care used were public hospital clinic (Specialist led) (42.8%), Obstetricians +/- midwife in private practice (26.5%), General Practitioners and public hospital (shared care) (12.6%), Midwifery group practice at birth hospital (12%) and General Practice led (8.6%). Individual women may have used more than one type of antenatal care. There were 48 women (0.2%) who had no antenatal care.

Table 9d: Type of antenatal care, women who gave birth, South Australia, 2014 (n = 20,448)

Type of care	Number	%
No care	48	0.2
Midwifery group practice at birth hospital	2,446	12.0
Birth Unit/Centre	1,080	5.3
Public clinic (Specialist led)	8,746	42.8
GP and public hospital (shared care)	2,581	12.6
GP led	1,763	8.6
Obstetrician +/- midwife in private practice	5,419	26.5
Eligible midwife in private practice	73	0.4
Aboriginal Family Birthing Program (includes metropolitan and rural locations)	212	1.0
Other	15	0.1
Not stated	11	0.1

10. Smoking

Table 10a shows that 10.1% of all women were reported to be smokers at their first antenatal visit, and 2.8% had quit smoking before their first visit. Smoking status was unknown for 0.8% of women. The proportion of all women smoking during pregnancy has been declining in the state, from 25% in 1998 to 10.1% in 2014.

The proportion of Aboriginal women who reported that they smoked at the first antenatal visit was (44.4%) down slightly from 2013 (45%). However, this was considerably higher than non-Aboriginal women (8.8%). Additionally, 4.9% of Aboriginal women reported that they quit smoking in pregnancy prior to their first antenatal visit, compared with 2.7% of non-Aboriginal women.

The highest rates of smoking were among teenagers (29.7%) and women aged 20-24 years (18.4%). *Smoking rates were high among all age groups of Aboriginal women varying from 36.4% among teenage women to 43% among those aged 20-24 years.*

In the second half of pregnancy (Table 10b), 8.9% of women (1,828 women) were reported to be smokers and 0.2% (51 women) smoked more than 20 cigarettes per day, but the number of cigarettes smoked or whether the woman smoked in the second half of pregnancy was not known for 1.4% of women. *In the second half of pregnancy, 40.4% of Aboriginal women smoked, compared with 7.8% of non-Aboriginal women. A higher proportion of Aboriginal women (1.5% compared with 0.2%) also smoked more than 20 cigarettes per day, but the number of cigarettes smoked was not known for 4.2% of Aboriginal women and 1.3% of non-Aboriginal women.*

Table 10a: Tobacco smoking status at first antenatal visit, non-Aboriginal and Aboriginal women who gave birth, South Australia, 2014

Smoking status	Non-Aboriginal		Aboriginal		Total	
	Number	%	Number	%	Number	%
Smoker	1,746	8.8	316	44.4	2,062	10.1
Quit before 1 st visit	537	2.7	35	4.9	572	2.8
Non-smoker	17,294	87.6	352	49.4	17,646	86.3
Unknown smoking status	159	0.8	9	1.3	168	0.8
Total	19,736	96.5	712	3.5	20,448	100.0

Table 10b: Average number of tobacco cigarettes smoked per day in the second half of pregnancy, non-Aboriginal and Aboriginal women who gave birth, South Australia, 2014

Average number of tobacco cigarettes smoked per day	Non-Aboriginal		Aboriginal		Total	
	Number	%	Number	%	Number	%
None	17,947	90.9	394	55.3	18,341	89.7
Occasional (<1)	31	0.2	5	0.7	36	0.2
1-10	1,138	5.8	211	29.6	1,349	6.6
11-20	331	1.7	61	8.6	392	1.9
21-30	34	0.2	10	1.4	44	0.2
31-40	6	0.0	0	0.0	6	0.0
41+	0	0.0	1	0.1	1	0.0
Unknown	249	1.3	30	4.2	279	1.4
Total	19,736	96.5	712	3.5	20,448	100.0

11. Medical conditions

Medical conditions were recorded in the current pregnancy for 8,237 women (40.3%). The frequencies of specified medical conditions are provided in Table 11. Up to four conditions can be reported for each pregnancy.

Table 11: Medical conditions in current pregnancy, women who gave birth, South Australia, 2014

	Medical condition	Number	% of women (n = 20,448)
1	None	12,211	59.7
2	Anaemia	1,335	6.5
3	Urinary tract infection	429	2.1
4	Hypertension (pre-existing)	221	1.1
5	Diabetes (pre-existing)	182	0.9
6	Epilepsy	115	0.6
7	Asthma	1,470	7.2
8	Other	6,183	30.2

12. Obstetric complications

Obstetric complications were recorded for 8,058 women who gave birth (39.4%). The reported frequencies of the more common complications are presented in Table 12. Up to four complications can be reported for each pregnancy.

There were no maternal deaths notified to the Maternal, Perinatal and Infant Mortality Committee in 2014.

Table 12: Frequency of some obstetric complications, women who gave birth, South Australia, 2014

Obstetric complication	Number	% of women (n= 20,448)
No complication	12,390	60.6
Threatened miscarriage	214	1.0
Antepartum haemorrhage (APH) - Abruption	107	0.5
APH - Placenta praevia	117	0.6
APH – Other & unknown causes	429	2.1
Pregnancy hypertension	1,428	7.0
Intrauterine growth restriction (suspected)	964	4.7
Gestational diabetes	1,887	9.2
Other complications including 26 women with impaired glucose tolerance	4,730	23.1

13. Procedures performed in current pregnancy

In 2012 procedures performed in the current pregnancy that are collected on the Supplementary Birth Record were updated to better reflect current obstetric practice, and are presented in Table 13. At least one ultrasound examination was performed for 97.5% of women, amniocentesis for 2.5% and chorion villus sampling for 0.6%.

For a proportion of women, it was not known whether a specific procedure had been performed, eg 1.7% for a first trimester screen and 1.7% for a second trimester screen. It is hoped that the increasing use of the Pregnancy Record will continue to reduce the number of 'unknown' entries.

Table 13: Procedures performed in current pregnancy, women who gave birth, South Australia, 2014

Procedure	Yes		No		Unknown	
	Number	%	Number	%	Number	%
First trimester anomaly screen (Ultrasound & biochem)	14,174	69.3	5,935	29.0	339	1.7
Second trimester anomaly screen (biochem only)	2,681	13.1	17,428	85.2	339	1.7
Ultrasound dating scan	11,504	56.3	7,367	36.0	1,577	7.7
Ultrasound morphology scan	17,846	87.3	2,323	11.4	279	1.4
Other ultrasound scan	8,192	40.1	11,887	58.1	369	1.8
Amniocentesis	508	2.5	19,739	96.5	201	1.0
Chorion villus biopsy	127	0.6	20,121	98.4	200	1.0
Antenatal fetal blood sampling	11	0.1	20,239	99.0	198	1.0
Other surgical procedure	97	0.5	20,351	99.5	0	0.0

14a. Onset of labour

Labour occurred spontaneously in 48.9% of women who gave birth (Table 14a). It was induced in 32.2%, and the methods of induction used were artificial rupture of membranes (ARM) in 71.3% of inductions, prostaglandins in 49.3% and oxytocics in 57.9% (Table 14b). 'Other' methods were used in 4.4% of inductions. In many cases more than one method was used.

Table 14a: Onset of labour, women who gave birth, South Australia, 2014

Onset of labour	Number	%
Spontaneous	10,007	48.9
No labour – caesarean section	3,851	18.8
Induction	6,590	32.2
Total	20,448	100.0

Table 14b: Method of induction of labour, women who gave birth, South Australia, 2014

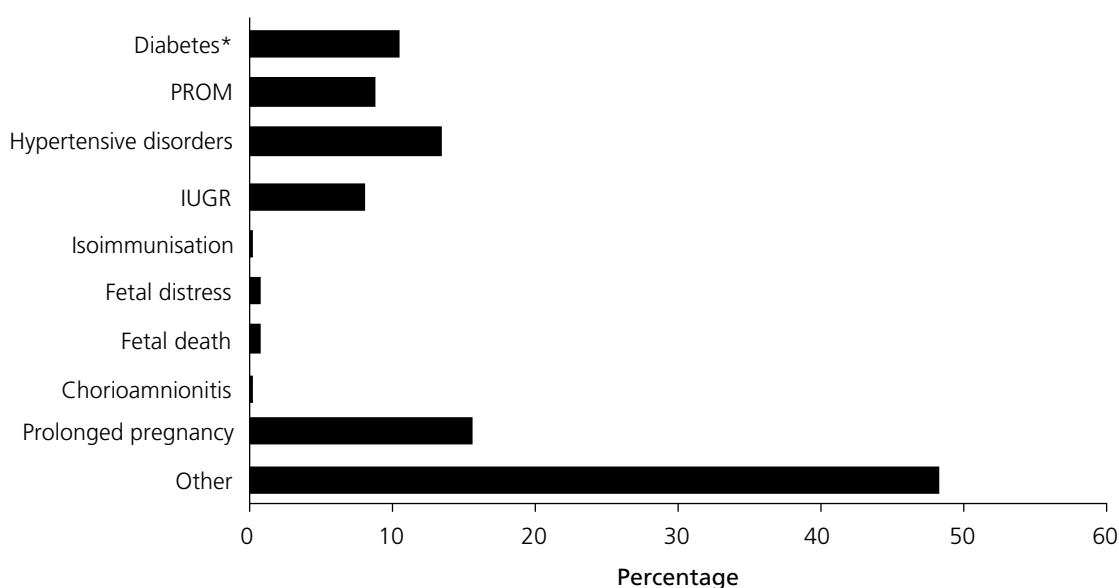
Method of induction	Number	% of women (n =20,448)	% of inductions (n =6,590)
No induction	13,859	67.8	
ARM	4,702	23.0	71.4
Oxytocics	3,815	18.7	57.9
Prostaglandins	3,247	15.9	49.3

14b. Reasons for induction of labour

Up to two reasons could be provided for induction. These reasons for induction of labour are defined (see page 55) in 'The Australian Council on Healthcare Standards Obstetrics Indicators - Clinical Indicator Users' Manual Version 5 for use in 2007'.

Figure 4 demonstrates that 15.5% of women were induced for prolonged pregnancy (41 or more completed weeks), 13.3% for hypertension, 10.4% for diabetes (including gestational diabetes and glucose intolerance), 8% for intrauterine growth restriction (IUGR) and 8.8% for premature rupture of membranes (PROM). Other defined reasons accounted for smaller proportions. Other than defined reasons accounted for 48.1%.

Figure 4: Reasons for induction of labour, SA, 2014 (n=6,590)



*includes diabetes mellitus, gestational diabetes and glucose intolerance

The proportion of women giving birth who had labour augmented was 17.5%. Of the 10,007 women who went into spontaneous labour, augmentation was used for 3,579 (35.8%). Methods used in augmentation were artificial rupture of membranes (ARM) (72.1%), oxytocics (42.6%) and prostaglandins (1.0%). More than one method may be used. It should be noted that prostaglandins are not recommended by the manufacturers as a method of augmenting labour.

Table 14c: Augmentation of labour after spontaneous onset, women who gave birth, South Australia, 2014

	Method of augmentation	Number	% of women (n=20,448)	% of augmentations (n=3,579)
	Any augmentation	3,579	17.5	
1	ARM	2,582	12.6	72.1
2	Oxytocics	1,524	7.5	42.6
3	Prostaglandins	37	0.2	1.0

15a. Presentation and method of birth

Of the women who gave birth, 54.1% had normal spontaneous vaginal births (Table 15a and Figure 5a). Caesarean section was performed for 33.9% of women, with 16.6% of women having elective sections; forceps were utilised for 5.3%; ventouse for 6.3% and breech birth for the remaining 0.4%. The method of birth given for women who had multiple births is that for the first birth. The method of birth by presentation for all births is provided in Table 15b. Breech presentation occurred in 4.6% of births and caesarean section was the method of birth for 89.2% of breech presentations. Caesarean section was utilised for 90.6% of breech presentations in singletons (Table 15c).

Table 15a: Method of birth, women who gave birth, South Australia, 2014

Method of birth	Number	%
Normal spontaneous vaginal	11,071	54.1
Forceps	1,089	5.3
Assisted breech (no forceps)	16	0.1
Caesarean section (elective)	3,399	16.6
Caesarean section (emergency)	3,531	17.3
Ventouse	1,282	6.3
Breech extraction	6	0.0
Breech spontaneous	50	0.2
Assisted breech (with forceps for head)	4	0.0
Total	20,448	100.0

Figure 5a: Method of birth, women who gave birth, South Australia, 2014 (n = 20,448)

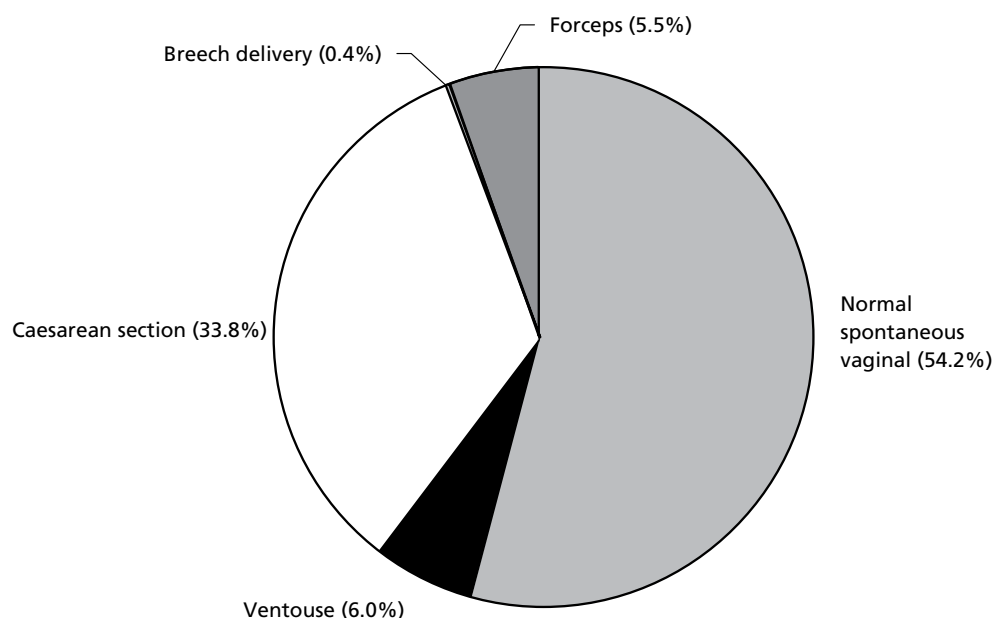


Table 15b: Method of birth by presentation, all births, South Australian 2014 (n=20,749)

Method of birth	Presentation								Total	
	Vertex		Breech		Other		Unknown			
	Number	%	Number	%	Number	%	Number	%	Number	%
Normal spontaneous	11,053	56.5	0	0.0	53	27.5	12	30.0	11,118	53.6
Forceps	1,093	5.6	0	0.0	4	2.1	1	2.5	1,098	5.3
Assisted breech (no forceps)	0	0.0	26	2.7	0	0.0	0	0.0	26	0.1
Elective caesarean	2,949	15.1	518	54.2	39	20.2	13	32.5	3,519	17.0
Emergency caesarean	3,186	16.3	335	35.0	90	46.6	11	27.5	3,622	17.5
Ventouse	1,279	6.5	0	0.0	4	2.1	2	5.0	1,285	6.2
Breech extraction	0	0.0	13	1.4	2	1.0	0	0.0	15	0.1
Breech spontaneous	0	0.0	59	6.2	1	0.5	1	2.5	61	0.3
Assisted breech (forceps)	0	0.0	5	0.5	0	0.0	0	0.0	5	0.0
Total	19,560	(94.3)	956	(4.6)	193	(0.9)	40	(0.2)	20,749	100.0

Table 15c: Method of birth in breech presentation, by plurality, all births, South Australia, 2014 (n= 956)

Plurality	Assisted* breech	Elective caesarean	Emergency caesarean	Breech extraction	Breech spontaneous	Assisted Breech (forceps)	Total
Singleton	16	431	270	5	47	4	773
Twins	10	84	61	7	12	1	175
Triplets	0	3	4	1	0	0	8
Total	26	518	335	13	59	5	956

* in five of the assisted breech births forceps were applied to the head.

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 caesarean sections only) and Figure 5d (emergency caesarean sections only). The main reasons given for all caesarean sections were previous caesarean section (37.3%), failure to progress/cephalopelvic disproportion (CPD) (26.4%), fetal distress (14.1%) and malpresentation (11.6%). Maternal choice accounted for 2.4% (up from 1.5% in 2012 when it was first added). The main reasons for elective sections were previous caesarean section (65%), malpresentation (13.2%), maternal choice (3.9%) and multiple pregnancy (3.3%). The main reasons given for emergency sections were failure to progress or CPD (50.8%), fetal distress (27.5%), previous caesarean section (10.6%), malpresentation (10%) and maternal choice (1%).

Figure 5b: Reason for caesarean section, 2014 (n=6,930)

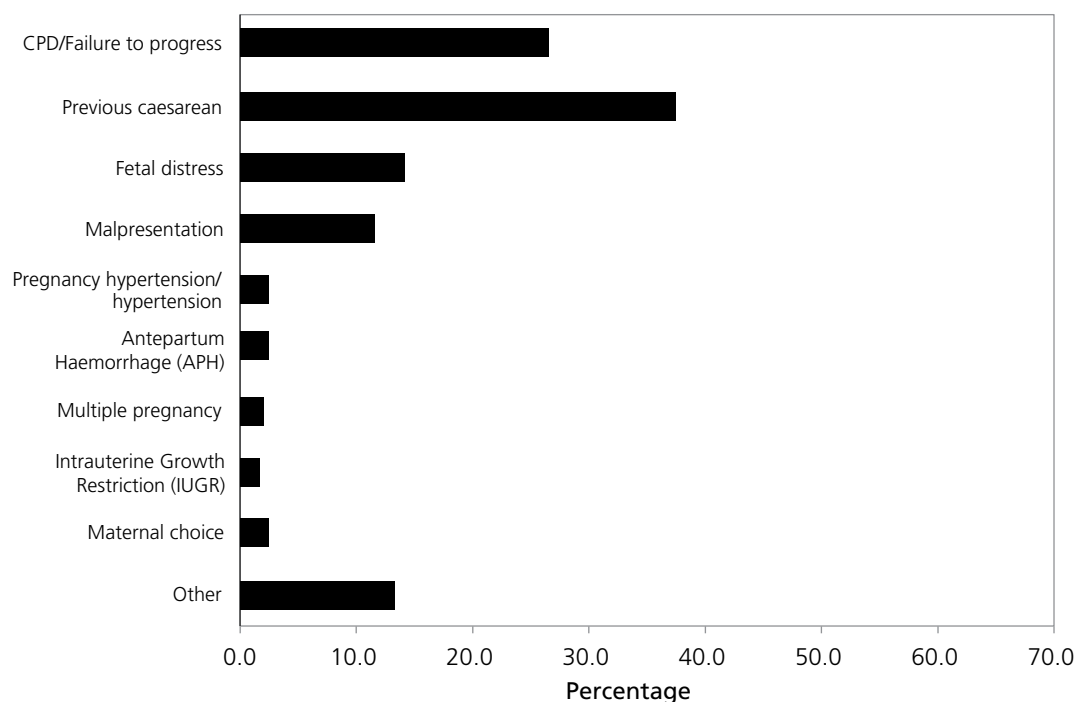


Figure 5c: Reason for elective caesarean section, 2014 (n=3,399)

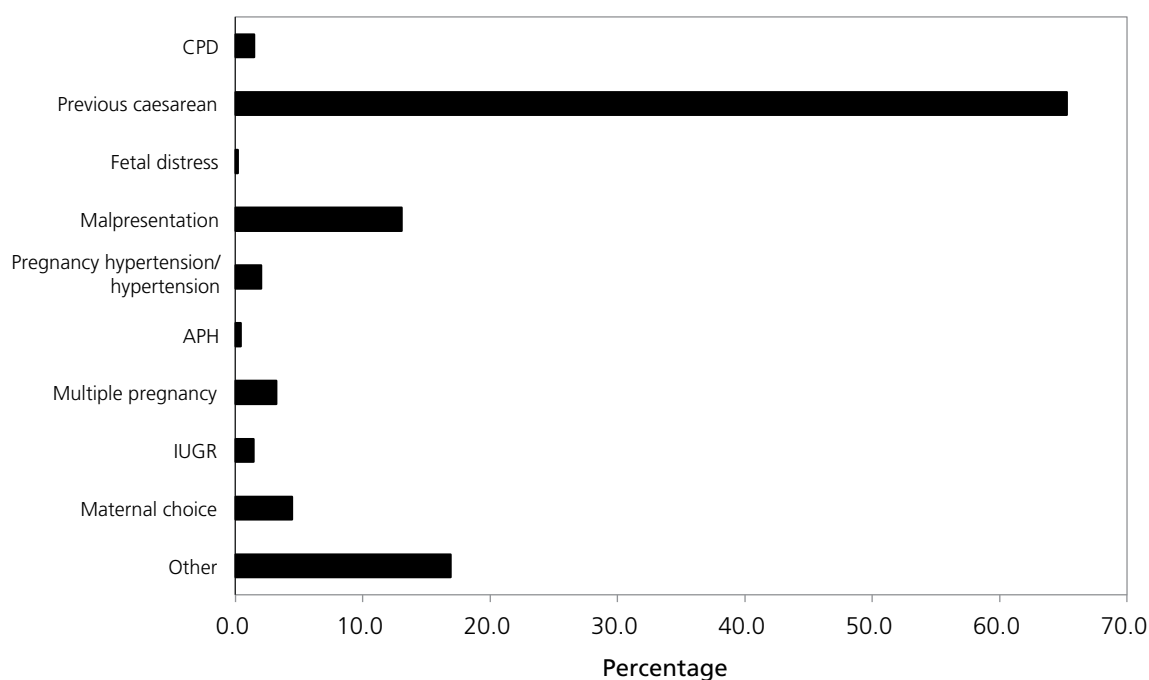
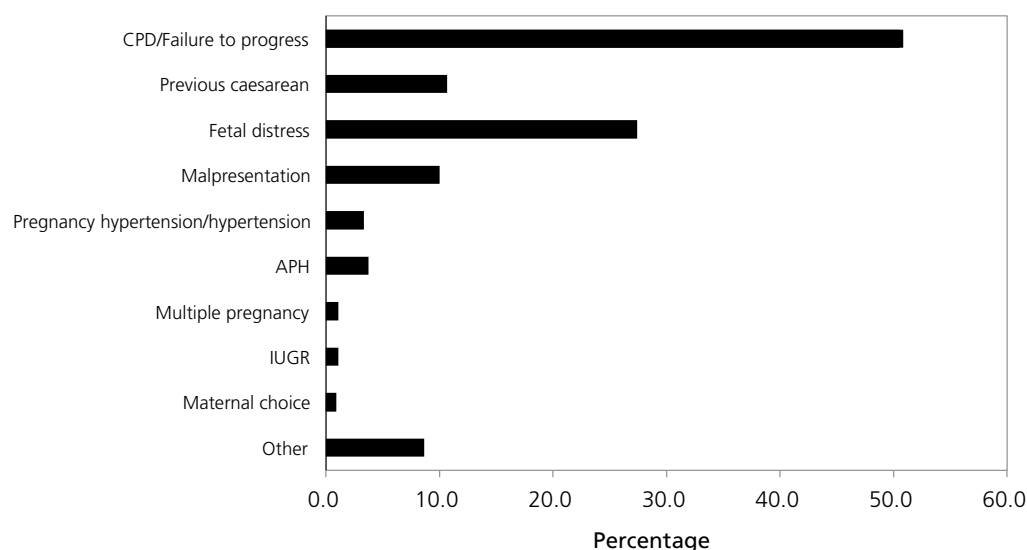


Figure 5d: Reason for emergency caesarean section, 2014 (n=3,531)



16. Complications of labour and birth and perineal status after birth

Complications of labour or birth were recorded for 7,706 women who gave birth (37.7%). Up to four complications can be recorded. The reported frequency of some complications is presented in Table 16. Among all 20,448 women who gave birth, episiotomy was performed for 2,937 (14.4%). Among the 13,518 women who gave birth vaginally, 3,582 (26.5%) had an intact perineum after birth, 5,184 (38.3%) had a repair of a perineal tear, of whom 466 (2.3%) had a third or a fourth degree tear; 21.7% had an episiotomy.

Table 16: Frequency of some complications of labour and birth, women who gave birth, South Australia, 2014

Complication of labour	Number of women	% of women (n=20,448)
None	12,742	62.3
Postpartum Haemorrhage (PPH) - 600-999ml	1,568	7.7
PPH – 1,000 ml or more	1,044	5.1
PPH – primary (amount not specified)	12	0.1
Fetal distress	2,230	10.9
Retained placenta	256	1.3
Prolonged labour	143	0.7
Cord prolapse	24	0.1
Wound infection	13	0.1
Third degree tear (391) or fourth degree tear (31)	466	2.3
Failure to progress	2,589	12.7
Other	4,957	24.2

17. Fetal monitoring during labour

Cardiotocography (CTG) was performed during labour for 63.1% of women who gave birth. The majority of these (49.8% of women) were external CTGs (Table 17a) while a scalp clip was used for 13.3%.

A fetal scalp pH was taken during labour in 195 women who gave birth (1.0%, Table 17b).

Table 17a: CTG performed during labour, women who gave birth, South Australia, 2014

	CTG during labour	Number of women	% of women (n=20,448)
1	None	7,544	36.9
2	External	10,186	49.8
3	Scalp clip	2,718	13.3

Table 17b: Fetal scalp pH taken during labour, women who gave birth, South Australia, 2014

	Fetal scalp pH taken	Number of women	% of women (n=20,448)
1	No	20,253	99.0
2	Yes	195	1.0

18. Analgesia for labour and anaesthesia for birth

These distributions are provided in Tables 18a and 18b. Epidurals were used for analgesia in labour for 29.2% and for anaesthesia for birth for 27.4% of women. The proportion of women who had an epidural for either was 32.6% (6,656 women). The proportion of women who had a spinal anaesthetic increased between 1991 and 2014 from 0.2% to 0.9% for analgesia and from 0.5% to 25% for anaesthesia. General anaesthesia was used for 2.1% of births. It was used in 6% of caesarean sections. Approximately 37% of women who gave birth received none of the specified methods for analgesia during labour..

Table 18a: Analgesia for labour,* women who gave birth, South Australia, 2014

	Analgesia	Number	% of women
1	None	7,629	37.3
2	Nitrous oxide and oxygen	8,296	40.6
3	Narcotic (parenteral)	2,914	14.3
4	Epidural (lumbar/caudal)	5,978	29.2
5	Spinal	193	0.9
6	Other	973	4.8
7	Combined spinal-epidural	11	0.1

* more than one method may be used for each woman

Table 18b: Anaesthesia for birth,* women who gave birth, South Australia, 2014

	Anaesthesia	Number	% of women
1	None	7,890	38.6
2	Local anaesthesia	1,440	7.0
3	Pudendal	166	0.8
4	Epidural (lumbar/caudal)	5,610	27.4
5	Spinal	5,114	25.0
6	General anaesthesia	426	2.1
7	Other	229	1.1
8	Combined spinal-epidural	60	0.3

* more than one method may be used for each woman

19. Postnatal length of stay of women

The distribution of length of stay of women who gave birth in hospitals is presented in Table 19a for public and private patients. The median duration for all women was three days. It was two days for vaginal births and four days for caesarean section births (Table 19b).

The median duration of stay was two days longer for private patients for vaginal as well as caesarean births (four and five days respectively for private patients compared with two and three days respectively for public patients).

Table 19a: Postnatal length of stay by type of patient, women who gave birth in South Australian hospitals, 2014

Postnatal length of stay (days)	Public		Private		Total	
	Number	%	Number	%	Number	%
<1	1,098	7.3	35	0.6	1,133	5.6
1	3,928	26.3	78	1.4	4,006	19.7
2	3,836	25.7	235	4.4	4,071	20.0
3	3,573	23.9	693	12.8	4,266	21.0
4	1,564	10.5	2,084	38.6	3,648	17.9
5	552	3.7	1,601	29.6	2,153	10.6
6	204	1.4	503	9.3	707	3.5
7 or more	189	1.3	173	3.2	362	1.8
Total	14,944	100.0	5,402	100.0	20,346	100.0

Table 19b: Average postnatal length of stay by type of patient & type of birth, women who gave birth in South Australian hospitals, 2014

Average length of stay	Public			Private			Total		
	Vaginal (n=10,239)	Caesarean (n=4,705)	Total (n=14,944)	Vaginal (n=3,177)	Caesarean (n=2,225)	Total (n=5,402)	Vaginal (n=13,416)	Caesarean (n=6,930)	Total (n=20,346)
Mean number of days	1.8	3.5	2.3	3.8	5.1	4.3	2.3	4.0	2.8
(±SD)	(±2.21)	(±1.69)	(±2.21)	(±1.42)	(±1.14)	(±1.45)	(±2.23)	(±1.71)	(±2.22)
Median number of days	2.0	3.0	2.0	4.0	5.0	4.0	2.0	4.0	3.0

20. Sex of baby

The sex distribution of babies is provided in Table 20; the male: female sex ratio was 1.05:1.

Table 20: Sex of baby, all births, South Australia, 2014

Sex of baby	Number	%
Male	10,626	51.2
Female	10,122	48.8
Indeterminate	1	0.0
Total	20,749	100.0

21. Birthweight and gestation

The birthweight distribution of all births is presented in Table 21. The percentage of low birthweight babies (<2,500g) was 7.1%, and that of very low birthweight babies (<1,500g) was 1.6%. The mean birthweight was 3,318g (SD 610.6g), with birthweights ranging from 122g to 5345g. *The proportion of low birthweight babies was 15.4% among babies of Aboriginal women compared with 6.9% among babies of non-Aboriginal women. Among liveborn babies, and excluding terminations of pregnancy, these proportions were 14.8% and 6.3% respectively.*

Table 21: Birthweight distribution of all births, South Australia, 2014

Birthweight (g)	Number of births	Percentage of births
<400	60	0.3
400-499	30	0.1
500-749	53	0.3
750-999	53	0.3
1,000-1,499	126	0.6
1,500-1,999	294	1.4
2,000-2,499	867	4.2
2,500-2,999	3,316	16.0
3,000-3,499	7,753	37.4
3,500-3,999	6,091	29.4
4,000-4,499	1,851	8.9
4,500+	253	1.2
Unknown	2	0.0
Total	20,749	100.0

In 2014, 1,483 babies (7.1%) were of low birthweight and 1,918 (9.2%) were preterm (<37 weeks gestation). *The proportion of preterm births was 17.8% among babies of Aboriginal women compared with 8.9% among babies of non-Aboriginal women.*

22. Birth injuries

Birth injuries were reported in 123 live births (0.6%). The most common injury reported was cephalhaematoma. Fracture and nerve injury occurred less frequently (Table 22).

Table 22: Birth injuries* in 20,604 live births, South Australia, 2014

Birth injury	Number of live births	% of live births
None	20,481	99.4
Fracture	7	0.0
Dislocation	2	0.0
Nerve Injury	15	0.1
Cephalhaematoma	84	0.4
Other	23	0.1

*more than one injury may be reported for 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, which shows that 84.1% of neonates did not receive any of these treatments..

Table 23: Neonatal treatment given, all live births, South Australia, 2014

Neonatal treatment	Number	% of live births
None of the treatments listed below	17,334	84.1
Oxygen therapy for more than 4 hours	886	4.3
Phototherapy for jaundice	1,238	6.0
Gavage feeding more than once	1,527	7.4
Any intravenous therapy	2,277	11.1

24. Level of care* utilised

Table 24 shows that 84% of neonates utilised Level 1 - 3 care only. Level 4 -5 care was used by 15.9% of neonates, Level 6 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 4 -5 and Level 6 care.

Table 24: Level of nursery care* utilised by birthweight, all live births, South Australia, 2014

Level of care utilised	Birthweight (g)							
	<1,500 (n=210)		1,500-2,499 (n=1,152)		2,500+ (n=19,242)		Total (n=20,604)	
	Number	%	Number	%	Number	%	Number	%
Level 1 - 3 only	24	11.4	246	21.4	17,041	88.6	17,311	84.0
Level 4 - 5	178	84.8	905	78.6	2,191	11.4	3,274	15.9
Level 6 (W&CH & FMC)	164	78.1	168	14.6	179	0.9	511	2.5
Level 6 (W&CH Paediatric intensive care)	3	1.4	12	1.0	26	0.1	41	0.2

*Standards for Maternal and Neonatal Services in South Australia 2010

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 4.5 days (SD 10.4) and the median duration 3 days. The mean duration was 3.1 days (SD 4.9) for term births 19.9 days (SD 26.7) for preterm births, while the median durations were 3 and 12 days respectively.

Table 25: Length of stay of liveborn babies in hospital, South Australia, 2014

Length of stay (days)	Preterm births		Term births		Total	
	Number	%	Number	%	Number	%
<1	29	1.6	1,043	5.6	1,072	5.2
1	27	1.5	3,708	19.8	3,735	18.2
2	92	5.1	3,595	19.2	3,687	18.0
3	92	5.1	3,893	20.8	3,985	19.4
4	137	7.6	3,356	17.9	3,493	17.0
5	122	6.8	2,001	10.7	2,123	10.4
6	114	6.4	608	3.2	722	3.5
7-13	347	19.4	378	2.0	725	3.5
14-20	267	14.9	62	0.3	329	1.6
21-27	180	10.1	25	0.1	205	1.0
28 or more	384	21.4	42	0.2	426	2.1
Total	1,791	100.0	18,711	100.0	20,502	100.0

26. Congenital anomalies

Among the 20,749 births in 2014 there were 560 births (2.7%) notified with congenital anomalies, compared with an average of 2.5% over the past decade; 527 (2.5%) of these births had anomalies 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 4-digit classification of the ICD-9 (International Classification of Diseases. Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, 1975 Revision. Geneva: World Health Organisation, 1977). Table 26 includes births with the more readily identifiable defects used for international monitoring (sentinel defects) notified to the perinatal statistics collection in 2004-2014.

Terminations of pregnancy are not included in this table unless they meet a criterion for inclusion in the perinatal data collection, i.e. 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 anomalies notified to the perinatal statistics collection 2004-2014, South Australia.

Congenital abnormality	Year										
BPA* CODE	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number of births =	17,522	18,196	18,803	19,757	19,970	19,901	20,002	20,344	20,666	20,263	20,749
74000-74029 Anencephalus	1	0	1	1	1	3	1	2	2	2	1
74100-74199 Spina bifida	5	5	8	5	4	18	11	6	4	7	6
74200-74209 Encephalocele	0	1	1	2	1	0	1	0	1	2	2
74230-74239 Hydrocephalus	6	9	10	12	11	14	4	9	11	13	12
74900-74909 Cleft palate	10	15	11	12	9	11	12	11	14	12	13
74910-74929 Cleft lip and palate (Total cleft lip)	17	9	16	30	28	25	18	13	14	14	16
75030-75038 Tracheo-oesophageal fistula, oesophageal atresia and stenosis	2	5	4	12	5	6	3	6	5	7	8
75120-75124 Atresia and stenosis of large intestine, rectum and anal canal	6	12	4	7	9	7	9	10	5	8	5
75260-75261 Hypospadias and epispadias	41	38	29	41	40	39	44	43	38	44	42
75300-75301 Renal agenesis and dysgenesis	4	12	8	8	3	11	8	12	10	7	5
75520-75549 Limb reduction defects	8	8	13	18	9	8	13	8	15	17	10
75660-75669 Anomalies of diaphragm	4	7	12	7	9	9	6	5	1	8	8
75670-75679 Anomalies of abdominal wall	12	9	10	7	9	17	7	15	14	8	17
75800-75809 Down syndrome	14	19	17	17	21	22	14	16	19	14	15

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

27. Multiple births

Among women who gave birth there were 287 twin and 7 triplet pregnancies compared with 20,154 singleton ones in 2014. Thus there was one twin pregnancy in every 71 pregnancies, one triplet pregnancy in every 2,921 pregnancies among women who gave birth. Women who gave birth with twins and triplets comprised 1.4% of all women who gave birth. The total number of multiple births was 595 (2.9% of total births).

A comparison of multiple births with singletons shows that multiple births were of lower birthweight (with 57.1% being of low birthweight compared with 5.7% for singletons, Table 27a), and gestation (with 69.1% being preterm births compared with 7.5% for singletons, Table 27b). The proportion of live births in hospital at 28 days was 20.3% for multiple births compared with 1.6% for singletons. The perinatal death rate for multiple births was 31.9 compared with 8.2 deaths per 1,000 births for singletons, Table 27c).

Table 27a: Birthweight by plurality, all births, South Australia, 2014

Birthweight (g)	Singleton births		Multiple births	
	Number	%	Number	%
<400	48	0.2	12	2.0
400-499	28	0.1	2	0.3
500-749	44	0.2	9	1.5
750-999	44	0.2	9	1.5
1,000-1,499	91	0.5	35	5.9
1,500-1,999	201	1.0	93	15.6
2,000-2,499	687	3.4	180	30.3
2,500-2,999	3,110	15.4	206	34.6
3,000-3,499	7,709	38.3	44	7.4
3,500-3,999	6,087	30.2	4	0.7
4,000-4,499	1,851	9.2	0	0.0
4,500+	253	1.3	0	0.0
Unknown	1	0.0	1	0.2
Total	20,154	100.0	595	100.0

Table 27b: Gestation at birth by plurality all births, South Australia, 2014

Gestation (weeks)	Singleton births		Multiple births		Total	
	Number	%	Number	%	Number	%
<24	97	0.5	12	2.0	109	0.5
24-27	54	0.3	13	2.2	67	0.3
28-31	121	0.6	47	7.9	168	0.8
32-36	1,235	6.1	339	57.0	1,574	7.6
37-41	18,597	92.3	184	30.9	18,781	90.5
42+	50	0.2	0	0.0	50	0.2
Unknown	0	0.0	0	0.0	0	0.0
Total	20,154	100.0	595	100.0	20,749	100.0

Table 27c: Perinatal outcome by plurality, all births, South Australia, 2014

Perinatal outcome	Singleton births		Multiple births		Total	
	Number	%	Number	%	Number	%
Stillbirth	132	0.7	13	2.2	145	0.7
Discharged within 28 days	19,675	97.6	455	76.5	20,130	97.0
In hospital at 28 days	314	1.6	121	20.3	435	2.1
Neonatal death	33	0.2	6	1.0	39	0.2
Total	20,154	100.0	595	100.0	20,749	100.0

28. Perinatal mortality

High crude perinatal mortality rates were associated with low and high birthweight births (Table 28a), low gestation births (Table 28b) and multiple births (Table 27c).⁷ The perinatal mortality rate for all births (livebirths of any gestation and stillbirths of at least 400g birthweight/20 weeks gestation) in 2014 was 8.9 per 1,000 births. The stillbirth rate was 7 per 1,000 births and the neonatal mortality rate was 1.9 per 1,000 live births.

The relationship between perinatal mortality and birthweight is demonstrated in Table 28a and Figure 6. The highest perinatal mortality rate was observed for the lowest birthweight group weighing <500g (1,000 per 1,000). The lowest perinatal mortality rate of 0.5 per 1,000 births was observed for the birthweight groups of 3,500-3,999g and 4,000-4,499g. The perinatal mortality rate for the birthweight group 3,000-3,499 was 1.3 per 1,000 births, and the 4,500+g birthweight group was 7.9 per 1000 births. The perinatal mortality rate for babies of normal birthweight (2,500g or more) was 1.5 per 1,000 births. The decline in perinatal mortality with increasing gestational age is demonstrated in Table 28b.

More detail regarding perinatal mortality is available in the 'Maternal, Perinatal and Infant Mortality in South Australia' reports.³

Table 28a: Perinatal mortality by birthweight, all births, South Australia, 2014

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	60	11	49	816.7	11	1,000.0	60	1,000.0
400-499	30	5	25	833.3	5	1,000.0	30	1,000.0
500-749	53	30	23	434.0	9	300.0	32	603.8
750-999	53	43	10	188.7	1	23.3	11	207.5
1,000-1,499	126	121	5	39.7	3	24.8	8	63.5
1,500-1,999	294	288	6	20.4	1	3.5	7	23.8
2,000-2,499	867	864	3	3.5	2	2.3	5	5.8
2,500-2,999	3,316	3,308	8	2.4	5	1.5	13	3.9
3,000-3,499	7,753	7,744	9	1.2	1	0.1	10	1.3
3,500-3,999	6,091	6,089	2	0.3	1	0.2	3	0.5
4,000-4,499	1,851	1,850	1	0.5	0	0.0	1	0.5
4,500+	253	251	2	7.9	0	0.0	2	7.9
Unknown	2	0	2	1,000.0	0	.	2	1,000.0
Total	20,749	20,604	145	7.0	39	1.9	184	8.9

Figure 6: Perinatal mortality rate by birthweight, all births, South Australia, 2014

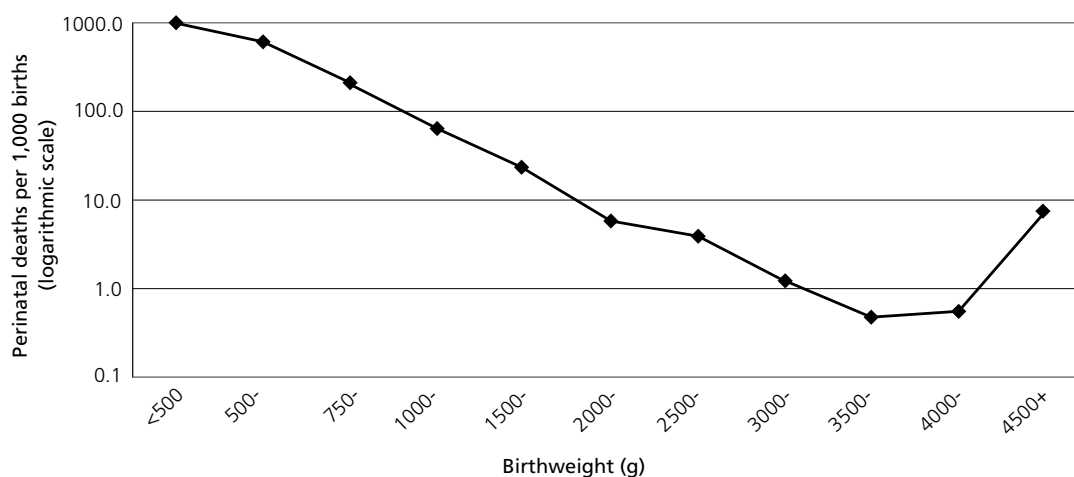


Table 28b: Perinatal mortality by gestational age at birth, South Australia, 2014

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	109	24	85	779.8	21	875.0	106	972.5
24-27	67	52	15	223.9	5	96.2	20	298.5
28-31	168	159	9	53.6	4	25.2	13	77.4
32-36	1,574	1,558	16	10.2	4	2.6	20	12.7
37-41	18,781	18,761	20	1.1	5	0.3	25	1.3
42+	50	50	0	0.0	0	0.0	0	0.0
Unknown	0	0	0	.	0	.	0	.
TOTAL	20,749	20,604	145	7.0	39	1.9	184	8.9

The perinatal mortality rates for other specified minimum birthweights or gestational ages (where birthweight was unavailable) are provided in Table 28c. The perinatal mortality rate recommended by the World Health Organisation (WHO) for use in international comparison refers only to stillbirths of at least 1,000g birthweight (or, if birthweight is unavailable, 28 weeks gestation) and to (early) neonatal deaths within the first 7 days of life. This rate was 2.4 per 1,000 births in 2014, with a stillbirth rate of 1.8 per 1,000 births and an early neonatal mortality rate of 0.4 per 1,000 live births. *The perinatal mortality rate for births to Aboriginal women was 12.5 per 1,000 births in 2014 compared with 8.7 per 1,000 births for births to non-Aboriginal women (Table 28d).*

Table 28c: Perinatal mortality, South Australia, 2014 (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*	20,749	20,604	145	7.0	39	1.9	184	8.9
≥500g/22 weeks	20,658	20,588	70	3.4	23	1.1	93	4.5
(WHO National Statistics)					17	0.8	87	4.2
≥1,000g/28 weeks	20,552	20,515	37	1.8	13	0.6	50	2.4
(WHO International Statistics)					9**	0.4	46	2.2

* There were 60 births of birthweight <400g

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

Table 28d: Perinatal mortality by race, all births, South Australia, 2014

Race	Total births	Stillbirths	Neonatal deaths	Alive at 28 days	Perinatal deaths	
	Number	Number	Number	Number	Number	Deaths per 1,000 births
Caucasian	15,966	107	29	15,830	136	8.5
<i>Aboriginal</i>	720	5	4	711	9	12.5
Asian	2,678	23	5	2,650	28	10.5
Other	1,385	10	1	1,374	11	7.9
Total	20,749	145	39	20,565	184	8.9

29. Home births

Supplementary Birth Records were received from home birth midwives regarding planned home births for 96 women which occurred at home in 2013. There were six unplanned home births in South Australia in 2014 which have been excluded from the planned home birth statistics. Four of these six women received no antenatal care. Ascertainment of planned home births occurring at home in South Australia for the year 2014 is estimated to be 85.7% (102 out of an estimated 119 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 babies born before arrival at the hospital into which the woman had been booked). This proportion was slightly increased from last year (84.3%). In addition, 17 women who planned to birth at home were transferred to hospital care before birth. Statistics for all 113 planned home births in 2014 are provided in Tables 29-32, by place of birth.

Table 29: Planned home births by age of women, South Australia, 2014

Age (years)	Birthed at home		Birthed in hospital		Total	
	Number	%	Number	%	Number	%
<20	8	8.3	1	5.9	9	8.0
20-24	24	25.0	5	29.4	29	25.7
25-29	33	34.4	10	58.8	43	38.1
30-34	27	28.1	0	0.0	27	23.9
35-39	4	4.2	0	0.0	4	3.5
40-44	0	0.0	1	5.9	1	0.9
Total	96	100.0	17	100.0	113	100.0

Table 30: Method of birth in planned home births, South Australia, 2014

Method of birth	Birthed at home		Birthed in hospital		Total	
	Number	%	Number	%	Number	%
Normal spontaneous vaginal	95	99.0	12	70.6	107	94.7
Forceps	0	0.0	1	5.9	1	0.9
Elective caesarean section	0	0.0	0	0.0	0	0.0
Emergency caesarean section	0	0.0	4	23.5	4	3.5
Ventouse	0	0.0	0	0.0	0	0.0
Breech spontaneous	1	1.0	0	0.0	1	0.9
Total	96	100.0	17	100.0	113	100.0

Table 31: Birthweight distribution of planned home births, South Australia, 2014

Birthweight (g)	Birthed at home		Birthed in hospital		Total	
	Number	%	Number	%	Number	%
1,500-1,999	0	0.0	0	0.0	0	0.0
2,000-2,499	0	0.0	1	5.9	1	0.9
2,500-2,999	6	6.3	2	11.8	8	7.1
3,000-3,499	27	28.1	6	35.3	33	29.2
3,500-3,999	43	44.8	6	35.3	49	43.4
4,000-4,499	18	18.8	1	5.9	19	16.8
4,500+	2	2.1	1	5.9	3	2.7
Total	96	100.0	17	100.0	113	100.0

Table 32: Perinatal outcome in planned home births, South Australia, 2014

Perinatal outcome	Birthed at home		Birthed in hospital		Total	
	Number	%	Number	%	Number	%
Stillbirth	-	-	-	-	-	-
Discharged within 28 days	96	100.0	16	94.1	112	99.1
Discharged within 28 days	0	0.0	1	5.9	1	0.9
Neonatal death	-	-	-	-	-	-
Total	96	100.0	17	100.0	113	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 Hospital and Flinders Medical Centre. The units at the Women's and Children's Hospital and the Lyell McEwin Hospital were established in 1992 and 1993 respectively under the Alternative Birthing Services Programme. In October 1996 the birthing unit at Flinders Medical Centre commenced a birthing service.⁵ These statistics relate to all 2,277 women for whom it was reported that 'birthing unit' was their intended place of birth. Of these women, 1,232 gave birth in the birthing units while 1,045 women (45.9%) 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. Among the women who gave birth in labour wards, 29.2% had caesarean sections and 17.4% had instrumental births. These statistics have also been included in the statistics for the respective hospitals. Sixty-three babies (2.8%) were of low birthweight and there were 2 perinatal deaths (perinatal mortality rate 0.9 per 1,000 births).

Table 33: Planned birthing unit births by age of women, South Australia, 2014

Age (years)	Birthed in birthing unit		Birthed in labour ward		Total	
	Number	%	Number	%	Number	%
<20	60	4.9	52	5.0	112	4.9
20-24	244	19.8	155	14.8	399	17.5
25-29	425	34.5	359	34.4	784	34.4
30-34	353	28.7	325	31.1	678	29.8
35-39	132	10.7	128	12.2	260	11.4
40-44	18	1.5	26	2.5	44	1.9
45+	-	-	-	-	-	-
Total	1,232	100.0	1,045	100.0	2,277	100.0

Table 34 Method of birth in planned birthing unit births, South Australia, 2014

Method of birth	Birthed in birthing unit		Birthed in labour ward		Total	
	Number	%	Number	%	Number	%
Normal spontaneous vaginal	1,184	96.1	555	53.1	1,739	76.4
Forceps	10	0.8	99	9.5	109	4.8
Assisted breech (no forceps)	1	0.1	3	0.3	4	0.2
Caesarean section (elective)	0	0.0	36	3.4	36	1.6
Caesarean section (emergency)	0	0.0	269	25.7	269	11.8
Ventouse	36	2.9	81	7.8	117	5.1
Breech spontaneous	1	0.1	0	0.0	1	0.0
Assisted breech (forceps)	0	0.0	2	0.2	2	0.1
Total	1,232	100.0	1,045	100.0	2,277	100.0

Table 35: Birthweight distribution of planned birthing unit births, South Australia, 2014

Birthweight (g)	Birthed in birthing unit		Birthed in labour ward		Total	
	Number	%	Number	%	Number	%
<1,500	0	0.0	9	0.9	9	0.4
1,500-1,999	0	0.0	9	0.9	9	0.4
2,000-2,499	9	0.7	36	3.4	45	2.0
2,500-2,999	134	10.9	137	13.1	271	11.9
3,000-3,499	468	38.0	380	36.3	848	37.2
3,500-3,999	430	34.9	336	32.1	766	33.6
4,000-4,499	164	13.3	122	11.6	286	12.5
4,500+	27	2.2	19	1.8	46	2.0
Total	1,232	100.0	1,048	100.0	2,280	100.0

Table 36: Perinatal outcome in planned birthing unit births, South Australia, 2014

Perinatal outcome	Birthed in birthing unit		Birthed in labour ward		Total	
	Number	%	Number	%	Number	%
Stillbirth	0	0.0	2	0.2	2	0.1
Discharged within 28 days	1,231	99.9	1,033	98.6	2,264	99.3
Prolonged hospitalisation (in hospital at 28 days)	1	0.1	13	1.2	14	0.6
Neonatal death	0	0.0	0	0.0	0	0.0
Total	1,232	100.0	1,048	100.0	2,280	100.0

III. Terminations of Pregnancy

1. Numbers and rates

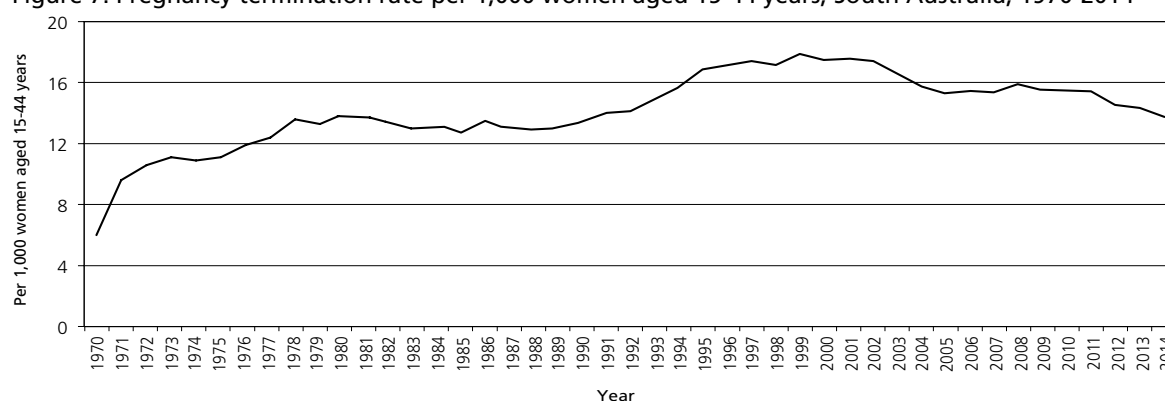
There were 4,650 terminations of pregnancy notified in South Australia in 2014, 31 fewer than in 2013. There were 13.8 terminations of pregnancy per 1,000 women aged 15-44 years. Following the introduction of specific legislation in 1970, the pregnancy termination rate rose to a peak of 13.9 in 1980, followed by a period of relative stability in the 1980s, with another increase commencing in 1991 which reached a peak of 17.9 in 1999. The rate declined to 15.3 in 2005; remained relatively stable until 2011, and has since continued to decline (Table 1 and Figure 1).

Table 37: Number* of pregnancy terminations, and rate per 1,000 women aged 15-44 years, South Australia, 1970-2014

Year	Number	Rate	Year	Number	Rate
1970	1,440	6.0	1993	4,959	15.0
1971	2,409	9.6	1994	5,140	15.7
1972	2,692	10.6	1995	5,475	16.9
1973	2,847	11.1	1996	5,545	17.2
1974	2,867	10.9	1997	5,609	17.5
1975	3,000	11.1	1998	5,488	17.2
1976	3,289	11.9	1999	5,679	17.9
1977	3,494	12.4	2000	5,580	17.6
1978	3,895	13.6	2001	5,579	17.7
1979	3,880	13.3	2002	5,467	17.5
1980	4,081	13.9	2003	5,216	16.7
1981	4,096	13.7	2004	4,931	15.9
1982	4,061	13.4	2005	4,715	15.3
1983	4,036	13.1	2006	4,889	15.5
1984	4,091	13.1	2007	4,885	15.4
1985	4,079	12.9	2008	5,101	16.0
1986	4,327	13.5	2009	5,057	15.6
1987	4,229	13.1	2010	5,048	15.5
1988	4,263	13.0	2011	5,010	15.5
1989	4,342	13.2	2012	4,765	14.7
1990	4,463	13.4	2013	4,681	14.4
1991	4,496	14.1	2014	4,650	13.8
1992	4,717	14.2			

*The corrected total numbers of pregnancy terminations notified for the years 1970 - 2013 are shown in Table 37

Figure 7: Pregnancy termination rate per 1,000 women aged 15-44 years, South Australia, 1970-2014



2. Age of women

The age distribution of women who had pregnancies terminated is shown in Table 38. Among the five- year age groups (Table 39), the highest pregnancy termination rate was among women aged 20-24 years (21.4 per 1,000 women), followed by women aged 25-29 years (19.3 per 1,000 women). Pregnancy termination rates continued to fall for teenage women, from 12.2 per 1,000 women in 2013 to 10.3 per 1,000 women aged 15-19 years in 2014. The teenage pregnancy rate (including live births and induced abortions) continued to decline, and in 2014 was the lowest on record for the state at 22.1 per 1,000 women aged 15-19 years compared with 25.3 in 2013. The 'abortion proportion' (induced abortion as a proportion of induced abortions and live births) was 0.18. It was highest among teenagers (0.47), and was also high among women aged 20-24 years (0.31) and older women aged over 45 years (0.23). This indicated that about 47% of known teenage pregnancies were terminated. This proportion was highest for younger teenagers (0.80 for those aged <15 years).

Table 38: Terminations of pregnancy by age, South Australia, 2014

Age (years)	Number	% of terminations under 20 years	% of all terminations
11	0	0.0	0.0
12	0	0.0	0.0
13	2	0.4	0.0
14	6	1.1	0.1
15	24	4.3	0.5
16	60	10.8	1.3
17	97	17.5	2.1
18	157	28.4	3.4
19	207	37.4	4.5
Sub-total	553	100.0	11.9
Under 15	8		0.2
15-19	545		11.7
20-24	1,256		27.0
25-29	1,135		24.4
30-34	902		19.4
35-39	561		12.1
40-44	228		4.9
45 and over	15		0.3
Total	4,650		100.0

The age distribution of pregnancy terminations and live births by age in South Australia in 2014 (Table 39 and Figure 8a) demonstrated that women aged 20-24 years had the highest rate of induced abortions (21.4 per 1,000 women), while women aged 30-34 years had the highest fertility (live birth) rate of 125.7 per 1,000 women. Teenagers accounted for 11.9% of women who had pregnancies terminated and 3.1% of women who had live births in South Australia in 2012. The teenage pregnancy rate continued to decline and was associated with a decline in both the teenage birth and teenage pregnancy termination rate (Figure 8b). The teenage pregnancy rate in 2014 was 22.1 per 1,000 women aged 15-19 years, and was the lowest rate recorded since 1970.

Table 39: Termination of pregnancy and live birth rates and termination of pregnancy proportions by age, South Australia, 2014

Age (years)	Number of termination of pregnancy	Estimated resident female population August 4 2014*	Termination of pregnancy rate per 1,000 women	Number of live births#	Fertility rate per 1,000 women	Termination of pregnancy + live births	Abortion proportion
<15	8	na	na	2	na	10	0.80
15-19	545	53,613	10.3	630	±10.8	1175	0.46
20-24	1,256	58,816	21.4	2,771	47.1	4,027	0.31
25-29	1,135	58,902	19.3	5,898	100.1	7,033	0.16
30-34	902	56,023	16.1	7,042	125.7	7,944	0.11
35-39	561	51,536	10.9	3,453	67.0	4,014	0.14
40-44	228	56,995	±4.3	760	±14.1	988	0.23
45+	15	na	na	44	na	59	0.25
Total	4,650	335,885	13.8	20,600	60.4	25,250	0.18

*Australian Bureau of Statistics. Population Estimates by Age and Sex, South Australia 2014. Canberra: ABS, 2014 (Catalogue No 3235.0).

#Terminations of pregnancy are excluded from the numbers of live births.

±The termination of pregnancy 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.

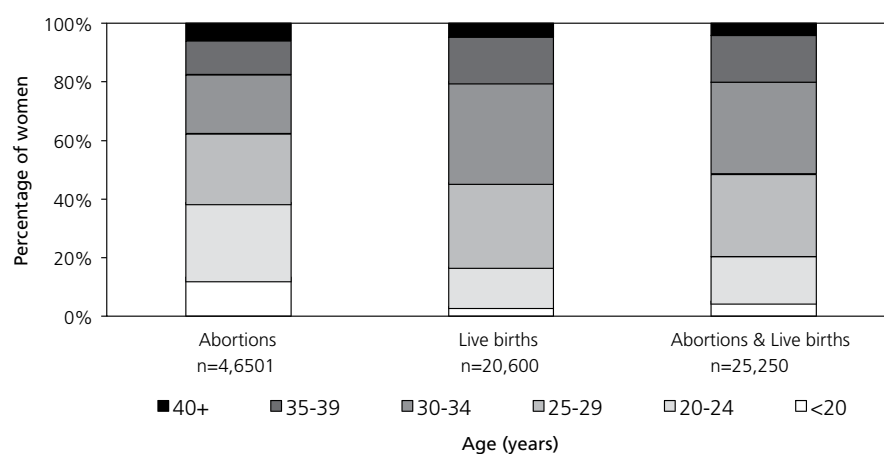
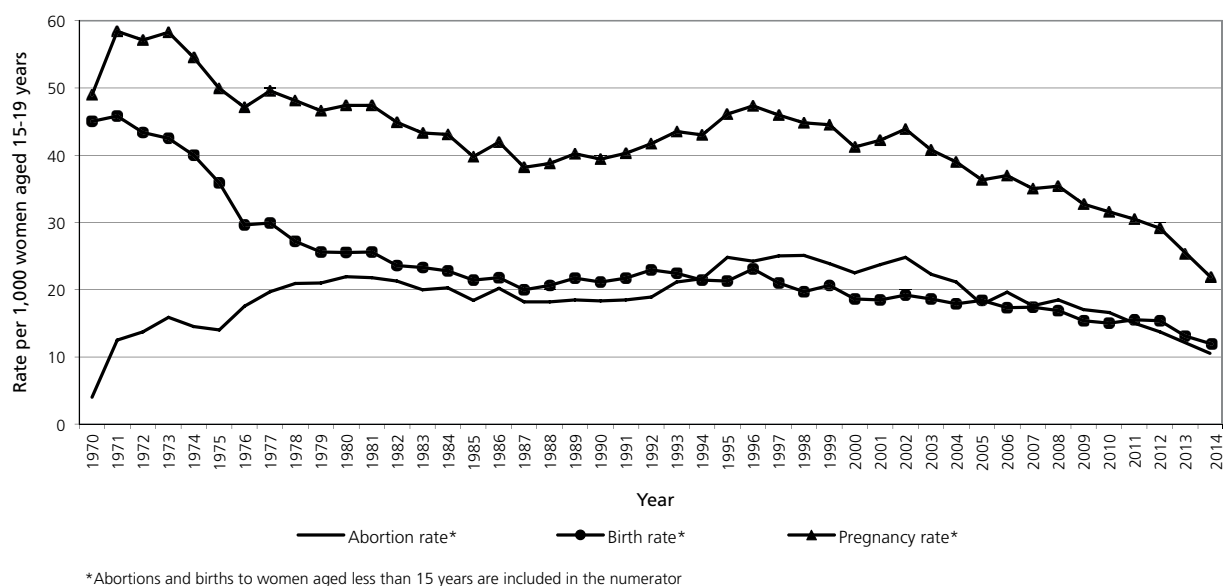
Figure 8a: Termination of pregnancy and live births by age, South Australia, 2014

Figure 8b: Teenage pregnancy, termination of pregnancy and birth rates, South Australia, 1970-2014

3. Place of residence and place where termination performed

The proportion of pregnancy terminations to country residents (18.9%) was similar to previous years. As in previous years, the proportion of pregnancy terminations performed in country hospitals was relatively lower (1.6%), indicating that the majority of country residents had their terminations in metropolitan hospitals (Table 40).

Table 40: Terminations by place of residence, South Australia, 2014

Residence of women	Number	%
Metropolitan	3,754	81.1
Country	877	18.9
Total	4,631	100.0

As in previous years, the vast majority of terminations (97.5%) were performed in metropolitan public hospitals, including 57.4% (2,603) at the Pregnancy Advisory Centre (Table 41).

Table 41: Terminations by hospital category, South Australia, 2014

Hospital where termination performed	Number	%
Metropolitan public	4,533	97.5
Metropolitan private	43	0.9
Country	74	1.6
Total	4,650	100.0

Doctors in family advisory clinics in teaching hospitals and the Pregnancy Advisory Centre performed 76.9% of the terminations. Obstetricians and trainee obstetricians performed 22.3%, while general practitioners performed 0.8% (Table 42).

Table 42: Terminations by category of doctor, South Australia, 2014

Category of doctor performing termination	Number	%
Medical practitioner in family advisory clinic	3,578	76.9
Obstetrician/gynaecologist	759	16.3
Trainee obstetrician/gynaecologist	277	6.0
General practitioner	36	0.8
Total	4,650	100.0

4. The reason for termination

The pattern of reasons for termination of pregnancy remained similar to previous years, with 95.4% performed for the woman's mental health, 3.7% for serious handicap of the fetus and 0.7% for specified medical conditions. Of the 174 terminations for fetal reasons, 69 were for chromosomal abnormalities and 103 for other fetal abnormalities detected or suspected prenatally. Two were performed for exposure during pregnancy to drugs, which may cause fetal abnormalities (Table 43).

Table 43: Reason for termination for fetal reasons, South Australia, 2014

Reason for termination	Number	%
Identified chromosomal abnormality	69	39.7
Other identified fetal abnormality	103	59.2
Possibility of damage from drugs	2	1.1
Total	174	100.0

5. Gestation, method and complications

The majority of terminations (91.0%) were performed within the first 14 weeks of pregnancy and most frequently (in 67.2% of cases) by vacuum aspiration/dilatation and curettage. There were 107 terminations performed at 20 weeks gestation or later: 48.6% of these were performed for fetal reasons.

Tables 44a and 44b report complications by the number of women undergoing termination procedures (4,650), which included four failed procedures - three medical and one surgical, with each then progressing to a successful surgical procedure.

There were 62 (2.2%) women who experienced complications related to a pregnancy termination. Twenty (32.3%) of these were reported on the notification form, and 42 (67.7%) were identified through validation with hospital admission statistics from the South Australian hospital morbidity collection, using codes for pregnancy termination for women admitted in to hospital. The notification form tends to identify more immediate complications.

The main complication reported was retained products of conception (41 cases). Of the 33 women with complications reported following termination with mifepristone +/- misoprostol, 28 (84.8%) were due to retained products.

Table 44a: Complications of termination procedures, South Australia, 2014

Complication	Number of complications	% of complications	% of all termination procedures
Retained products of conception	41	66.1	1.4
Uterine infection	6	9.7	0.2
Bleeding	1	1.6	0.0
Sepsis	1	1.6	0.0
Haemorrhage–post-operative	4	6.5	0.1
Haemorrhage–intra-operative	1	1.6	0.0
Failed procedure	4	6.5	0.1
Other	4	6.5	0.1
Total	62	100.0	2.2

Table 44b: Complications by method of termination procedure, South Australia, 2014

Method of termination	Number of women with complications	Number of termination procedures	% of termination procedure with complications by method
Mifepristone +/- Misoprostol	33	1,090	3.0
Vacuum aspiration	19	3,125	0.6
Dilatation and curettage	5	376	1.3
Vaginal prostaglandin eg Cervagem	2	31	6.5
Dilatation and evacuation	5	376	1.3
Misoprostol	3	24	12.5
Hysterotomy			
Other	0	2	0.0
Total	62	4,650	1.3

6. Previous terminations. Total termination of pregnancy rate and total first termination of pregnancy rate

Of the 4,650 women who had terminations, 1,676 (36.0%) had undergone a previous termination (Table 45a). Among the teenagers 13.4% had a previous termination; 30.3% of women aged 20-24 years and 44.2% of women aged 35-39 years had undergone a previous termination.

The total induced abortion rate (TAR) is the sum of pregnancy termination rates for each of the five-year age groups multiplied by five. This can be calculated using the rates in Table 39 and in 2014 was 410.9 per 1,000 women aged 15-44 (Table 45b). This represents the number of induced abortions 1,000 women would have during their lifetime if they experienced the induced abortion rates of the different age groups for 2014.

A woman may have more than one termination of pregnancy in her lifetime, and to estimate how prevalent termination of pregnancy is at these age-specific induced abortion rates, a total first induced abortion rate (TFAR, Table 45c) may be calculated after excluding women with repeat terminations. The TFAR for 2014 was 262.9 per 1,000 women aged 15-44 years. This suggests that 26.3% of women would have at least one termination of pregnancy in their lifetime if they experienced the termination of pregnancy rates of the different age groups for 2014.

Table 45a: Women with previous terminations by age, South Australia, 2014

Age (years)	Number	% of age group	% of all terminations
< 15	0	0.0	0.0
15 - 19	73	13.4	1.6
20 - 24	381	30.3	8.2
25 - 29	462	40.7	9.9
30 - 34	401	44.5	8.6
35 - 39	248	44.2	5.3
40+	111	45.7	2.4
Total	1,676	36.0	36.0

Further details of termination of pregnancy in South Australia in 2014 may be obtained from the Annual Report of the South Australian Abortion Reporting Committee – for the year 2014.⁶

Table 45b: Calculation of total induced abortion rate (TAR), South Australia, 2014*

Age (years)	Number of women who had terminations	Estimated female resident population 30 June 2014	Termination of pregnancy rate per 1,000 women
15-19*	553	53,613	10.3
20-24	1,256	58,816	21.4
25-29	1,135	58,902	19.3
30-34	902	56,023	16.1
35-39	561	51,536	10.9
40-44*	243	56,995	4.3
Total	4,650	335,885	13.8

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

Total induced abortion rate (TAR) = sum of termination of pregnancy rates for 5-year age groups x 5 = 82.2 x 5 = 410.9 per 1,000 women aged 15-44 years.

Table 45c: Calculation of total first induced abortion rate (TFAR), South Australia, 2014

Age (years)	Number of women who had terminations (A)	Number of women who had previous terminations (B)	Number of women who had first termination (A) – (B)	Estimated female resident population 30 June 2014*	First termination of pregnancy rate per 1,000 women
15-19	553	73	480	53,613	9.0
20-24	1,256	381	875	58,816	14.9
25-29	1,135	462	673	58,902	11.4
30-34	902	401	501	56,023	8.9
35-39	561	248	313	51,536	6.1
40-44	243	111	132	56,995	2.3
Total	4,650	1,676	2,974	335,885	8.9

* Australian Bureau of Statistics. Population Estimates by Age and Sex, South Australia 30 June 2014. Canberra: ABS, 2014(Catalogue No 3235.0).

#In these calculations, termination of pregnancy for women under 15 years are included in the age group 15-19 years and termination of pregnancy for women aged 45 years or more are included in the age group 40-44 years.

Total induced abortion rate (TFAR) = sum of first termination of pregnancy rates for 5-year age groups x 5 = 52.6 x 5 = 262.9 per 1,000 women aged 15-44 yrs.

IV. Obstetric Profiles by Hospital Category

Obstetric profiles for the three major metropolitan public hospitals and three hospital categories for 2014 are provided in Table 46 and Figures 9-28. They were also reported for hospital categories and individual hospitals in the Pregnancy and Neonatal Care Bulletins.

These hospital categories as determined by their Perinatal Service Delineation, defined in the Standards for Maternal and Neonatal Services in South Australia, and are provided in parentheses:

1. The Women's & Children's Hospital (5:6)
2. Flinders Medical Centre (6:6)
3. The Lyell McEwin Hospital (6:5)
4. metropolitan private hospitals (4:4 to 6:5)
5. two Level 4:4 country hospitals (Mount Gambier and Port Augusta)
6. other country hospitals (3:3).

One mother who gave birth at the Queen Elizabeth has been excluded from these hospital category statistics. 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 six hospital categories.

The 'mean' is the proportion for women who gave birth in all state hospitals (for maternal factors) or births in all state hospitals (for baby factors), e.g. % Aboriginal women

$$\frac{\text{Number of Aboriginal women who gave birth in state hospitals}}{\text{Total number of women who gave birth in state hospitals}} \times 100$$

Where indicated (+) in Table 46, it is the mean (number of women who gave birth, or births) for the 22 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 Hospital
4. Ashford Hospital
5. Burnside War Memorial Hospital Inc
6. Calvary Healthcare Adelaide
7. Flinders Private Hospital
8. North Eastern Community Hospital
9. Mount Gambier & District Health Service Inc
10. Port Augusta Hospital & Regional Health Service Inc
11. Barossa Health (Tanunda Centre)
12. Gawler Health Service
13. Mount Barker District Soldiers' Memorial Hospital Inc
14. Murray Bridge Soldiers' Memorial Hospital Inc
15. Naracoorte Health Service Inc
16. Northern Yorke Peninsula Regional Health Service (Walleroo)
17. Port Lincoln Health Service Inc
18. Port Pirie Regional Health Service Inc

19. Riverland General Hospital (Berri)
20. South Coast District Hospital Inc (Victor Harbor)
21. The Whyalla Hospital & Health Services Inc
22. Country hospitals with <100 births per year

The 10th percentile is the proportion below which 10% of the 22 hospital proportions, i.e. the two lowest hospital proportions, would be found if the 22 proportions were ranked from highest to lowest. The 90th percentile is the proportion above which 10% of the 22 hospital proportions, i.e. the two highest proportions, would be found if the 22 proportions were ranked from highest to lowest. As the two Level III hospitals which account for 40.6% 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 20 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 three major metropolitan public hospitals and three hospital categories. 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, a group report has been provided.

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

Table 46: Obstetric profiles by hospital category, South Australia, 2014: live births and stillbirths of ≥ 400 g or ≥ 20 weeks gestation#

Factors	All state hospitals			Metropolitan hospitals				Country hospitals	
	Mean	10th percentile	90th percentile	W&CH	FMC	LMH	Private	Level 4:4	Other
Maternal factors									
Women (n= 20,345)	925 ⁺	120	3,486	4,734	3,486	3,594	4,594	936	3,001
% Aboriginal women	3.5	0.0	9.5	4.2	2.9	4.0	0.2	12.6	4.8
% Antenatal visits <7*	9.5	0.8	13.1	15.5	12.1	13.1	1.2	7.9	6.0
% Teenage women	3.1	0.0	7.5	2.7	2.7	6.0	0.1	5.0	4.9
% Women ≥ 35 years	20.5	12.2	32.1	21.7	18.6	13.7	31.6	12.7	14.7
% Single women	8.9	1.9	18.1	11.8	8.8	11.7	1.8	13.8	10.5
% 4+ prior live births	3.3	0.4	5.8	3.7	2.7	6.4	0.5	5.7	3.6
% 1+ prior perinatal deaths	1.3	0.2	1.6	2.1	1.6	1.3	0.8	1.4	0.8
% Obstetric complications	39.6	23.2	42.7	41.6	54.7	45.4	29.7	36.9	27.8
% Labour complications	37.9	24.0	42.9	46.2	50.6	37.6	25.8	26.5	32.0
% Induction	32.4	23.2	36.7	34.3	32.6	30.9	35.2	29.2	27.5
% Emergency caesarean	17.4	14.1	20.2	16.3	20.2	17.8	16.6	16.3	16.7
% Elective caesarean	16.7	8.8	24.9	13.3	15.8	14.1	25.3	17.1	13.1
% Total caesarean	34.1	23.8	41.9	29.6	36.0	31.8	41.9	33.4	29.7
% Ultrasound examination*	97.5	92.0	98.9	98.8	98.9	98.0	95.9	97.4	95.9
% Amniocentesis*	2.5	0.6	2.9	4.3	2.1	2.7	1.7	0.7	1.7
% Episiotomy	14.4	4.4	18.6	16.5	14.3	14.6	17.8	5.7	8.7
% Repair of perineal tear	25.5	17.1	32.9	32.6	22.7	20.1	26.0	18.4	25.2
% Epidural analgesia	29.4	13.0	45.3	27.7	25.9	28.5	43.4	16.5	19.7
% Spinal analgesia	0.9	0.2	2.3	0.0	0.9	1.6	0.9	1.6	1.5
% Private patients	26.6	0.9	100.0	7.5	0.9	0.6	100.0	13.4	9.2
% Primiparous women	41.9	32.4	46.5	43.8	44.1	38.6	45.7	33.3	37.0
% Previous caesarean	17.8	14.7	24.8	16.3	17.9	17.5	20.4	19.4	16.3
% PPH	12.9	3.0	15.6	20.4	14.5	14.8	5.0	7.8	10.5
Baby factors									
Births (n= 20,148)	938	120	3,538	4,863	3,538	3,632	4,659	951	3,003
% Birthweight <2,500g	7.2	1.1	7.1	13.1	8.3	6.6	4.0	6.2	2.2
% Gestational age <37 weeks at birth	9.3	0.5	11.4	14.8	11.4	8.9	7.0	10.5	1.4
% Prolonged hospitalisation (>27 days)	2.1	0.0	2.6	4.5	3.4	0.7	1.1	0.6	0.4
% Neonatal intensive care (Level III or W&CH paediatric intensive care)	2.5	0.0	2.4	5.4	4.4	1.1	0.7	1.1	0.8
% Birth defect	2.7	1.0	2.9	5.0	1.9	3.0	1.5	2.2	1.8

* adjusted for missing values

+ mean number of women who gave birth, or mean number of births for the 22 hospitals or groups of hospitals

1 mother who gave birth at the TQEH has been excluded from this table

Figure 9: Percentage of Aboriginal women by hospital category

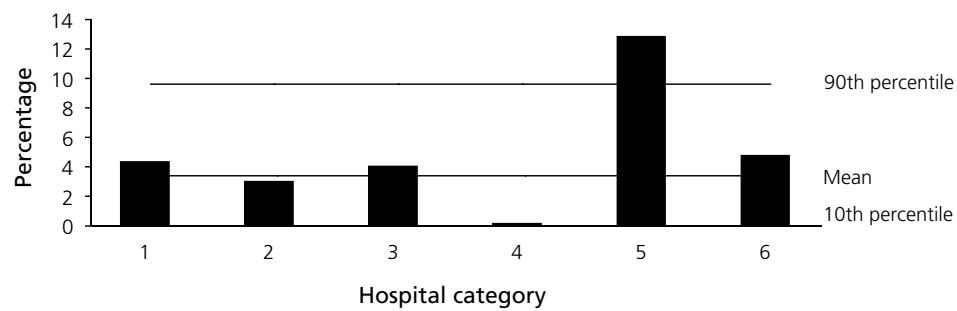


Figure 10: Percentage of women with <7 antenatal visits by hospital category

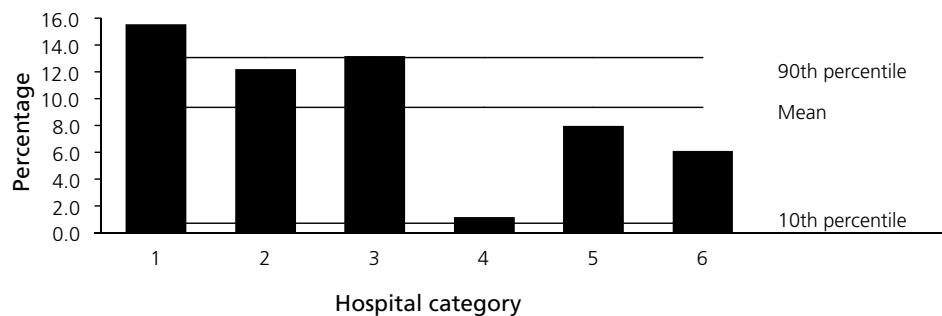


Figure 11: Percentage of teenage women by hospital category

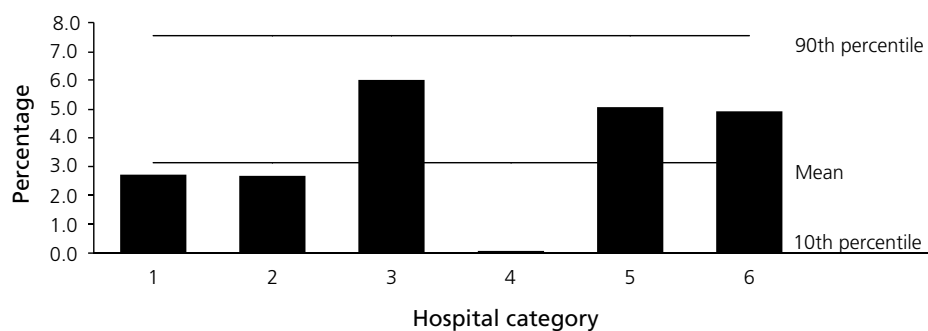


Figure 12: Percentage of women 35 years or more by hospital category

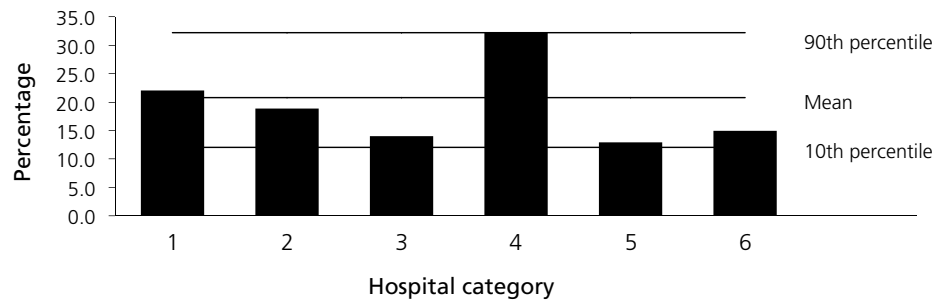


Figure 13: Percentage of single women by hospital category

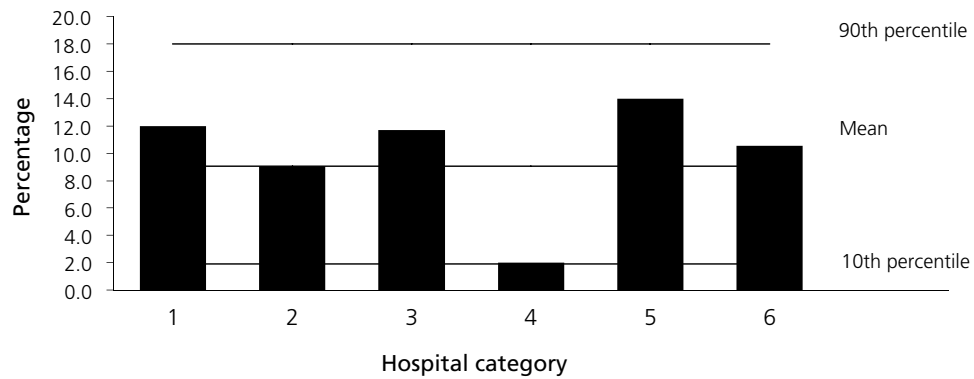


Figure 14: Percentage of women with 4 or more prior livebirths by hospital category

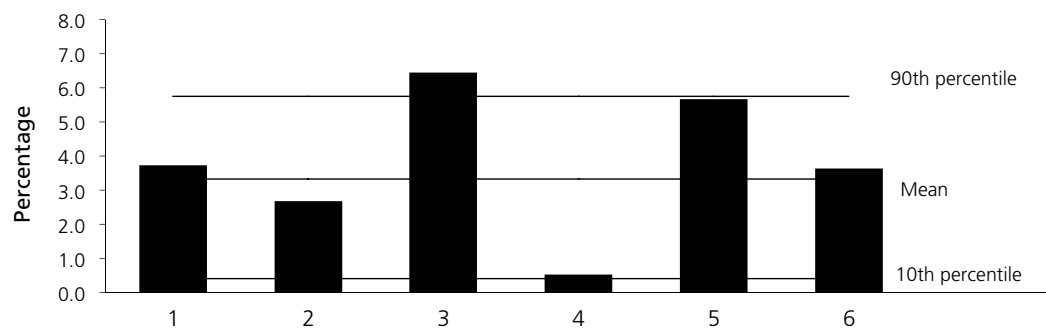


Figure 15: Percentage of women with 1 or more prior perinatal deaths by hospital category

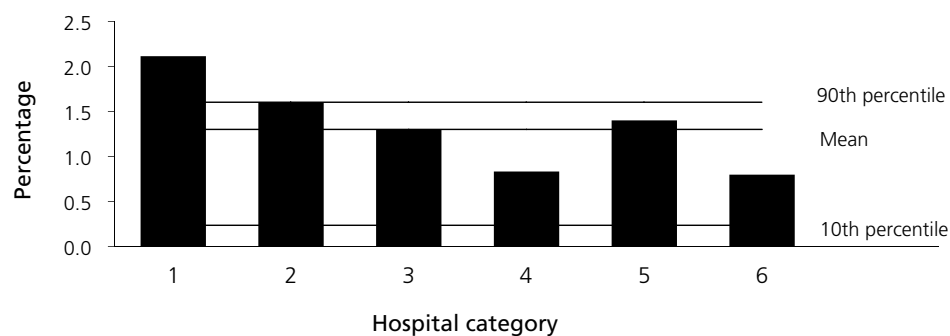


Figure 16: Percentage of women with obstetric complications by hospital category

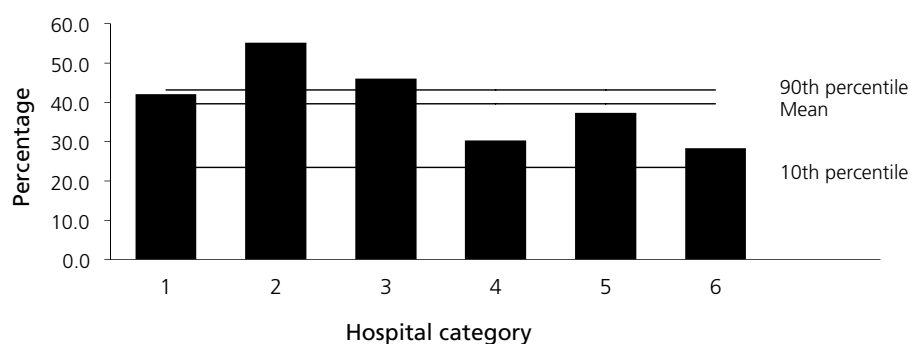


Figure 17: Percentage of women with complications during labour or birth by hospital category

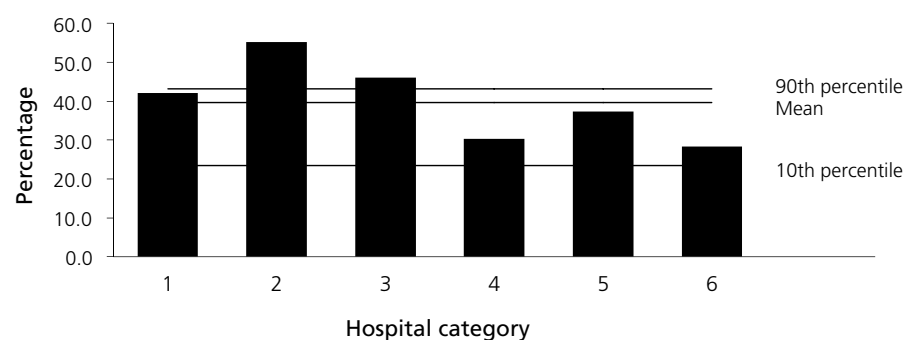


Figure 18: Percentage of women with induction of labour by hospital category

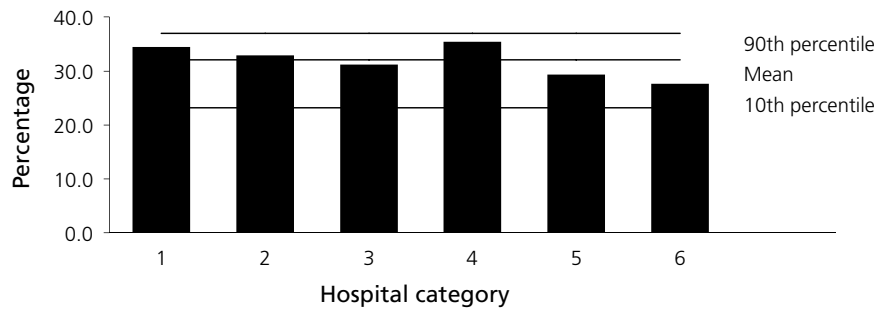


Figure 19: Percentage of women having epidural analgesia by hospital category

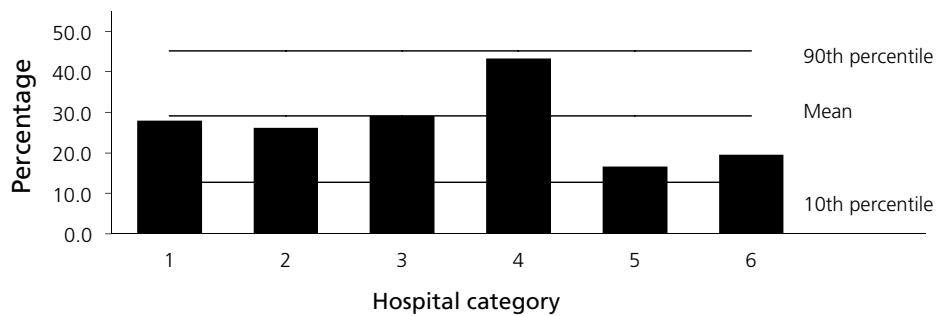


Figure 20: Percentage of breech births by hospital category

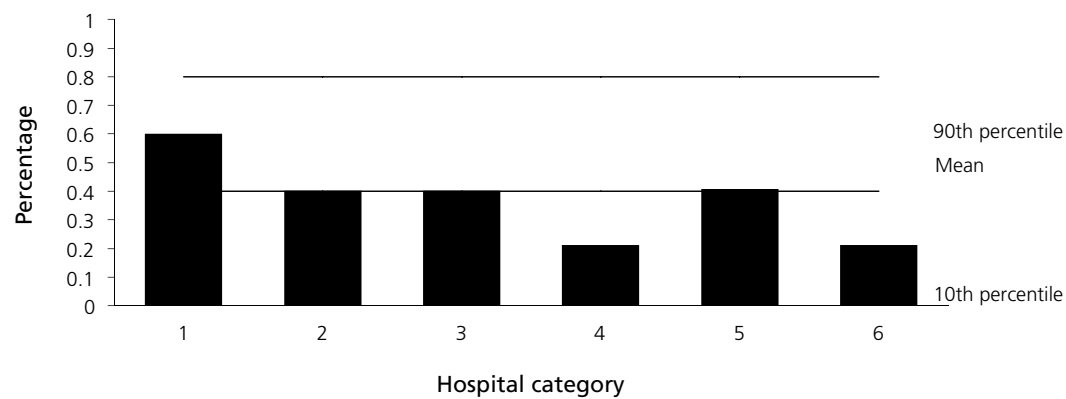


Figure 21: Percentage of emergency caesarean sections by hospital category

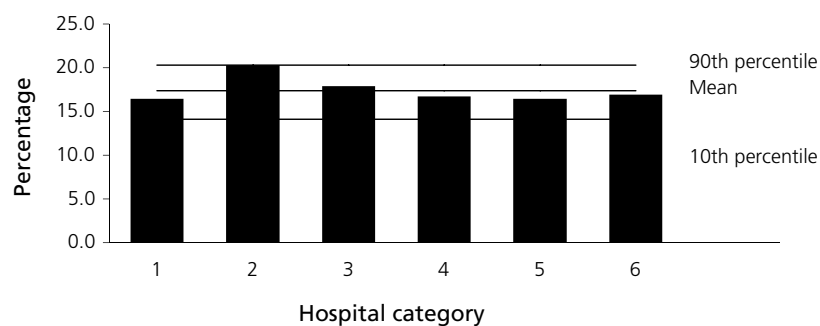


Figure 22: Percentage of elective caesarean sections by hospital category

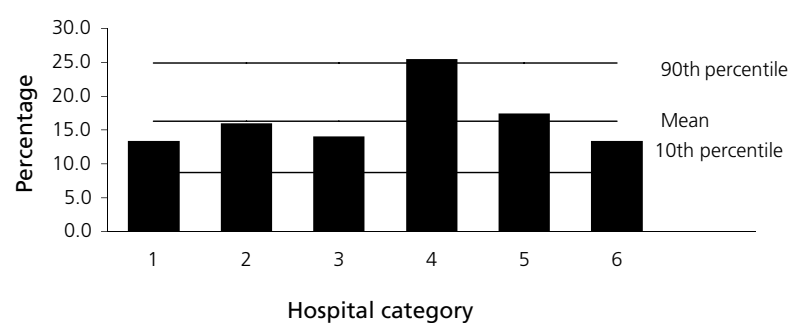


Figure 23: Percentage of total caesarean sections by hospital category

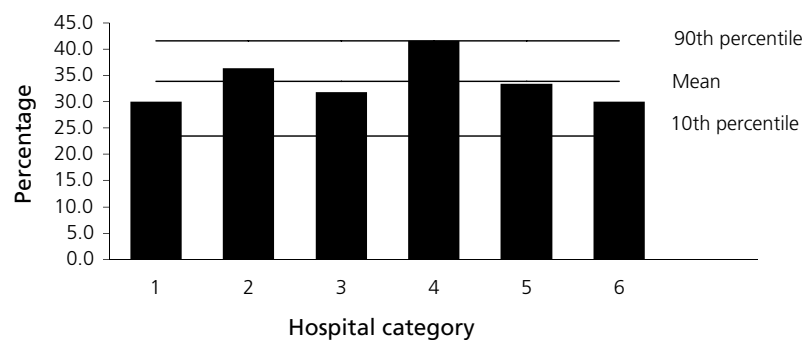


Figure 24: Percentage of births with birthweight below 2,500g by hospital category

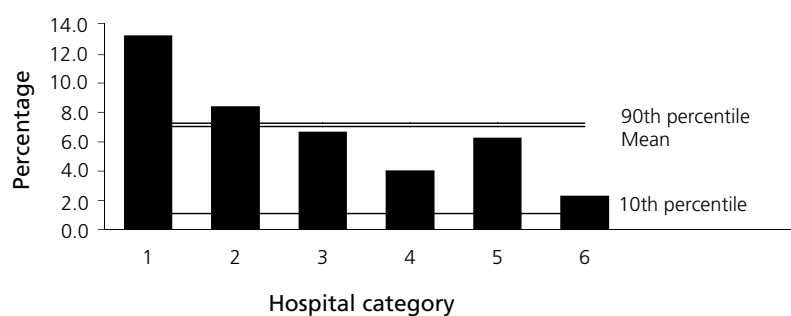


Figure 25: Percentage of births with gestation less than 37 weeks by hospital category

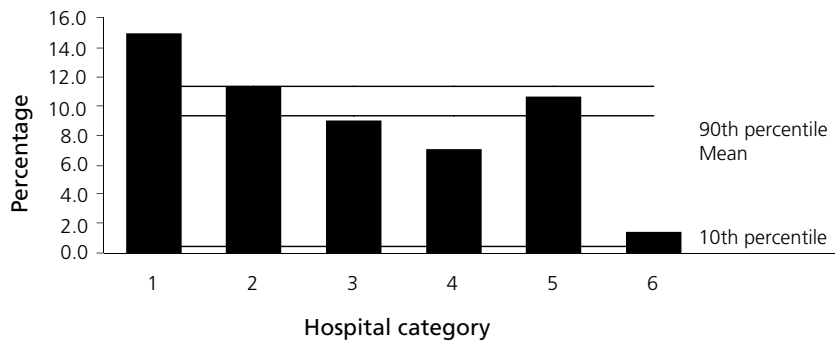


Figure 26: Percentage of births with prolonged hospitalisation by hospital category

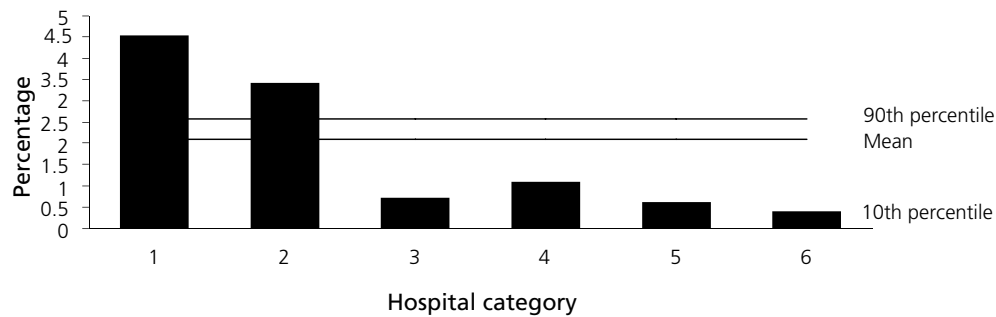


Figure 27: Percentage of live births requiring neonatal intensive care by hospital category

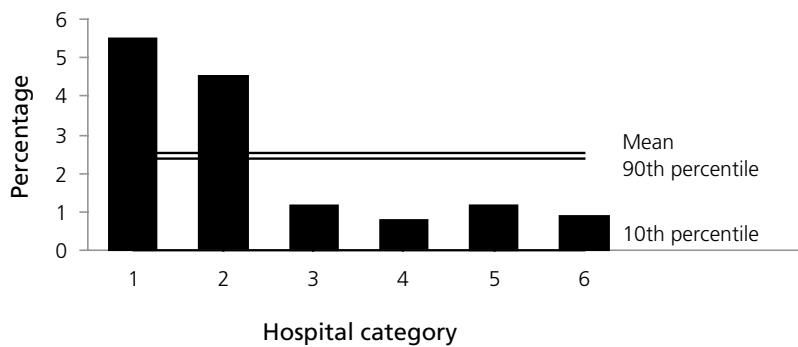
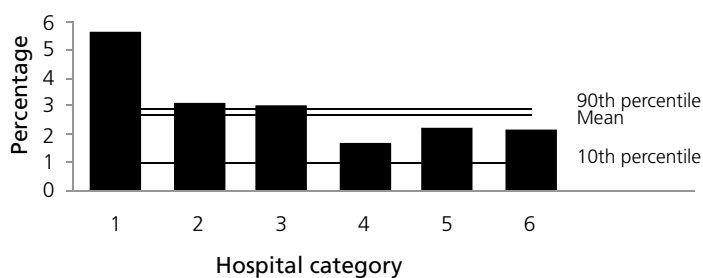


Figure 28: Percentage of births with birth defects by hospital category



V. Clinical and Maternity Performance Indicators

1. Clinical indicators

Ten national core maternity indicators have been developed to examine trends in maternity interventions and outcomes and the quality of maternity services in the years after the introduction of the National Maternity Services Plan.⁹ This report presents these indicators with 95% Confidence Intervals (CI) for South Australian births in 2014. They were also reported for individual hospitals in the Pregnancy and Neonatal Care Bulletin 2014. Indicator specifications are in accordance with the 2014 National Core Maternity Indicators report.¹⁰

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

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

INDICATOR 1: Smoking in pregnancy

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

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

> **Clinical indicator 1a: Total number of women smoking in first 20 weeks of pregnancy.**

Numerator: The number of women who gave birth and reported smoking tobacco in the first 20 weeks of pregnancy (n=2,634).

Denominator: The total number of women who gave birth (n=20,448).

$$\text{Clinical indicator 1a} = \frac{2,634 \times 100}{20,448} = 12.9\% \quad (95\% \text{ CI } 12.4\% - 13.3\%).$$

> **Clinical indicator 1b: Proportion of women who smoked in first 20 weeks of pregnancy and continued to smoke in the second 20 weeks of pregnancy.**

Numerator: The number of women who gave birth and reported smoking tobacco in the second 20 weeks of pregnancy (n= 1,826).

Denominator: The number of women who gave birth who reported smoking tobacco at any time in the pregnancy (n= 2,634).

$$\text{Clinical indicator 1b} = \frac{1,826 \times 100}{2,634} = 69.3\% \quad (95\% \text{ CI } 67.5\% - 71.1\%).$$

INDICATOR 2: Antenatal care in the first trimester for all women giving birth

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

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

> Clinical indicator 2: Antenatal care in the first trimester for all women giving birth

Numerator: The number of women who had their first antenatal visit before 14 weeks gestation and went on to give birth (n=15,239).

Denominator: The number of all women who gave birth (n=20,448).

$$\text{Clinical indicator 2} = \frac{15,239 \times 100}{20,448} = 74.5\% \quad (95\% \text{ CI } 73.9\% - 75.1\%).$$

INDICATOR 3: Episiotomy for women having their first baby and giving birth vaginally

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

Purpose: This indicator is used to benchmark practice.

> Clinical indicator 3a: Total number of women having their first baby who gave birth vaginally without instruments and had an episiotomy

Numerator: The number of women having their first baby who had an episiotomy while giving birth vaginally without instruments (n= 839)

Denominator: The number of women having their first baby who gave birth vaginally without instruments (n=3,662)

$$\text{Clinical indicator 3a} = \frac{839 \times 100}{3,662} = 22.9\% \quad (95\% \text{ CI } 21.6\% - 24.3\%).$$

> Clinical indicator 3b: Total number of women having their first baby who gave birth vaginally with instrumental assistance and had an episiotomy

Numerator: The number of women having their first baby who had an episiotomy during a vaginal birth with instruments (n=1,315)

Denominator: The number of women having their first baby who gave birth vaginally with instruments (n=1,861)

$$\text{Clinical indicator 3b} = \frac{1,315 \times 100}{1,861} = 70.7\% \quad (95\% \text{ CI } 68.6\% - 72.7\%).$$

INDICATOR 4: Apgar score of less than 7 at 5 minutes for births at or after term

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

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

> Clinical indicator 4: Apgar score of less than 7 at 5 minutes for births at or after term

Numerator: The number of babies born alive at term with an Apgar score less than 7 at 5 minutes (n=202).

Denominator: The number of live babies born at term (n=18,811).

$$\text{Clinical indicator 4} = \frac{202 \times 100}{18,811} = 1.1\% \text{ (95\% CI 0.9\% - 1.2\%).}$$

INDICATOR 5: Induction of labour for selected primiparae

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

Purpose: This indicator is used to benchmark practice.

> Clinical indicator 5: Induction of labour for selected women giving birth for the first time

Numerator: The number of selected primiparae who had labour induced (n=2,444).

Denominator: All selected women giving birth for the first time (n=5,931).

$$\text{Clinical indicator 5} = \frac{2,444 \times 100}{5,931} = 41.2\% \text{ (95\% CI 40.0\% - 42.5\%).}$$

INDICATOR 6: Caesarean section for selected primiparae

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

Purpose: This indicator is used to benchmark practice.

> Clinical indicator 6: Caesarean section for selected primiparae

Numerator: The number of selected primiparae who gave birth by caesarean section (n=1,785).

Denominator: All selected primiparae (n=5,931).

$$\text{Clinical indicator 6} = \frac{1,785 \times 100}{5,931} = 30.1\% \text{ (95\% CI 28.9\% - 31.3\%).}$$

INDICATOR 7: Normal (non-instrumental) vaginal birth for selected primiparae

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

Purpose: This indicator is used to benchmark practice.

> Clinical indicator 7: Normal (non-instrumental) vaginal birth for selected primiparae

Numerator: The number of selected primiparae who had a normal (non-instrumental) vaginal birth (n=2,691).

Denominator: All selected primiparae (n=5,931).

$$\text{Clinical indicator 7} = \frac{2,691 \times 100}{5,931} = 45.4\% \text{ (95\% CI 44.1\% - 46.6\%).}$$

INDICATOR 8: Instrumental vaginal birth for selected primiparae

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

Purpose: This indicator is used to benchmark practice.

> **Clinical indicator 8: Instrumental vaginal birth for selected primiparae**

Numerator: The number of selected primiparae who had a vaginal birth with the assistance of instruments (n=1,455).

Denominator: All selected primiparae (n=5,931).

$$\text{Clinical indicator 8} = \frac{1,455 \times 100}{5,931} = 24.5\% \text{ (95\% CI 23.5\% - 25.6\%).}$$

INDICATOR 9: General anaesthetic for women giving birth by caesarean section

Description: The proportion of women who gave birth by caesarean section who received a general anaesthetic.

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

> **Clinical indicator 9: General anaesthetic for women giving birth by caesarean section**

Numerator: The number of women who gave birth by caesarean section and had a general anaesthetic (n=419).

Denominator: The total number of women who gave birth by caesarean section (n=6,930).

$$\text{Clinical indicator 9} = \frac{419 \times 100}{6,930} = 6.0\% \text{ (95\% CI 5.5\% - 6.6\%).}$$

INDICATOR 10: Small babies among births at or after 40 weeks gestation

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

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

> **Clinical indicator 10.1: Small babies among births at or after 40 weeks gestation**

Numerator: The number of babies born at or after 40 weeks gestation who weighed less than 2,750 grams at birth (n=86).

Denominator: The total number of babies born at or after 40 weeks (n=7,048).

$$\text{Clinical indicator 10} = \frac{86 \times 100}{7,048} = 1.2\% \text{ (95\% CI 1.0\% - 1.5\%).}$$

2. Maternity performance indicators, hospitals with at least 550 births per year

Six clinical indicators are presented below. Five are selected from The Australian Council on Healthcare Standards ('ACHS Clinical Indicator Users' Manual Version 2010') and are presented for hospitals with at least 550 births per year. Additionally, the sixth indicator presents the standardized perinatal mortality ratio.

These six indicators are as follows:

1. Proportion of selected primiparae who underwent induction of labour.

This was as defined for Clinical indicator 5 and was 41.2% for the state in 2014 (and 41.3% for state hospitals) in 2014.

2. Caesarean section rate for selected primiparae.

This was as defined for Clinical indicator 6 and was 30.1% for the state (and 30.2 for state hospitals) for 2014.

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

Numerator: Total number of women giving birth vaginally following a previous primary caesarean section (n=401).

Denominator: Total number of women giving birth who have had a previous primary caesarean section and NO intervening pregnancies greater than 20 weeks gestation (n=2,533).

This was as defined as above and was 15.9% for the state (and 15.8% for state hospitals) in 2014.

4. Proportion of selected primiparae with an intact perineum following vaginal birth.

Numerator: Total number of selected primiparae with an intact perineum (n=364)

Denominator: Total number of selected primiparae giving birth vaginally (n=4,133)

This was as defined as above and was 8.9% for the state (and 8.8% for state hospitals) in 2014.

5. TERM NICU: proportion of term babies admitted to neonatal intensive care (NICU) 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=103).

Denominator: The total number of term live babies born (n=18,711).

This was as defined as above and was 0.5% for the state (and 0.6% for state hospitals) in 2014.

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

This is as defined⁸ in the Pregnancy and Neonatal Care Bulletin 2014. 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 2014 for each of the birthweight groups in Table 28a 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 for comparison between sites 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 e.g. 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 that year. The SPMRs and 95% CIs for individual hospitals and categories of hospitals have been programmed using indirect standardization methods.⁸

Statistics for the six maternity performance indicators for 2014 are provided in Figures 29a – 29f for the eight hospitals, A – H, with at least 550 births in 2014. SPMRs for the preceding five years combined, 2010–2014, are provided in Figure 29g. Metropolitan teaching hospitals and Mount Gambier Hospital have been named with their permission and are as follows:

- A. Women's and Children's
- B. Flinders Medical Centre
- C. Lyell McEwin Hospital
- D. Mt Gambier Hospital

Figure 29a: Induction of labour proportion for selected primiparae, SA hospitals with ≥ 550 births per year, 2014

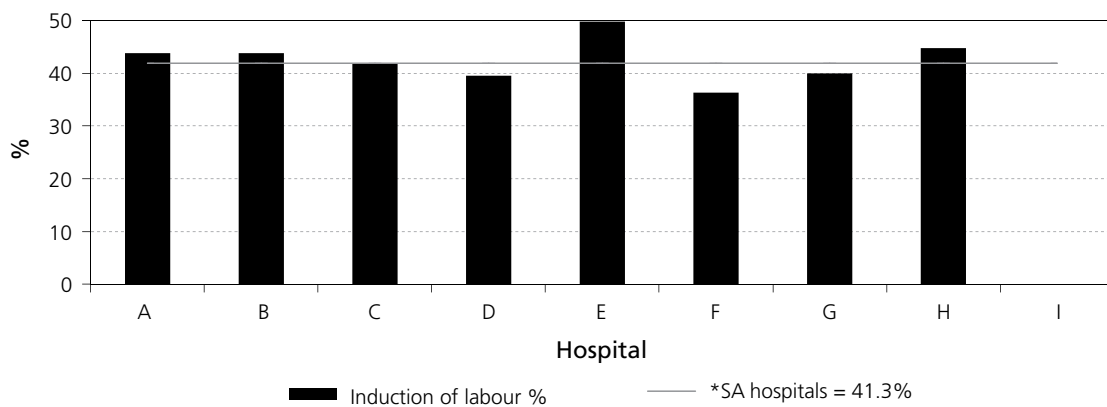


Figure 29b: Caesarean section rate for selected primiparae, SA hospitals with ≥ 550 births per year, 2014

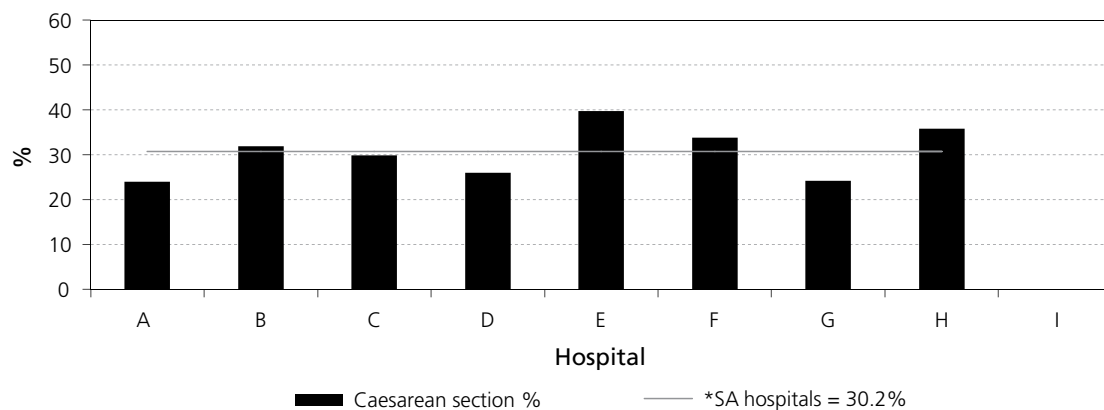


Figure 29c: VBAC: Proportion of women who had a vaginal birth following a previous primary (first) caesarean section & no intervening births, SA hospitals with ≥ 550 births per year, 2014

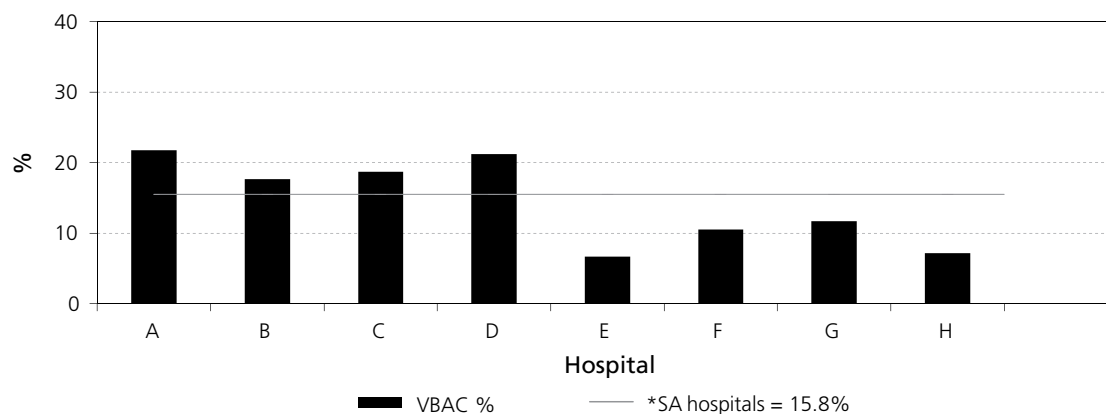


Figure 29d: Proportion of selected primiparae with an intact perineum after a vaginal birth, SA hospitals with ≥ 550 births per year, 2014

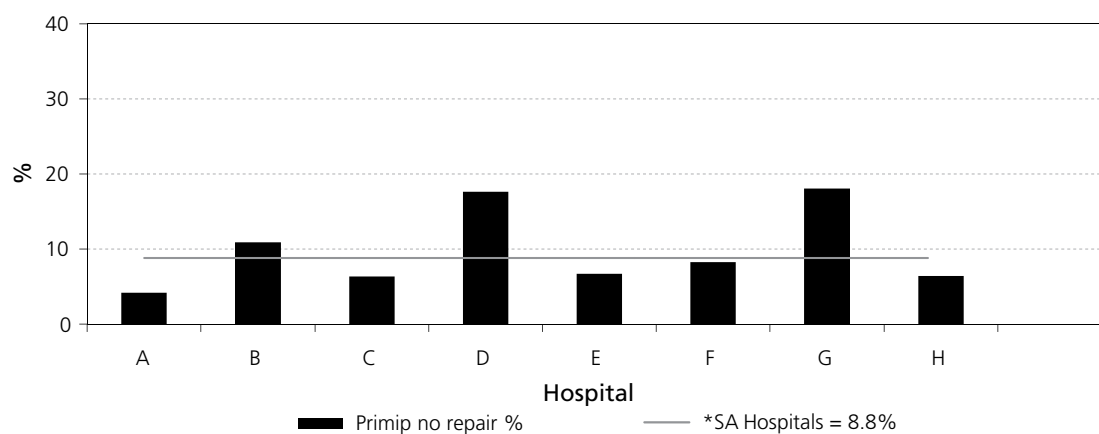


Figure 29e: TERM NICU: proportion of term babies admitted to NICU for reasons other than congenital abnormality, SA hospitals with ≥ 550 births per year, 2014

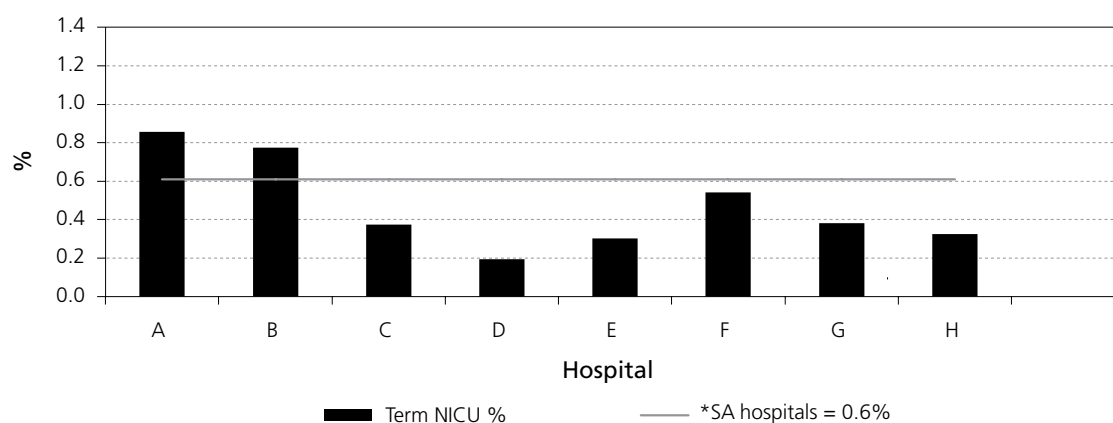


Figure 29f: SPMR (Standardized Perinatal Mortality Ratio) for all births, SA hospitals with ≥ 550 births per year, 2014

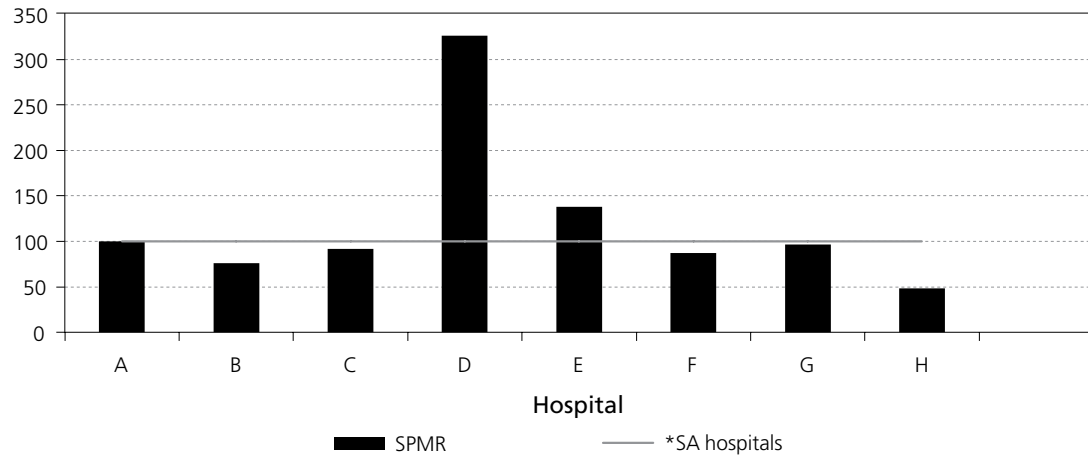
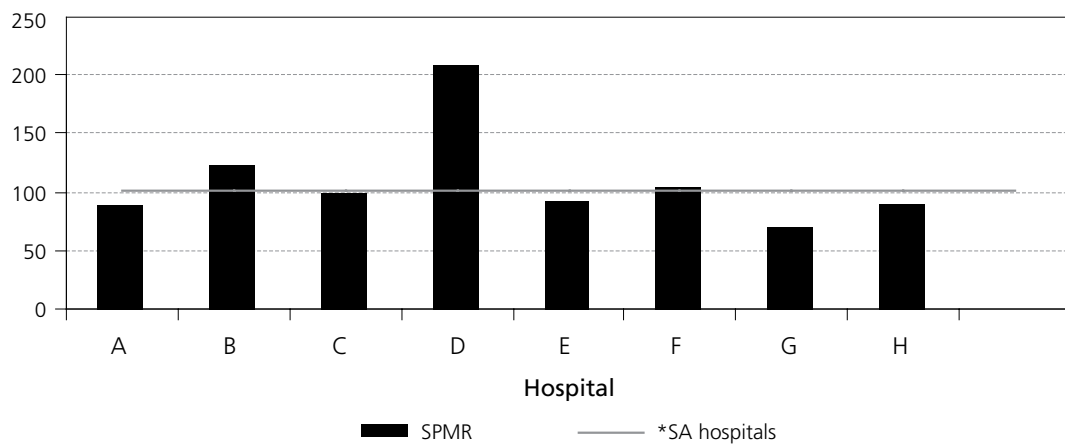


Figure 29g: SPMR (Standardized Perinatal Mortality Ratio) for all births, SA hospitals with ≥ 550 births per year, 2010-2014



VI. Trends in Perinatal Statistics in South Australia, 1981-2014

Perinatal statistics are presented in Tables 47 and 48 for both socio-demographic and obstetric aspects for each year from 2005-2014, 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 1985-2014. The trends noted between 1981 and 2014 are as follows:

- 1 The total fertility rate was 1.83 live births per woman, following a steady increase from 1.71 in 2000 to 1.91 live births per woman in 2008, 2009 and 2012.
The total fertility rate was 1.83 live births per woman, following a steady increase from 1.71 in 2000 to 1.91 live births per woman in 2008, 2009 and 2012.
- 2 The increase in the proportion of Asian women from 1.8% in 1981 to 12.9% in 2014 and of *Aboriginal women* from 1.5% in 1981 to 3.6% in 2013 (it was 3.5% in 2014).
- 3 The decrease in the proportion of teenage women giving birth from 7.8% in 1981 to 3.1% in 2014. Over the past decade, there has been a general decline in both the teenage birth and abortion rate. The teenage pregnancy rate in 2014 of 22.1 per 1,000 women was the lowest recorded since 1970, when abortion statistics were first collected, enabling calculation of a pregnancy rate.
- 4 The increase in the age of women giving birth. The proportion of women who gave birth who were 35 years or older increased from 4.6% in 1981 to 20.6% in 2014, following a peak of 21.1% in 2008 and 2009. Amongst primiparous women the proportion in 1981 was 1.2%, and in 2014 it was 12.9%. The mean age among women giving birth increased from 26.55 years in 1981 to peak in 2012 at 30.21 years; in 2014 it was 29.8 years. The mean age among primiparous women which went from 24.42 years in 1981 and peaked in 2012 at 28.44 years remained steady at 28.37 years in 2014.
- 5 The proportion of single women giving birth peaked in 1996 at 14.9%, since which time there has been a gradual decrease and was 8.9% in 2014.
- 6 The proportion of births in country hospitals has gradually declined from 27.8 in 1981 to 24.9% in 1997 and was 19.3% in 2014. The proportion of births in teaching hospitals gradually increased to 57.8% in 2014 following a low of 47.2% in 1991. In 2014 metropolitan private hospitals accounted for 22.5% of births. The number of births in birthing units in teaching hospitals increased from 125 (0.6%) in 1992 to 1,232 (5.9%) in 2014. Home births increased from 44 (0.2%) in 1997 to 144 (0.7%) in 2010. The decrease in the reporting of homebirths noted in 2011 (64.4%) and 2012 (66.2%) has improved with 102 (85.7%) of an estimated 119 homebirths being reported to the unit.
- 7 The proportion of multiple births peaked at 3.6% of all births in 2002 and 2003, and in 2014 this proportion was 2.9% of all births.
- 8 The induction rate increased from 22.1% in 1981 to 32.2% in 2014. Forty-eight percent of inductions in 2014 were performed for other than defined indications.
- 9 The fall in the proportion of normal spontaneous vaginal births (from 66.1% in 1981 to 54.1% in 2014, breech births (from 1.1% to 0.4%) and forceps births (from 15.2% to 5.3%). The proportion delivered by ventouse increased from 0.7% to 6.9% in 2010, and was 6.3% in 2014, and by caesarean section, from 16.9% in 1981 to 33.9% in 2014.
- 10 The gradual increase in the proportion of low birthweight births (<2,500 grams) from 5.8% in 1981 to 7.7% in 2013 (it was 7.1% in 2014). Amongst liveborn babies, the proportion of low birthweight births was 6.6% in 2014, compared with 6.0% in 1991. The proportion of preterm births also increased from 5.5% in 1981 to 9.2% in 2014.
- 11 The proportion of births with congenital abnormalities identified before discharge from hospital after birth has been relatively stable at 2.3%-2.8% during the last decade and was 2.7% in 2014.
- 12 The increase in the proportion of babies utilising Level II care from 6.7% in 1982 to 16.5% in 2013 (it was 15.9% in 2014). The proportion of babies utilising neonatal intensive care has decreased from 3.3% in 1981 to 2.5% in 2014, while the proportion using paediatric intensive care remained at 0.2%. The proportion in hospital at 28 days has been between 2.0% and 2.4% since 2005 (2.1% in 2014).

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 4.6 per 1,000 births in 2014, while the rate for international statistics (for births of 1,000g or 28 weeks if birthweight unavailable) has fallen from 7.2 to 2.4 per 1,000 births during the same period. The fall in this neonatal mortality rate (for early neonatal deaths) has been particularly outstanding, reaching 0.4 per 1000 live births in 2014, the lowest recorded in the state. The fall in perinatal mortality is reflected in the standardized perinatal mortality ratio which has been calculated in Table 48 for each year utilising perinatal mortality rates for 500g birthweight groups for the years 1981-1989 combined as the standard. It was 60.0 in 2014 compared with 117.6 in 1981.

Table 47: Socio-demographic aspects of perinatal statistics, South Australia, 1981 and 2005-2014

Characteristic		Year										
		1981	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
1	Total births	19,052	18,196	18,803	19,757	19,970	19,901	20,002	20,344	20,666	20,263	20,749
2	Live births	18,905	18,067	18,663	19,624	19,819	19,761	19,883	20,194	20,528	20,125	20,604
3	Women who gave birth	18,857	17,897	18,519	19,471	19,672	19,604	19,667	20,043	20,338	19,925	20,448
4	Total fertility rate per woman	1.75	1.82	1.82	1.91	1.91	1.87	1.84	1.89	1.91	1.85	1.83
5	Place of birth (%)											
	Teaching hospital	52.2%	51.6%	52.1%	52.6%	53.2%	53.7%	54.3%	55.5%	56.8%	57.3%	57.8%
	Private hospital	19.7%	26.5%	26.7%	26.6%	26.5%	25.7%	25.6%	24.1%	23.3%	22.8%	22.5%
	Country hospital	27.8%	21.6%	20.8%	20.2%	20.3%	19.9%	19.3%	19.9%	19.4%	19.3%	19.3%
	Domiciliary*	0.3%	0.3%	0.5%	0.5%	0.5%	0.7%	0.7%	0.5%	0.5%	0.6%	0.5%
		(65)	(63)	(87)	(107)	(101)	(134)	(144)	(96)	(95)	(114)	(102)
6	Race (%)											
	Aboriginal	1.5%	2.7%	3.0%	3.0%	3.2%	3.1%	3.2%	3.5%	3.3%	3.6%	3.5%
	(Women who gave birth)	(277)	(487)	(548)	(578)	(624)	(607)	(625)	(693)	(662)	(717)	(712)
	(Births to Aboriginal mothers)	(280)	(492)	(559)	(590)	(637)	(618)	(630)	(703)	(669)	(729)	(720)
	(Babies identified as Aboriginal)									(904)	(952)	(947)
	Asian	1.8%	5.3%	5.1%	6.2%	7.0%	8.1%	9.6%	11.1%	12.1%	12.0%	12.9%
7	Age											
	Mean age (years)	26.55	29.86	30.01	30.05	30.11	30.14	30.14	29.69	30.21	29.8	30.0
	Teenage (%)	7.8%	5.2%	4.8%	4.6%	4.5%	4.1%	4.0%	4.0%	3.9%	3.3%	3.1%
	≥35 years (%)	4.6%	18.7%	20.4%	20.2%	21.1%	21.1%	20.5%	20.6%	20.4%	19.8%	20.6%
8	Marital status (%)											
	Never married	7.6%	12.5%	11.7%	11.0%	10.7%	10.0%	9.6%	9.2%	9.2%	8.8%	7.8%
	Widowed/ divorced/ separated (%)	2.0%	1.3%	1.3%	1.4%	1.2%	1.2%	1.3%	1.0%	1.3%	1.3%	1.1%
	(Single)	(9.6%)	(13.8%)	(13.0%)	(12.5%)	(11.9%)	(11.2%)	(10.9%)	(10.2%)	(10.5%)	(10.1%)	(8.9%)
9	Primiparae											
	Mean age (years)	24.42	28.02	28.20	28.30	28.24	28.27	28.34	27.92	28.44	28.20	28.4
	Teenage	15.4%	10.1%	9.5%	8.9%	8.8%	8.4%	7.8%	7.8%	7.8%	6.7%	6.3%
	≥35 years	1.2%	11.4%	12.6%	12.5%	12.7%	12.8%	12.2%	12.0%	11.8%	12.4%	12.9%

*includes unplanned home births

Table 48: Obstetric aspects of perinatal statistics, South Australia, 1981 and 2005 – 2014

Characteristic	Year										
	1981	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
1 Plurality											
Multiple births (%)	2.0%	3.3%	3.0%	2.9%	3.0%	3.0%	3.3%	2.9%	3.2%	3.3%	2.9%
Twins	(363)	(570)	(552)	(544)	(592)	(578)	(644)	(586)	(636)	(640)	(574)
Triplets	(21)	(21)	(12)	(21)	(3)	(12)	(15)	(12)	(15)	(27)	(21)
Quadruplets	(0)	(0)	(0)	(0)	(0)	(0)	(4)	(0)	(0)	(0)	(0)
2 Induction of labour (%)	22.1%	28.3%	28.9%	29.8%	28.6%	29.4%	29.6%	31.2%	30.9%	32.5%	32.2%
3 Method of birth											
Normal spontaneous	66.1%	55.8%	56.0%	56.0%	56.0%	55.4%	55.2%	54.7%	54.2%	53.9%	54.1%
Elective caesarean	8.2%	14.6%	15.5%	15.3%	15.4%	15.7%	15.5%	15.8%	15.9%	16.2%	16.6%
Emerg caesarean	8.7%	17.6%	17.4%	17.1%	16.8%	16.7%	16.7%	17.3%	17.9%	17.8%	17.3%
Forceps	15.2%	4.2%	3.7%	4.1%	4.2%	4.6%	5.4%	5.7%	5.5%	5.6%	5.3%
Breech	1.1%	0.4%	0.4%	0.4%	0.5%	0.4%	0.3%	0.5%	0.4%	0.5%	0.4%
Ventouse	0.7%	7.3%	7.0%	7.1%	7.1%	7.2%	6.9%	5.9%	6.0%	5.9%	6.3%
Total caesarean	(16.9%)	(32.3%)	(32.9%)	(32.3%)	(32.2%)	(32.4%)	(32.2%)	(33.2%)	(33.8%)	(34.0%)	(33.9%)
4 Birthweight <2,500g	5.8%	7.6%	7.0%	6.9%	7.0%	7.3%	7.2%	7.5%	7.7%	7.7%	7.1%
Singletons	4.9%	5.9%	5.5%	5.5%	5.5%	5.7%	5.6%	6.2%	6.1%	5.8%	5.7%
Multiples	52.1%	57.7%	53.4%	53.6%	53.4%	59.8%	54.1%	51.9%	56.8%	63.0%	57.2%
5 Gestational age <37 weeks	5.5%	9.0%	8.2%	8.5%	8.6%	9.0%	8.9%	9.2%	9.4%	9.8%	9.2%
Singletons	4.8%	7.3%	6.8%	7.1%	7.0%	7.2%	7.2%	7.5%	7.6%	7.7%	7.5%
Multiples	41.1%	58.4%	54.4%	57.2%	59.3%	67.5%	58.4%	61.5%	64.7%	70.6%	69.2%
6 Congenital abnormalities	3.4%	2.5%	2.3%	2.6%	2.7%	2.7%	2.8%	3.0%	2.7%	2.8%	2.7%
7 Level II care	Na	16.2%	15.3%	16.1%	15.4%	15.3%	16.0%	16.2%	16.7%	16.5%	15.9%
8 Level III care	3.3%	2.9%	2.5%	2.3%	2.5%	2.9%	2.5%	2.6%	2.7%	2.7%	2.5%
9 W&CH ICU care	Na	0.3%	0.2%	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%
10 Hospitalisation for 28 days or more	4.2%	2.4%	2.0%	2.1%	2.2%	2.2%	2.0%	2.2%	2.4%	2.4%	2.1%
11 Neonatal deaths	96	63	38	55	51	49	44	44	46	45	39
12 Stillbirths	147	129	140	132	151	140	119	150	138	138	145
13 Perinatal deaths	243	192	178	188+	202	189	163	194	184	183	184
14 Perinatal mortality rate per 1,000 births											
≥400g/20 weeks	12.8	10.6	9.5	9.5	10.1	9.5	8.1	7.4	8.9	6.6	8.9
≥500g/22 weeks*	11.6	6.2	4.9	5.2	5.3	4.9	4.4	5.3	4.1	5.2	4.6
≥1,000g/28 weeks*	7.2	3.7	3.1	2.6	3.4	3.5	3.2	3.2	2.1	2.8	2.4
15 Standardized perinatal mortality ratio	117.6	66.5	63.0	65.1	67.3	65.2	57.6	62.9	57.6	59.4	60.0

* 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 South Australia (SA), 1985 – 2014

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

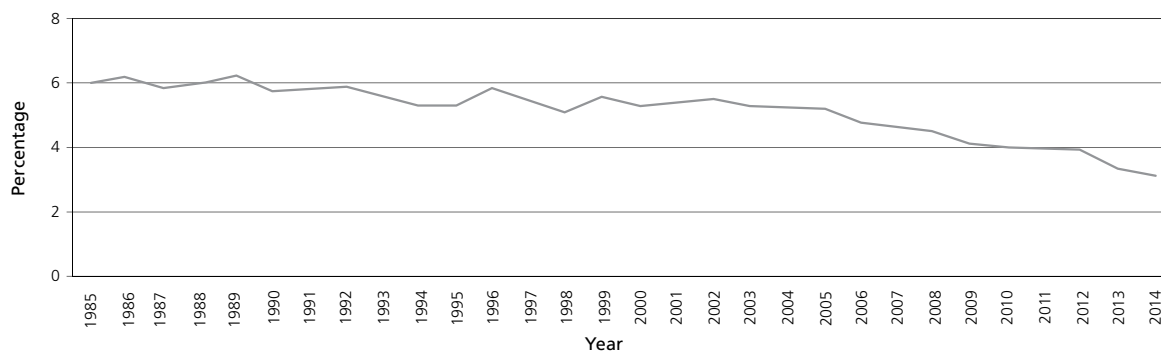


Figure 30.2: Percentage of women aged 35 years and over among women giving birth in SA

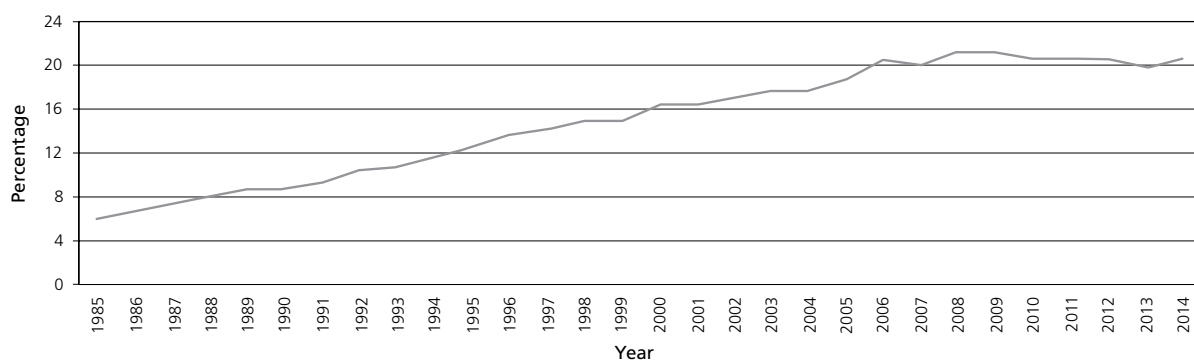


Figure 30.3: Percentage of primiparous women aged 35 years and over in SA

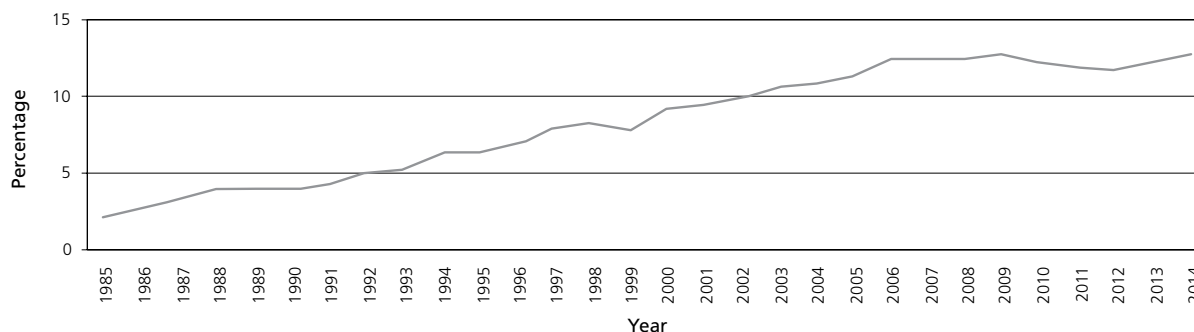


Figure 30.4: Percentage of Aboriginal women and Asian women among women giving birth in SA

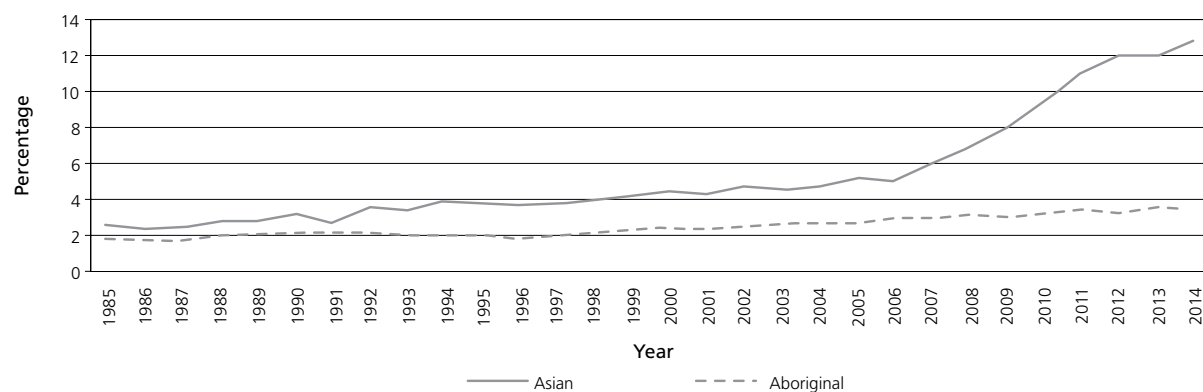


Figure 30.5: Percentage of women never married and with no de facto partner among women giving birth in SA



Figure 30.6: Percentage of multiple births among births in SA

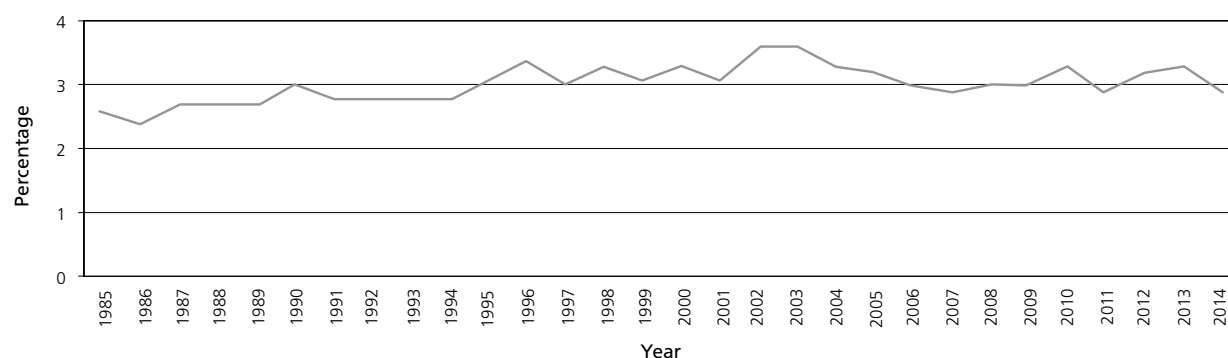


Figure 30.7 Percentage of low birthweight babies among births in SA

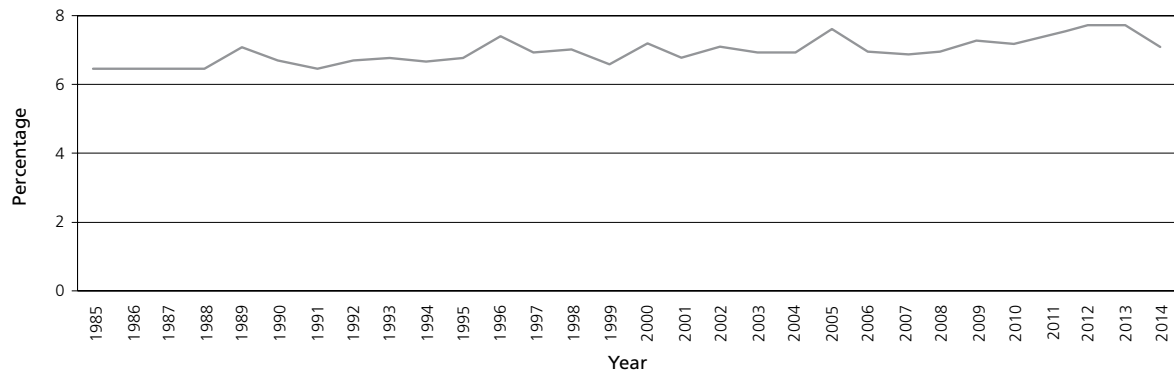
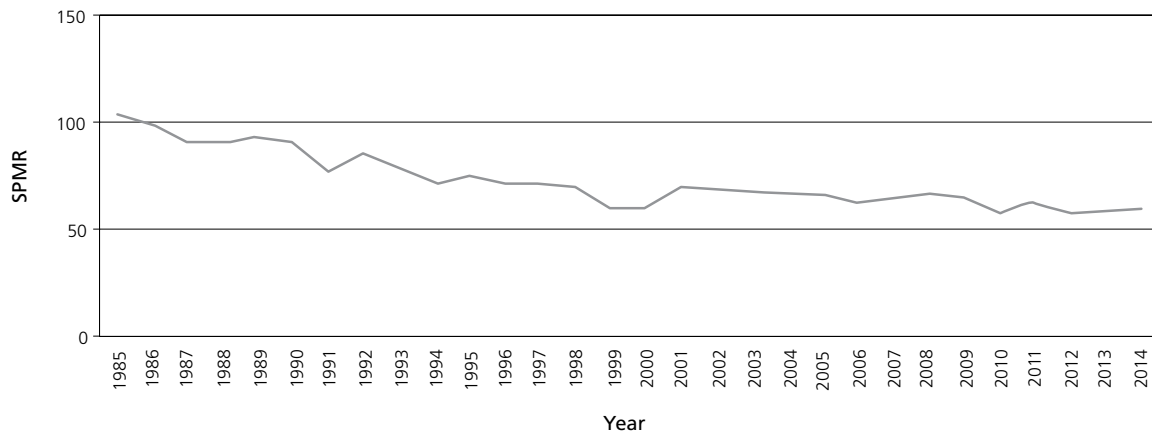


Figure 30.8: SA standardised perinatal mortality ratio (SPMR)



VII. Summary Statistics for 2014

These statistics refer to all live births 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): 20,749

Notified births with Supplementary Birth Records (SBRs): 20,749

Notified women who gave birth with SBRs: 20,448

Crude birth rate: 12.2 live births per 1,000 population.

Total fertility rate: 1.83 live births per woman

2. Place of birth

Home births: 102 home births in all (0.5%), of which 96 were planned home births (0.5% of births in the state).

Metropolitan teaching hospitals: 12,034 (57.9%)

Metropolitan private hospitals: 4,659 (22.5%)

Country hospitals: 3,954 (19.1%)

3. Sex

Males 10,626, Females 10,122. Male: Female sex ratio = 1.05:1

4. Plurality and condition at birth

Condition at birth	Plurality			Total
	Singleton	Twins	Triplets	
Live birth	20,022	561	21	20,604
Stillbirth	132	13	0	145
Total	20,154	574	21	20,749

5. Race of women

Race	Number of women	%
Caucasian	15,717	76.9
<i>Aboriginal</i>	712	3.5
Asian	2,655	13.0
Other	1,364	6.7
Total	20,448	100.0

6. Obstetric interventions in 20,448 women who gave birth

Induction of labour was performed for 6,589 women (32.2%) and labour was augmented for another 3,579 women (17.5%) who gave birth.

Forceps were utilised for 1,093 women (5.3%), ventouse in 1,282 (6.3%) and episiotomy was performed for 2,937 women who gave birth (14.4%, or 26.5% of women who gave birth vaginally).

Caesarean section was performed in 6,930 women who gave birth (33.9%), of which 3,399 (16.6%) were elective, and 3,531 (17.3%) emergency operations.

7. Low birthweight (<2,500g)

Number of singleton births of low birthweight =1,143 (5.7% of singleton births).

Number of multiple births of low birthweight =340 (57.2% of multiple births).

Number of all births of low birthweight =1,483 (7.1% of all births).

8. Congenital anomalies

Births notified with congenital anomalies: 560 (2.7%).

9. Perinatal mortality 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	(145) 7.0	(39) 1.9	(184) 8.9
2	≥500g/22 weeks if birthweight unavailable (WHO National Statistics*)	(70) 3.4	(17) 0.8*	(87) 4.2*
3	≥1,000g/28 weeks if birthweight unavailable (WHO International/ Standard Statistics*)	(37) 1.8	(9) 0.4*	(46) 2.2*

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

10. Terminations of pregnancy

Total number of induced abortions notified: 4,650

Induced abortion rate per 1,000 women (15-44 years): 13.8

Total induced abortion rate (life-time) per 1,000 women (15-44 years): 410.9

Total first induced abortion rate (life-time) per 1,000 women (15-44 years): 262.9

Induced abortion proportion: 0.18

References

1. Scheil W, Scott J, Chan A. South Australian Perinatal Statistics Collection. Guidelines for the Supplementary Birth Record. Adelaide: Pregnancy Outcome Unit , South Australian Department of Health, 2012.
2. The South Australian Birth Defects Register. 2012 Annual Report. Adelaide: Women's and Children's Hospital, Children, Youth and Women's Health Service, 2015.
3. Maternal, Perinatal and Infant Mortality Committee. Maternal, Perinatal and Infant Mortality in South Australia 2014. Adelaide: SA Health, Government of South Australia, 2016.
4. Statewide Service Strategy Division. Standards for Maternal and Neonatal Services in SA 2010. Adelaide: Department of Health, 2010.
5. South Australian Health Commission. Report of the South Australian Birthing Services Working Group. Adelaide: Social Health and Policy Development Branch, South Australian Health Commission, 1994.
6. South Australian Abortion Reporting Committee. Annual Report - For the Year 2014. Adelaide: SA Health, Government of South Australia, 2016.
7. South Australian Health Commission Epidemiology Branch. Risk factors for adverse perinatal outcome: determination from a perinatal statistics collection. Adelaide: South Australian Health Commission, December 1986.
8. Mallett R, Knox EG. Standardized perinatal mortality ratios: technique, utility and interpretation. Community Med 1979; 1: 6-13.
9. AHMC (Australian Health Ministers' Conference) 2011. National Maternity Services Plan. Canberra: Australian Government Department of Health and Ageing.
10. AIHW National Perinatal Epidemiology and Statistics Unit and AIHW 2013. National core maternity indicators. Cat. no. PER 58. Canberra: AIHW.

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.sahealth.sa.gov.au
2. Maternal, Perinatal and Infant Mortality in South Australia. Annual Report of the Maternal, Perinatal & Infant Mortality Committee (from 1985), website: www.sahealth.sa.gov.au
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 Australian Institute of Health and Welfare National Perinatal Statistics Unit in Sydney for their reports.

These reports are as follows:

1. The South Australian Birth Defects Register Annual Report (from 1986).
South Australian Birth Defects Register, Public Health Research Unit, Women's and Children's Hospital, Children, Youth and Women's Health Service, 72 King William Road, North Adelaide, South Australia 5006.
Telephone (08) 81616518
Website: www.wch.sa.gov.au/services/az/other/phru/birthdefect.html
2. Australia's Mothers and Babies (from 1991) and
3. Congenital anomalies in Australia (from 1981)
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.npsu.unsw.edu.au

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.
4. Chan A, Robertson E, Haan E, Ranieri E, Keane R. The sensitivity of ultrasound and serum alpha-fetoprotein in population-based antenatal screening for neural tube defects in South Australia 1986-1991. *Br J Obstet Gynaecol* 1995; 102 :370-376.
5. Chan A, Keane RJ, Hanna M, Abbott M. Terminations of pregnancy for exposure to oral retinoids in South Australia, 1985-1993. *Aust NZ J Obstet Gynaecol*. 1995; 35 : 422-426.
6. Byron-Scott R, Chan A, Haan EA, Bower C, Scott H, Clark K. A population-based study of abdominal wall defects in South Australia and Western Australia. *Proceedings, 14th Annual Congress Australian Perinatal Society, Adelaide, March 1996, P82.*
7. Chan A, Hanna M, Abbott M, Keane RJ. Oral retinoids and pregnancy. *MJA* 1996;165: 164-167.

8. Chan A, McCaul KA, Cundy P, Haan EA, Byron-Scott R. Perinatal risk factors for developmental dysplasia of the hip. *Arch Dis Child* 1997; 76 : F94 – F100.
9. Yiv BC, Saidin R, Cundy PJ, Tgetgel JD, Aguilar J, McCaul KA, Keane RJ, Chan A, Scott H. Developmental dysplasia of the hip in South Australia in 1991: Prevalence and risk factors. *J. Paediatr Child Health* 1997; 33: 151-6.
10. Cheffins T, Chan A, Keane RJ. The effects of rubella immunisation in South Australia. Proceedings, Rights to Health 29th Annual Conference, Public Health Association of Australia Inc., Melbourne, 5-8 October 1997.
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.
13. Chan A, McCaul K, Keane RJ, Haan EA. Effect of parity, gravidity, previous miscarriage, and age on the risk of Down's syndrome : population-based study. *BMJ* 1998; 317: 923-4.
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.
16. Byron-Scott R. Richardson M, Hiller J, Chan A, Haan E, Knight B, Adams P. The prevalence and validation of congenital heart defects in South Australia, 1986-94. Proceedings of the 3rd Annual Congress of the Perinatal Society of Australia and New Zealand, Melbourne, 1999. P153.
17. Chan A, Cundy PJ, Foster BK, Keane RJ, Byron-Scott R. Late diagnosis of congenital dislocation of the hip and presence of a screening programme. South Australian population-based study. *Lancet* 1999;354:1514-17.
18. Chan A, Cundy PJ, Foster BK, Keane RJ, Byron-Scott R. Screening for congenital dislocation of the hip (letter). *Lancet* 2000;355:232-33.
19. Chan A, Pickering J, Haan EA, Netting M, Burford A, Johnson A, Keane RJ. "Folate before pregnancy": the impact of a South Australian health promotion campaign on women and health professionals. Western Australian Birth Defects Registry Twentieth Anniversary Scientific Symposium April 27-28, 2000. Perth, Western Australia. *Teratology* 2000;62: 365.
20. Cheffins T, Chan A, Haan EA, Ranieri E, Ryall RG, Keane RJ, Byron-Scott R, Scott H, Gjerde EM, Nguyen A-M, Ford JH, Sykes S. The impact of maternal serum screening on the birth prevalence of Down's syndrome and the use of amniocentesis and chorionic villus sampling in South Australia. *Br J Obstet Gynaecol* 2000;107:1453-9.
21. Chan A, Pickering J, Haan EA, Netting M, Burford A, Johnson A, Keane RJ. 'Folate before pregnancy': the impact on women and health professionals of a population-based health promotion campaign in South Australia. *MJA* 2001; 174:631-636.
22. Chan A, Foster BK, Cundy PJ. Invited commentary. Problems in the diagnosis of neonatal hip instability. *Acta Paediatr* 2001;90:836-9.
23. Metz MP, Ranieri E, Gerace RL, Priest KR, Luke CG, Chan A. Newborn screening in South Australia: is it universal? *MJA* 2003;179:412-415.
24. Chan A. Invited commentary: Parity and the risk of Down syndrome – caution in interpretation. *Am J Epidemiol* 2003;158:509-511.
25. Gibson CS, MacLennan AH, Hague WM, Rudzki Z, Sharpe P, Chan A, Dekker GA. Fetal thrombophilic polymorphisms are not a risk factor for cerebral palsy. Perinatal Society of Australia and New Zealand 8th Annual Congress, Convention Centre, Darling Harbour, Sydney, Australia, 15th-18th March 2004, A41.

26. Gibson CS, MacLennan AH, Rudzki Z, Hague WM, Haan EA, Sharpe P, Priest K, Chan A, Dekker GA for the South Australian Cerebral Palsy Research Group. The prevalence of inherited thrombophilias in a Caucasian Australian population. *Pathology* 2005;37:160-163.
27. Byron-Scott R, Sharpe P, Hasler C, Cundy P, Hirte C, Chan A, Scott H, Baghurst PB, Haan E. A South Australian population-based study of congenital talipes equivarus. *Paediatr Perinat Epidemiol* 2005;19:227-237.
28. Gibson CS, MacLennan AH, Hague WM, Haan E, Priest K, Chan A, Dekker GA for the South Australian Cerebral Palsy Research Group. Associations between inherited thrombophilias, gestational age and cerebral palsy. *Am J Obstet Gynecol* 2005;193:1437.e1-1437.e12.
29. Sharpe PB, Chan A, Haan EA, Hiller JE. Maternal diabetes and congenital anomalies in South Australia 1986-2000: a population-based cohort study. *Birth Defects Research Part A Clin Mol Teratol* 2005;73:605-611.
30. Gibson CS, MacLennan AH, Goldwater PN, Haan EA, Priest K, Dekker GA for the South Australian Cerebral Palsy Research Group. Neurotropic viruses and cerebral palsy: a population bases case-control study. *BMJ* ,doi:10.1136/bmj.38668.616806.3A (published 6 January 2006).
31. Sharpe PB, Mulpuri K, Chan A, Cundy P. Differences in risk factors between early and late diagnosed DDH. *Arch Dis Child* 2006;91:F158-162.
32. Gibson CS, MacLennan AH, Goldwater PN, Haan EA, Priest K, Dekker GA for the South Australian Cerebral Palsy Research Group. The association between inherited cytokine polymorphisms and cerebral palsy. *Am J Obstet Gynecol* 2006;194: 674.e1-674.e11.
33. Gibson CS, MacLennan AH, Janssen NG, Kist WJ, Hague WM, Haan EA, Goldwater PN, Priest K, Dekker GA for the South Australian Cerebral Palsy Research Group. Associations between fetal inherited thrombophilia and adverse pregnancy outcomes. *Am J Obstet Gynecol* 2006; 194: 947.e1-947.e10.
34. Gibson CS, MacLennan AH, Dekker GA, Goldwater PN, Dambrosia JM, Munroe DJ, Tsang S, Stewart C, Nelson KB. Genetic polymorphisms and spontaneous preterm birth. *Obstet Gynecol* 2007;109:384-391.
35. Muller PR, Cocciolone R, Haan EA, Wilkinson C, Scott H, Sage L, Bird R, Hutchinson R, Chan A. Trends in state/population-based Down syndrome screening and invasive prenatal testing with the introduction of first-trimester combined Down syndrome screening, South Australia, 1995-2005. *Am J Obstet Gynecol* 2007;196:315.e1-315.e7.
36. Gibson CS, MacLennan AH, Goldwater PN, Haan EA, Priest K, Dekker GA for the South Australian Cerebral Palsy Research Group. Mannose-binding lectin haplotypes may be associated with cerebral palsy only after perinatal viral exposure. *Am J Obstet Gynecol* 2008;198:509.e1-509.e8.
37. Khoo NS, van Essen P, Richardson M, Robertson T. Effectiveness of prenatal diagnosis of congenital heart defects in South Australia: a population analysis 1999-2003. *Aust NZ J Obstet Gynaecol* 2008;48:559-563.
38. Chan AC, van Essen P, Scott H, Haan EA, Sage L, Scott J, Gill TK, Nguyen A-M T. Folate awareness and the prevalence of neural tube defects in South Australia, 1966-2007. *MJA* 2008;189: 566-569.
39. Djukic M, Gibson CS, MacLennan AH, Goldwater PN, Haan EA, McMichael G et al. Genetic susceptibility to viral exposure may increase the risk of cerebral palsy. *Aust NZ J Obstet Gynaecol* 2009: 49:247-253.
40. De Souza, Halliday J, Chan A, Bower C, Morris JK. Recurrence risks for trisomies 13,18, and 21. *Am J Med Genet Part A* 149A:2716–2722.
41. Davies MJ, Moore VM, Willson KJ, Van Essen P, Priest K, Scott H, et al. Reproductive technologies and the risk of birth defects. *N Engl J Med*. 2012 May 10;366(19):1803-13. PubMed PMID: 22559061.
42. Flood L, Scheil W, Nguyen A, Sage L, Scott J. An increase in neural tube defect notifications, South Australia, 2009–2010. *Western Pacific Surveillance and Response Journal*, 2013, 4 (2). doi:10.5365/wpsar.2012.3.3.006.
43. Gibson CS, Scott H, Haan E, Scheil W. Age Range for Inclusion Affects Ascertainment by Birth Defects Registers. *Birth Defects Research (Part A)* 00:000–000, 2016.

44. Davies MJ, Rumbold AR, Whitrow MJ, Willson KJ, Scheil WK, Mol BW, & Moore VM. Spontaneous loss of a co-twin and the risk of birth defects after assisted conception. *Journal of Developmental Origins of Health and Disease*, 2016, 1-7. doi:10.1017/S2040174416000301.
45. Studer K, Williams N, Antoniou G, Gibson C, Scott H, Scheil WK, Cundy PJ. Increase in late diagnosed developmental dysplasia of the hip in South Australia: Risk factors, proposed solutions. *Medical Journal of Australia*, 2016, 204(6), 240.e1-240.e6. doi:10.5694/mja15.01082.
46. Constantine S, David D, Anderson P. The use of obstetric ultrasound in the antenatal diagnosis of craniosynostosis: We need to do better. *Australasian Society for Ultrasound in Medicine AJUM* April 2016 0 (0) 1.

2. Termination of pregnancy

1. Hart G, Macharper T. Medical termination of pregnancy in South Australia 1970-1984. Adelaide: South Australian Health Commission, 1986.
2. Chan A, Taylor A. Medical Termination of Pregnancy in South Australia - The First 20 Years 1970-1989. Adelaide: Pregnancy Outcome Unit, South Australian Health Commission, December 1991.
3. Chan A, McColl M, Versteeg J, Gameau B, Scanlan C, Pridmore B. A South Australian Study on Contraception and Abortion. Public and Environmental Health Service, South Australian Health Commission and Department of Obstetrics and Gynaecology, The Queen Elizabeth Hospital, Adelaide, March 1994.
4. Hart G, Macharper T. Clinical aspects of induced abortion in South Australia from 1970-1984. *Aust. NZ J Obstet Gynaecol* 1986; 26: 219-224.
5. Hart G, Macharper T. Induced abortion trends in South Australia. *Am J Public Health* 1987; 77: 200-202.
6. Chan A, Keane RJ. Prevalence of induced abortion in a reproductive lifetime. *Am J Epidemiol* 2004;159:475-480.
7. Chan A, Sage LC. Estimating Australia's abortion rates 1985-2003. *MJA* 2005;182:447-452.

3. Perinatal epidemiology

1. Connon AF, Macharper T. Teenage pregnancies in South Australia. Adelaide: South Australian Health Commission, September 1986.
2. South Australian Health Commission, Epidemiology Branch: Characteristics of pregnancies and births among migrant women in South Australia. Adelaide : South Australian Health Commission, October 1986.
3. South Australian Health Commission, Epidemiology Branch. Risk factors for adverse perinatal outcome: determination from a perinatal statistics collection. Adelaide: South Australian Health Commission, December 1986.
4. South Australian Health Commission, Epidemiology Branch. Variation in perinatal risk by place of residence of mother in South Australia. Adelaide: South Australian Health Commission, December 1986.
5. South Australian Health Commission, Epidemiology Branch. Variations in Perinatal Risk by Hospital of Birth in South Australia. Adelaide: South Australian Health Commission, January 1987.
6. South Australian Health Commission, Epidemiology Branch. Aboriginal Births in South Australia, 1981-1986: An Analysis of Perinatal Outcomes, Adelaide: South Australian Health Commission, May 1988.
7. South Australian Health Commission, Epidemiology Branch: Pregnancy Outcome Attributes by Postcode: South Australia 1981-1986. South Australian Health Commission, Adelaide: August 1988.
8. Jonas O, Scott J, Chan A, Macharper T, Lister J. A validation study of the 1986 perinatal data collection form. Adelaide: Pregnancy Outcome Unit, South Australian Health Commission, 1991.
9. South Australian Cancer Registry. Associations between perinatal characteristics and risk of childhood cancer: South Australian cancer cases born in 1981-1993. In: *Epidemiology of Cancer in South Australia. Incidence, Mortality and Survival 1977 to 1994*. Adelaide South Australian Health Commission, 1995.
10. Taylor A, Twisk A-M, Chan A. Perinatal risk factors by postcode in South Australia 1989-1992. Epidemiology Branch, South Australian Health Commission, Adelaide: June 1995.
11. Pregnancy Outcome Unit. Perinatal Statistics Collection. Guidelines for the Supplementary Birth Record. Adelaide: South Australian Health Commission, December 1997.

12. McLean A, Scott J, Keane RJ, Sage L, Chan A. Validation of the 1994 South Australian perinatal data collection form. Adelaide: Pregnancy Outcome Unit, Department of Human Services, 2001.
13. Hart G, MacHarper T, Moore D, Roder D. Aboriginal pregnancies and births in South Australia. *MJA* 1985; 143: S54-56.
14. Chan A, Roder D, Macharper, T. Obstetric Profiles of Immigrant Women from Non-English Speaking Countries in South Australia, 1981-83. *Aust NZ J Obstet Gynaecol* 1988; 28: 90-95.
15. Jonas O, Roder D, Esterman A, Macharper T, Chan A. Pregnancy and Birth Risk Factors for Intellectual Disability in South Australia. *Eur J Epidemiol* 1989; 5: 322-327.
16. Jonas O, Chan A, Macharper T, Roder D. Pregnancy and Perinatal Factors associated with persistently low Apgar scores: an analysis of the birth records of infants born in South Australia. *Eur J Epidemiol* 1990; 6: 136-141.
17. Crotty M, Ramsay AT, Smart R, Chan A. Planned Homebirths in South Australia 1976-1987 *MJA* 1990; 153: 664-671.
18. Jonas O, Chan A, Roder D, Macharper T. Pregnancy Outcomes in primigravid women aged 35 years and over in South Australia, 1986-1988. *MJA* 1991; 154: 246-249.
19. Zhang B, Chan A. Teenage Pregnancy in South Australia, 1986-1988. *Aust. NZ J Obstet Gynaecol* 1991; 31: 291-298.
20. Jonas O, Roder D, Chan A. The Association of Maternal and Socioeconomic Characteristics in Metropolitan Adelaide with Medical, Obstetric and Labour Complications and Pregnancy Outcomes. *Aust NZ J Obstet Gynaecol* 1992; 32: 1-5.
21. Chan A, Roder D, Priest K, Esterman A. A perinatal perspective on South Australia in the 1980s. *MJA* 1992; 157: 515-518.
22. Jonas O, Roder D, Chan A. The association of low socio-economic status in Metropolitan Adelaide with maternal demographic and obstetric characteristics and pregnancy outcome. *Eur J Epidemiol* 1992; 8:708.
23. Jonas O, Roder D. Breech Presentation in South Australia, 1987-1989. *Aust NZ J Obstet Gynaecol* 1993; 33: 17-21.
24. Scott J, Chan A. Planned birthing unit deliveries in South Australia. Proceedings, 14th Annual Congress Australian Perinatal Society, Adelaide, March 1996, P21.
25. Dal Grande E, Chan A, Keane R. Asian, but different: Obstetric characteristics of women born in Vietnam and Philippines who delivered in South Australia in 1991-1994. Proceedings, 14th Annual Congress Australian Perinatal Society, Adelaide, March 1996, P22.
26. Keane R, Dal Grande E, Chan A, McCaul K. Episiotomy – a decline in the cutting edge. Proceedings, 14th Annual Congress Australian Perinatal Society, Adelaide, March 1996, P75.
27. Chan A, McPhee AJ. A safer leap into this dangerous world. *Lancet* 1996; 348 (suppl II) :12.
28. Carter JR, Hiller JE, Ryan P, Chan A. The Association between maternal age and preterm births to primiparous women in South Australia, 1991-1993, Proceedings, First Annual Congress, Perinatal Society of Australia and New Zealand, Fremantle, Western Australia, 16-24 March 1997.
29. Zhang B, Hiller JE, Chan A. Asthma in pregnancy in South Australia. Proceedings, First Annual Congress, Perinatal Society of Australia and New Zealand, Fremantle, Western Australia, 16-24 March 1997.
30. Roder D, Nguyen A-M, Chan A. Trends in perinatal characteristics in South Australia, 1981 to 1994, by place of residence of mother. *Aust NZ J Public Health* 1997; 21: 483-8.
31. Zhang B, Hiller JE, Chan A. Asthma in pregnancy: Association with Spontaneous Preterm Birth. Proceedings of the 3rd Annual Congress of the Perinatal Society of Australia and New Zealand, Melbourne, 1999, A113.
32. McLean AP, Hiller JE, Chan A. Maternal epilepsy and fetal outcomes in South Australia. Perinatal Society of Australia and New Zealand 4th Annual Congress. Brisbane Convention and Exhibition Centre, Brisbane, Australia, 12-15 March 2000, P192.
33. Chan A, Keane RJ, Robinson JS. The contribution of maternal smoking to preterm birth, small for gestational age and low birthweight among Aboriginal and non-Aboriginal births in South Australia. *MJA* 2001;174: 389-93.

34. van der Klis KAM, Westenberg L, Chan A, Dekker G, Keane RJ. Teenage pregnancy: trends, characteristics and outcomes in South Australia and Australia. *Aust N Z J Public Health* 2002; 26: 125-31.
35. Westenberg L, van der Klis KAM, Chan A, Dekker G, Keane RJ. Aboriginal teenage pregnancies compared with non-Aboriginal in South Australia 1995-1999. *Aust N Z J Obstet Gynaecol* 2002;42: 187-191.
36. Wang JX, Knottnerus A-M, Schuit G, Norman RJ, Chan A, Dekker GA. Surgically obtained sperm and risk of gestational hypertension and pre-eclampsia. *Lancet* 2002;359: 673-4.
37. Jacobs DJ, Vreeburg SA, Dekker GA, Heard AR, Priest KR, Chan A. Risk factors for hypertension during pregnancy in South Australia. *Aust NZ J Obstet Gynaecol* 2003; 3: 421-428.
38. Heard AR, Dekker GA, Chan A, Jacobs DJ, Vreeburg SA, Priest KR. Hypertension during pregnancy in South Australia, Part 1: Pregnancy outcomes. *Aust NZ J Obstet Gynaecol* 2004; 44: 404-409.
39. Vreeburg SA, Jacobs DJ, Dekker GA, Heard AR, Priest KR, Chan A. Hypertension during pregnancy in South Australia, Part 2: Risk factors for adverse maternal and/or perinatal outcome – results of multivariable analysis. *Aust NZ J Obstet Gynaecol* 2004;44: 410-418.
40. Leahy K, Elliot E, Kennare R, Chan A. Characteristics and pregnancy outcomes of first time mothers aged 35 years and over compared to younger first time mothers in South Australia 1991-2002. Before and Beyond Birth. Abstract Book. Perinatal Society of Australia and New Zealand 9th Annual Congress. Adelaide Convention Centre, Adelaide, South Australia, 13-16 March 2005, A144.
41. Kennare R, Heard A, Chan A. Substance use during pregnancy: risk factors and obstetric and perinatal outcomes in South Australia. *Aust NZ J Obstet Gynaecol* 2005;45:220-225.
42. Freak-Poli R, Chan A, Tucker G, Street J. Previous abortion and risk of spontaneous preterm birth. Perinatal Society of Australia and New Zealand 10th Annual Congress. Perth Convention Exhibition Centre, Perth, Western Australia, 3-6 April 2006, FC17.1, p 165.
43. Scott J, Chan A. South Australian Perinatal Statistics Collection. Guidelines for the Supplementary Birth Record. Adelaide: Pregnancy Outcome Statistics Unit, South Australian Department of Health, 2006.
44. Budde MP, De Lange TE, Dekker GA, Chan A, Nguyen AM. Risk factors for placental abruption in a socio-economically disadvantaged region. *J Matern Fetal Neonat Med* 2007 Sep; 20(9):687-93.
45. Freak-Poli R, Chan A, Tucker G, Street J. Previous abortion and risk of pre-term birth: a population study. *J Matern-Fetal Neonat Med* 2009;22(1):1-7.
46. Kennare R, Keirse M, Tucker G, Chan A. Planned home and hospital births in South Australia, 1991–2006: differences in outcomes. *MJA* 2010; 192: 76–80.
47. Dodd J, Grivell R, Nguyen AM, Chan A, Robinson J. Maternal and perinatal health outcomes by body mass index category. *ANZJOG* 2011; 51,2: 136–140.
48. Grivell RM, Reilly AJ, Oakey H, Chan AC, Dodd JM. Maternal and neonatal outcomes following induction of labor: a cohort study. *Acta Obstet Gynecol Scand* 2012; 91:198–203.
49. Ludford I, Scheil W, Tucker G, Grivell R. Pregnancy outcomes for nulliparous women of advanced maternal age in South Australia, 1998-2008. *The Australian & New Zealand Journal of Obstetrics & Gynaecology*. 2012 Jun;52(3):235-41. PubMed PMID: 22553967.
50. Dodd JM, Catcheside B, Scheil W. Can shoulder dystocia be reliably predicted? *The Australian & New Zealand Journal of Obstetrics & Gynaecology*. 2012 Jun;52(3):248-52. PubMed PMID: 22428758.
51. Hodyl NA, Stark MJ, Scheil W, Clifton VL. Maternal asthma is a significant contributor to neonatal morbidity. *Journal of Developmental Origins of Health and Disease* 01/2011; 2:S120-S121.
52. Hodyl NA, Stark MJ, Scheil W, Grzeskowiak LE, Clifton VL. Perinatal outcomes following maternal asthma and cigarette smoking during pregnancy. *European Respiratory Journal*: 2013 erj00549-02013.
53. Baghurst P, Robson S, Antoniou G, Scheil W and Bryce R. The association between increasing maternal age at first birth and decreased rates of spontaneous vaginal birth in South Australia from 1991 to 2009. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 2014; 54:237–243. doi:10.1111/ajo.12182.
54. Baghurst P. The case for retaining severe perineal tears as an indicator of the quality for obstetric care. *ANZJOG* 2013; 53(1): 3-8.

55. Hodyl NA, Grzeskowiak LE, Stark MJ, Scheil W, Clifton VL. The impact of Aboriginal status, cigarette smoking and smoking cessation on perinatal outcomes in South Australia. *MJA* 2015; 201(5): 274-278.
56. Smithers LG, Searle AK, Chittleborough CR, Scheil W, Brinkman SA, Lynch JW. A whole-of-population study of term and post-term gestational age at birth and children's development. *BJOG* 2015; DOI: 10.1111/1471-0528.13324.
57. Mittiga C, Ettridge K, Martin K, Tucker G, Dubyna R, Catcheside B, Scheil W, Maksimovic L. Sociodemographic correlates of smoking in pregnancy and antenatal care attendance in Indigenous and non-Indigenous women in South Australia. *Australian Journal of Primary Health Research* 2015: <http://dx.doi.org/10.1071/PY15081>.
58. Verburg, P, Tucker G, Scheil W, Dekker G & Roberts C. Opposite trends in seasonality of gestational diabetes mellitus and pregnancy induced hypertensive disorders – A South Australian population study. *Placenta* 2015, 36 (9) A42.
59. Verburg PE, Tucker G, Scheil W, Erwich JJHM, Dekker GA, Roberts CT. Sexual Dimorphism in Adverse Pregnancy Outcomes – A Retrospective Australian Population Study 1981-2011. *PLoS ONE* 2016, 11(7): e0158807. doi:10.1371/journal.pone.0158807.

4. Perinatal mortality

1. Roder D, Chan A, Esterman A. Birthweight – specific trends in perinatal mortality by hospital category in South Australia, 1985 – 1990. *MJA* 1993; 158: 664-667.
2. Connon AF, Chan A on behalf of the Postneonatal Subcommittee, maternal, perinatal and Infant Mortality Committee. Accidental deaths of babies in the postneonatal period in South Australia (letter). *MJA* 1994; 161: 397.
3. Roder D, Chan A, Priest K. Perinatal mortality trends among South Australian Aboriginal births 1981-92. *J Paediatr Child Health* 1995; 31: 446-450.
4. Haslam R, McPhee A, Chan A, Keane R. Neonatal mortality – a system of classification and trends in South Australia. Proceedings of the 3rd Annual Congress of the Perinatal Society of Australia and New Zealand, Melbourne, 1999. P86.
5. Robson S, Chan A, Keane RJ, Luke CG. Subsequent birth outcomes after an unexplained stillbirth: preliminary population-based retrospective cohort study. *Aust NZ J Obstet Gynaecol* 2001; 41: 29-35.
6. Flenady V, Chan A, Haslam R, King J, Tudehope D, McCowan L. Cause specific perinatal mortality in Australia and New Zealand using a new clinical classification system (ANZACPM and ANZND). Perinatal Society of Australia and New Zealand 7th Annual Congress, Hotel Grand Chancellor, Hobart, Tasmania, March 9th-12th 2003, A87.
7. Dodd JM, Robinson JS, Crowther CA, Chan A. Stillbirth and neonatal outcomes in South Australia, 1991-2000. *Am J Obstet Gynecol* 2003; 189: 1731-1736.
8. Chan A, King JF, Flenady V, Haslam RH, Tudehope DI. Classification of perinatal deaths: Development of the Australian and New Zealand classifications. *J Paediatr Child Health* 2004; 40: 340-347.
9. Flenady V, King J, Chan A, McCowan L, Tudehope D, Haslam R, Charles A, Roberts C for the Perinatal Mortality Audit Guidelines Working Party of the PSANZ Perinatal Mortality Special Interest Group. Development of Clinical Practice Guideline for Perinatal Mortality Audit incorporating psychological and social aspects of perinatal bereavement. Before and Beyond Birth. Abstract Book. Perinatal Society of Australia and New Zealand 9th Annual Congress, Adelaide Convention Centre, Adelaide, South Australia, 13-16 March 2005, P58.
10. De Lange TE, Budde MP, Heard AR, Tucker G, Kennare R, Dekker GA. Avoidable risk factors in perinatal deaths: a perinatal audit in South Australia. *Aust NZ J Obs Gynaecol* 2008; 48: 50-57.
11. Kennare R, Scheil W, Tucker G. A public health approach to review of sudden unexpected infant deaths — challenges and interventions. *Australian Journal of Child and Family Health Nursing* 2015; 12: 1.

5. Caesarean section

1. Jonas O, Chan A, Macharper T. Caesarean Section in South Australia, 1986. Aust NZ J Obstet Gynaecol 1989; 29: 99-106.
2. Chan A. Epidemiology of the rising Caesarean section rate. Proceedings, 14th Annual Congress Australian Perinatal Society, Adelaide, March 1996, A70.
3. Chan A, Keane RJ, Scott J. Elective Caesarean section and child deprivation (letter). Lancet 1996; 347: 1196.
4. Kennare, R. Why is the caesarean section rate rising? MIDIRS Midwifery Digest 2003; 13 (4): 503-508.
5. Kennare R, Heard A, Chan A. Is caesarean section in the first birth a problem for women in the next birth? Before and Beyond Birth. Abstract Book. Perinatal Society of Australia and New Zealand 9th Annual Congress. Adelaide Convention Centre, Adelaide, South Australia, March 13-16 2005, A 127.
6. Kennare R, Tucker G, Heard A, Chan A. Risks of adverse outcomes in the next birth after caesarean delivery. Obstet Gynecol 2007;109:270-276.
7. Dekker G, Chan A, Luke C, Priest K, Riley M, Halliday J, King J, Gee V, O'Neill M, Snell M, Cull V, Cornes S. Risk of uterine rupture in Australian women attempting vaginal birth after one prior caesarean section: a retrospective population-based cohort study. BJOG 2010;117:1358-1365.
8. Smithers LG, Mol BW, Wilkinson C, Lynch JW. Implications of caesarean section for children's school achievement: a population-based study. Australian and New Zealand Journal of Obstetrics and Gynaecology 2016 DOI: 10.1111/ajo.12475

Appendix 1: Definitions

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:

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

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

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

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.

Body Mass Index (BMI): $\text{weight (in kg)} \div \text{height}^2 \text{ (in metres)}$.

This is used as a standard for recording obesity statistics and also as a measure of underweight. However the categories do not take into account factors such as frame size, muscularity, varying proportions of components such as fat, bone, cartilage and water, and may be misleading in athletes, children and some ethnic groups. The categories for describing weight using BMI are:

BMI category	Name
<18.5	Underweight
18.5 to < 25	Normal
25 to < 30	Overweight
30 to < 35	Obese
35 to < 40	Severely obese
40 or greater	Morbidly obese

Caesarean section: Birth 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.

Fertility rates:

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 women 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.

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

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

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

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

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

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.

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

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

Perinatal deaths:

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

Fetal death: Death prior to the complete expulsion or extraction from a woman of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.

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:

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

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

Neonatal death rate:

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

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 and stillbirths of at least 400g birthweight or 20 weeks gestation.

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

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

Preterm: less than 37⁺⁰ completed weeks gestation.

Primigravida: A woman pregnant for the first time.

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

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.

Termination of pregnancy: (synonym – induced abortion) The removal or expulsion of a pregnancy from the uterus via surgical or medical intervention, 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. Terminations of pregnancy at gestations of 20 weeks or later or where the fetus weighs at least 400g, performed by induction of labour resulting in a birth are included in the South Australian perinatal data collection. These are usually for congenital abnormalities or medical reasons.

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

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

Appendix 2: 2014 Supplementary Birth Record Form

Government of South Australia
Department of Health

2014 SUPPLEMENTARY BIRTH RECORD
FOR COMPLETION BY MIDWIVES AND NEONATAL NURSES

Mother's name (Surname) (Given names) 2 1 4

Child's surname (if different) (Given name - if known) Hospital/Place of birth

Mother's address Postcode Plurality (1=single, 2=twin, 3=triplet, 4=quad)

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

MOTHER'S INFORMATION

1 Mother's date of birth day month year

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

3 Country of birth

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

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

OCCUPATION

6 Baby's father

Baby's mother

PREVIOUS PREGNANCY OUTCOMES

7 Number of previous pregnancies

8 Number of previous pregnancies resulting in births ≥20 weeks (parity)

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

10 Outcome of last pregnancy

11 Date of delivery/termination of last pregnancy month year

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

13 Number of previous caesareans

THIS PREGNANCY

14 Date of last menstrual period day month year

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

16a Number of antenatal visits

16b First antenatal visit
Gestation (weeks)
Height (cm)
Weight (kg)

LABOUR AND BIRTH

24 Onset of labour
1. Spontaneous
2. No labour (CS)
3. Induction (excluding augmentation)
Give reason/s for induction (If postdates, state T+ days)
25 If induction, or augmentation after spontaneous onset, specify method/s
1. ARM
2. Oxytocics
3. Prostaglandins
4. Other (specify)

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

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

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

29 Perineal status after birth
Tick tear, repair & episiotomy if all
1. None
2. 1st degree tear/vaginal graze
3. 2nd degree tear
4. 3rd degree tear
5. 4th degree tear
6. Repair of tear
7. Episiotomy
8. Other (specify)
9. Not stated

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

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

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

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

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

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

BABY DETAILS

1 Case record number

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

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

4 Date of birth day month year

5 Hour of birth (24 hour clock)

6 Sex
1. Male
2. Female
3. Indeterminate

7 Birthweight (grams)

8 Gestation at birth (best clinical estimate in weeks)

CONDITION AT BIRTH

9 Apgar Score 1 minute 5 minute

10 Time to establish regular breathing (to nearest minute)

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

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

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

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

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

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

OUTCOME OF BABY

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

18 Baby transferred to on day month year

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

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

Appendix 3: Congenital Abnormality Form



Government of South Australia
Department of Health

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

CONGENITAL ABNORMALITY FORM

SBR No.

ACC NO.

BABY'S SURNAME.....

BABY'S FIRST NAME.....

SEXIF MULTIPLE BIRTH, BIRTH ORDER.....

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

HOSPITAL.....

ADDRESS OF MOTHER.....

FAMILY HISTORY OF CONGENITAL ABNORMALITY Yes No Not known

1. Parents (specify)..... ☐ ☐ ☐2. Siblings of this baby (including known stillbirths and 2nd trimester terminations of pregnancy) ☐ ☐ ☐

(specify)

3. Other relatives (specify)..... ☐ ☐ ☐

RESIDENCE OF MOTHER DURING THE FIRST 16 WEEKS OF PREGNANCY

EXPOSURE TO TERATOGENS

DURING THE FIRST 16 WEEKS OF PREGNANCY

This information can be provided by the doctor undertaking antenatal care
Yes If yes, details1. 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

VENTRAL

DORSAL



GEST =

CONGENITAL ABNORMALITIES / BIRTH DEFECTS PRESENT

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

Office use only

1..... 2..... 3..... 4..... 5..... 6..... 7..... 8..... 9..... 10..... SPECIFIC SYNDROME/S (if known)..... 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. <input type="checkbox"/> MSAFP (NTD etc) | <input type="checkbox"/> |
| 2. <input type="checkbox"/> Triple/Quadruple screen (Down's, etc) | <input type="checkbox"/> |
| 3. <input type="checkbox"/> Ultrasound (morphology) | <input type="checkbox"/> |
| 4. <input type="checkbox"/> Chorion villus sampling | <input type="checkbox"/> |
| 5. <input type="checkbox"/> Amniocentesis | <input type="checkbox"/> |
| 6. <input type="checkbox"/> Cordocentesis | <input type="checkbox"/> |
| 7. <input type="checkbox"/> Other (specify) | <input type="checkbox"/> |
| 8. <input type="checkbox"/> Not known | <input type="checkbox"/> |

Comments

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

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

For more information

Pregnancy Outcome (Statistics) Unit
Epidemiology Branch
SA Health, Government of South Australia
Citi Centre Building
11 Hindmarsh Square
Adelaide 5000 South Australia

Postal Address
Pregnancy Outcome (Statistics) Unit
SA Health, Government of South Australia
PO Box 6 Rundle Mall
Adelaide 5000 South Australia
Telephone: (08) 8226 6382
Fax: (08) 8226 6672
Web: www.sahealth.sa.gov.au/pregnancyoutcomes
E-mail: Pregnancy.Stats@health.sa.gov.au

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