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EXECUTIVE SUMMARY

This report provides information on maternal and perinatal health status in the ACT in 1999. The data presented are sourced from the ACT Maternal Perinatal Data Collection. Where rates per population are presented, these represent ACT residents only. All other statistics represent all births in the ACT, including those to usual residents of the surrounding Australian Capital Region.

This is the fourth in a series on Maternal and Perinatal Health produced by the Population Health Division, ACT Health, in consultation with the ACT Maternal Perinatal Information Network.

Fertility and crude birth rates in the ACT

Changes in the age specific fertility rates over time suggest that women in the ACT are increasingly delaying child bearing. Between 1995 and 1996, the fertility rates were highest among women aged 25 to 29 years whereas between 1997 and 1999, fertility rates were highest among women aged 30 to 34 years.

The total fertility rate for the ACT resident population has declined slightly over time from 1.66 in 1995 to 1.61 in 1999. The total fertility rate for the Australian population has continued to decline over time from 2.86 in 1970, to 1.83 in 1995 to 1.75 in 1999.¹

The crude birth rate for ACT live births to ACT residents was 13.2 per 1,000 women in 1999.

Women who gave birth and babies born in the ACT

The total number of women giving birth in the ACT declined by 5% between 1995 and 1999, with a similar trend observed nationally. There were 4,586 women who gave birth to 4,675 babies in the ACT in 1999, 1.8% of all births nationally.

Maternal characteristics

The majority of women who gave birth in the ACT in 1999 were ACT residents. However, between 1996 and 1999, the percentage of non-ACT residents giving birth in the ACT rose by one per cent to 11.7%.

Births to teenagers accounted for 3.8% of all births in the ACT in 1999. This was lower than the Australian percentage in 1999 (5.1%)².

The average age of women who gave birth in the ACT has increased from 28.6 years in 1991 to 29.6 years in 1999, a trend also observed nationally. There was a corresponding decrease in the percentage of women under 25 years who gave birth, and an increase in the percentage of women 35 years and over who gave birth in the ACT.

Among women who gave birth in the ACT in 1999, 80.9% were Australian born (compared with 77.5%² nationally), 7.2% were born in Asia and 6.0% were born in Europe.

Indigenous maternal characteristics

Indigenous women accounted for 1.3% (59) of the women who gave birth in the ACT in 1999. They were more likely to have their babies at a younger age than their non-Indigenous counterparts. Seventy-one per cent (71.2%) of the Indigenous women were less than 30 years of age at the time of the birth compared with 48.2% of non-Indigenous women.

Antenatal care

Women in the ACT accessed antenatal care through a variety of services in 1999. Reduced usage of general practitioners and obstetricians for antenatal care, and increased usage of antenatal clinics, the Birth Centre/Canberra Midwifery Program and shared care was observed between 1994 and 1999.

Place of birth

Ninety-nine per cent (99.1%) of women gave birth in a hospital or birth centre in 1999. The remaining one per cent of women gave birth either at home (0.5%) or before arrival at a hospital (0.4%). The percentage of women who gave birth in the Birth Centre rose from 5.7% in 1995 to 7.5% in 1999. Twenty-two per cent (22.3%) of women in the ACT chose to give birth in a private hospital.

The birth

The percentage of normal vaginal births has increased and the percentage of caesarean sections has decreased since 1994. In 1999, 69.1% of women who gave birth in the ACT had a normal birth and 19.4% had a caesarean section, representing an increase of 5.4% in normal births and a decrease of 1.6% in caesarean sections since 1994. The caesarean section rate in the ACT in 1999 was the lowest in Australia, with the Australian caesarean section rate being 21.9%.

Multiple births

The ACT had the highest percentage of multiple births in Australia in 1999, 1.9% compared with 1.5% for Australia.² The Canberra Hospital accepts referrals for multiple births from the surrounding Australian Capital Region, which contributes to the higher rate of multiple births observed in the ACT. Among the 529 NSW residents who gave birth in the ACT in 1999, 24 (4.5%) NSW residents had a multiple birth compared with 62 (1.5%) ACT residents.

Baby characteristics

The ACT followed the national trend with male births (50.8%) slightly exceeding female births (49.2%).

In 1999, 78.8% of babies born in the ACT weighed between 2,500 and 3,999 grams, with an average birthweight of 3,376 grams. The majority (88.9%) of babies born were between 37 and 41 weeks gestation, with an average gestational age of 39 weeks.

The ACT had the highest percentage of babies with a birthweight of less than 2,500 grams (7.1%), when compared nationally (6.7%).² The ACT figure reflects referrals for high-risk births that the Centre for Newborn Care at The Canberra Hospital accepts from the surrounding New South Wales area. Nineteen per cent (19.2%) of babies born to women not usually resident in the ACT weighed less than 2,500 grams compared with 5.5% for ACT women.

Birth defects and perinatal deaths

Four per cent (4.4%) of babies born in the ACT in 1999 were reported to have a birth defect. Most common were defects of the musculo-skeletal and urinary systems, genital tract and of the skin.

There were 38 stillbirths, 13 neonatal deaths and 5 post neonatal deaths reported for all ACT births in 1999.

In 1999, the ACT had a stillbirth rate of 8.1 per 1,000 births for all births in the ACT and a rate of 6.8 per 1,000 for ACT residents' births, compared with an Australian rate of 7.1 per 1,000 births².

In 1999, the ACT had a neonatal death rate of 2.8 per 1,000 births for all births in the ACT and a rate of 2.7 per 1,000 for ACT residents' births, compared with an Australian rate of 3.2 per 1,000 births².

1 INTRODUCTION

This report provides information on fertility trends, maternal and perinatal health and service utilisation in the ACT for the year 1999. The information in this report will be of interest to service providers, policy makers, researchers and consumers. It is the fourth in the series on maternal and perinatal health produced by the Population Health Research Centre, in consultation with the ACT Maternal Perinatal Information Network. The data presented in this report was sourced from the ACT Maternal and Perinatal Data Collection. The Population Health Research Centre maintains the collection.

1.1 Fertility rates in the ACT

The total fertility rate for the ACT resident population has declined over time from 1.66 in 1995 to 1.61 in 1999 (Table 1). The total fertility rate for the Australian population has also continued to decline over time, from 2.86 in 1970, and more recently from 1.83 in 1995 to 1.75 in 1999.³

Table 1: Number of births, age specific fertility rates and total fertility rates for all live births, ACT residents, 1995 – 1999

Age groups	1995		1996		1997		1998		1999	
	No.	ASFR	No.	ASFR	No.	ASFR	No.	ASFR	No.	ASFR
15 - 19*	173	14.5	159	10.6	167	13.9	140	11.9	152	13.1
20 – 24	777	49.5	674	48.6	593	43.5	563	42.5	552	42.0
25 – 29	1,438	114.1	1,443	114.9	1,370	103.4	1,337	100.3	1,260	95.6
30 – 34	1,358	106.1	1,285	101.2	1,346	106.9	1,317	107.2	1,318	108.2
35 – 39	570	45.9	620	52.2	561	43.0	609	47.6	679	53.7
40 – 44**	29	2.4	47	3.9	83	6.7	108	8.8	118	9.5
Total	4,345	332.7	4,227	331.4	4,120	317.4	4,074	318.2	4,079	322.1
TFR per 1,000 women	1,664		1,660		1,589		1,593		1,611	

ASFR - Age Specific Fertility Rates TFR - Total Fertility Rates * By definition, all births for mothers aged less than 15 years are included in the 15-19 age group. ** Note all births for mothers aged 45 years or more have been removed due to small numbers. Source: ACT Maternal Perinatal Data Collection and Estimated Residential Population by sex and age, 1999, ABS Cat. No: 3201.0

Since 1995, there has been a reduction in the age specific fertility rate per 1,000 women in the age group 25 to 29 years and an increase in the 35 to 39 and 40 to 44 age groups. Table 1 shows the movement in the peak fertility rates between age groups over time. Between 1995 and 1996, the fertility rates were highest among women aged 25 to 29 years whereas between 1997 and 1999, fertility rates were highest among women aged 30 to 34 years. Note that the numbers of live births in 1998 to 1999 were lower than in 1995 and 1996.

1.2 Crude birth rates in the ACT

Crude birth rates per 1,000 estimated resident population (ERP) presented in Table 2 shows a slight decline from 14.3 in 1995 to 13.2 in 1999. The Australian crude birth rate in 1999 was 13.1 per 1,000 ERP, with Northern Territory registering the highest crude birth rate (18.5 per 1,000 ERP) and South Australia registering the lowest crude birth rate (12.0 per 1,000 ERP).⁴

Table 2: Crude birth rates per 1,000 ACT residents, 1995 – 1999

	1995	1996	1997	1998	1999
All ACT live births	4,853	4,750	4,743	4,691	4,637
ACT live births to ACT residents	4,346	4,231	4,123	4,078	4,081
Crude birth rates per 1,000 ACT residents	14.3	13.8	13.4	13.2	13.2

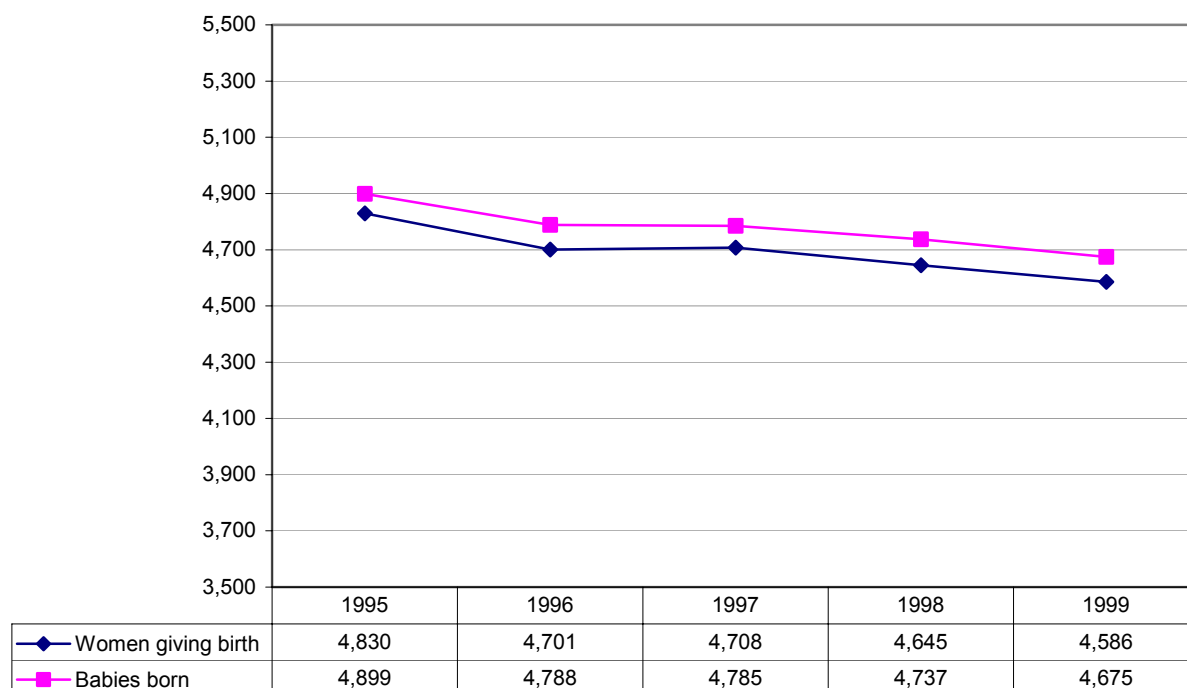
Note: The Australian Bureau of Statistics (ABS) 1999 crude birth rate for ACT is 13.7.⁴ The ABS reports on the number of live births to ACT residents irrespective of where the birth occurs, which accounts for the slight difference in rates.⁵

Source: ACT Maternal Perinatal Data Collection and ABS: Population by age and sex, ACT, Cat no 3201.0

1.3 Women who gave birth and babies born in the ACT

ACT births accounted for 1.8% of all births nationally in 1999. Figure 1 presents the figures from 1995 to 1999. In that period, the total number of women who gave birth and babies born in the ACT peaked in 1995 and were at their lowest point in 1999. The total births reduced by approximately 5% over the considered period.

Figure 1: Women who gave birth and babies born in the ACT, 1995 – 1999



Note: Babies born includes livebirths and stillbirths.
Source: ACT Maternal Perinatal Data Collection, 1995 – 1999 data

1.4 Place of birth

Ninety-nine per cent (99.1%) of women gave birth in a hospital or birth centre in the ACT in 1999. The remaining one per cent gave birth at home (0.5%) or before arrival at a hospital (0.4%) (Table 3). The percentage of women who gave birth in the Birth Centre rose from 5.7% in 1995 to 7.5% in 1999.

Table 3: Type of birth facility where women gave birth, ACT, 1999

Type of birth facility	No.	%
Hospital	4,201	91.6
Birth centre	346	7.5
Home	22	0.5
Born before arrival	17	0.4
Total	4,586	100.0

Note: The 17 records that were classified as “Born before arrival” have been verified in the medical records.
Source: ACT Maternal Perinatal Data Collection, 1999 data

Note that women who booked into the Canberra Midwifery Program intending to have their baby at the Birth Centre but gave birth at home, without a subsequent admission to hospital, have been classified in this report under the “home” category.

Ninety-nine per cent (98.9%) of women who intended to give birth in a hospital, did indeed give birth in a hospital. Table 4 shows that 59.9% of the women who intended to give birth in a birth centre did give birth in a birth centre, while 1% gave birth at home or before arrival at hospital and 39.1% gave birth in the hospital delivery suite. The majority of the women transferred from the birth centre to the delivery suite were for clinical reasons (eg pharmacological augmentation of labour, epidural, no progress in second stage, thick meconium stained liquor). Other transfers were due to staffing arrangements (eg midwife already in Delivery Suite with another woman or perhaps Delivery Suite staff covering sick leave) and the woman's choice.

Table 4: Actual place of birth by intended place of birth at onset of labour, ACT, 1999

Actual place of birth	Intended place of birth at onset of labour					
	Hospital		Birth Centre		Home	
	No.	%	No.	%	No.	%
Hospital	3,964	98.9	209	39.1	<5	-
Birth centre	26	0.6	320	59.9	0	0.0
Home	<5	-	<5	-	17	81.0
Born before arrival	14	0.3	<5	-	0	0.0
Total	4,007	100.0	534	100.0	21	100.0

Note: The data quality of intended place of birth prior to 1999 was poor, a change to the ACT Midwives Data Collection Form has improved the data quality to allow reporting of intended place of birth at onset of labour data. Twenty-four records where the intended place of birth at onset of labour was "not stated" and the actual place of birth was a "hospital" have been excluded from this table. Source: ACT Maternal Perinatal Data Collection, 1999 data

1.5 Seasonality of birth

Table 5 presents information on birth seasonality in the ACT for the year 1999. There was an even spread of births throughout the year, with births per month ranging from 341 (7.3%) in December to 428 (9.2%) in March.

Table 5: Month of birth, ACT, 1999

Month of birth	No.	%
January	401	8.6
February	368	7.9
March	428	9.2
April	386	8.3
May	395	8.4
June	396	8.5
July	380	8.1
August	418	8.9
September	425	9.1
October	389	8.3
November	348	7.4
December	341	7.3

Source: ACT Maternal Perinatal Data Collection, 1999 data

2 MATERNAL CHARACTERISTICS

2.1 ACT maternal demographic characteristics

The maternal demographic characteristics, including age group, country of birth, Indigenous status, usual place of residence and marital status, presented in Table 6, are for all the women that gave birth in the ACT in 1999.

Table 6: Maternal demographic characteristics, ACT, 1999

		No.	%
Age groups	Less than 20 years	176	3.8
	20 - 24 years	619	13.5
	25 - 29 years	1,424	31.1
	30 - 34 years	1,465	31.9
	35 - 39 years	764	16.7
	40 years or more	138	3.0
	Total	4,586	100.0
Country of birth	Australia	3,708	80.9
	Other Oceania	131	2.9
	Europe	276	6.0
	Africa including Middle East	60	1.3
	Asia	331	7.2
	Americas	73	1.6
	Not stated	7	0.2
	Total	4,586	100.0
Indigenous status	Aboriginal/Torres Strait Islander	59	1.3
	Non-Aboriginal	4,522	98.6
	Not stated	5	0.1
	Total	4,586	100.0
Usual place of residence	ACT residents	4,046	88.2
	North Side	1,839	45.5
	North Canberra	388	9.6
	Belconnen	1,000	24.7
	Gungahlin - Hall	451	11.1
	South Side	2,207	54.5
	South Canberra	220	5.4
	Woden Valley	328	8.1
	Weston Creek	245	6.1
	Tuggeranong	1,414	34.9
	Non ACT residents	537	11.7
	Total	4,586	100.0
	Marital status	Never married	367
Widowed, Divorced or Separated		60	1.3
Married (inc, de facto)		4,148	90.4
Not stated		11	0.2
Total		4,586	100.0

Note: Unless otherwise stated data presented in this table includes all women who gave birth in the ACT during 1999, including those women that normally reside interstate or overseas. Percentages for ACT residents by sub-divisions in "usual place of residents" are calculated on the total of ACT residents only. NSW residents accounted for 98% of the non-ACT residents giving birth in the ACT in 1999.

Source: ACT Maternal Perinatal Data Collection, 1999 data

There has been a slight reduction in the percentage of births to teenage mothers in the ACT in recent years. For instance, 3.8% of all births in the ACT were to teenagers in 1999 (Table 6), compared with 4.1% of all births in 1997.⁶ This was lower than the Australian percentage (5.1%) in 1999.²

The maternal age data also indicates that women in the ACT are choosing to delay childbirth. There has been a reduction in the percentage of ACT women under 25 years who gave birth (21.3% in 1994 compared with 17.3% in 1999), and a rise in the percentage of ACT women 35 years and over who gave birth (14.0% in 1994 compared with 19.7% in 1999).

Table 7 highlights differences in age groupings between birth facilities in the ACT. Women less than 30 years were more likely to use public hospitals (1,893, 53.7%) in 1999 while those 30 years or over were more likely to use the private hospitals (711, 69.5%) in 1999.

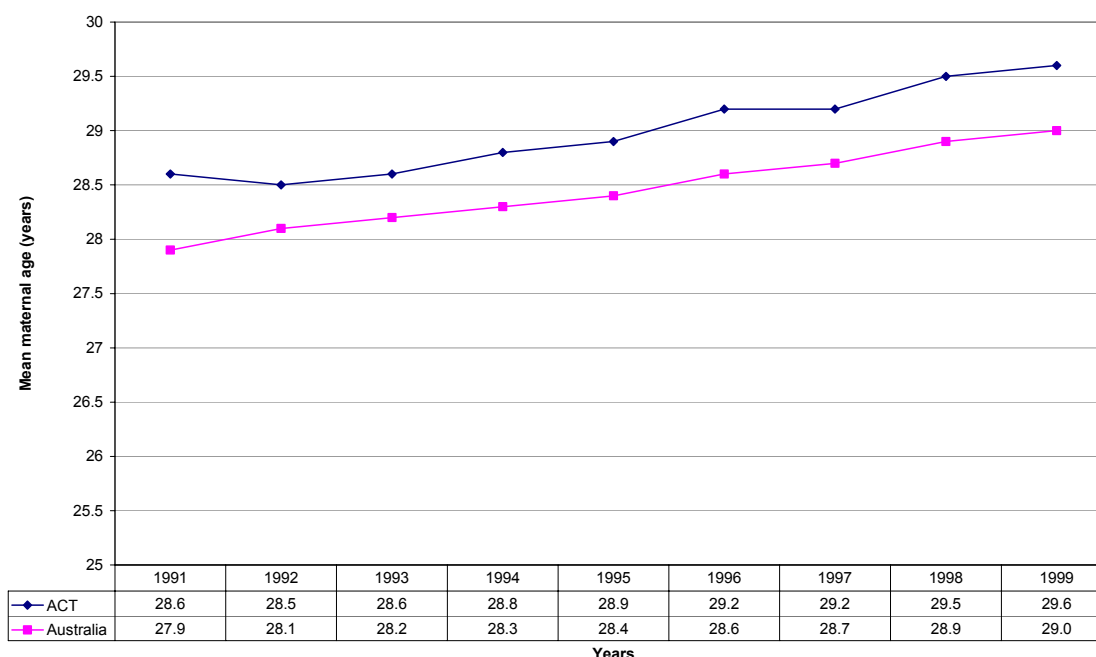
Table 7: Maternal age by hospital of birth, ACT, 1999

Age groups	The Canberra Hospital		Calvary Public Hospital		Calvary Private Hospital		John James Memorial Hospital	
	No.	%	No.	%	No.	%	No.	%
Less than 20 years	120	5.2	54	4.4	0	0.0	<5	-
20 – 24 years	364	15.8	220	18.1	13	4.8	19	2.5
25 – 29 years	701	30.4	434	35.7	97	35.9	182	24.2
30 – 34 years	689	29.8	335	27.6	104	38.5	326	43.3
35 – 39 years	361	15.6	144	11.9	50	18.5	199	26.4
40 years or more	74	3.2	28	2.3	6	2.2	26	3.5
Total	2,309	100.0	1,215	100.0	270	100.0	753	100.0

Note: Due to the rounding of percentages some totals may not equal 100.0.
Source: ACT Maternal Perinatal Data Collection, 1999 data

The average age of women who gave birth in the ACT has increased over time from 28.6 years in 1991 to 29.6 years in 1999. The average age of women in the ACT having their first child was 27.8 years in 1999. The minimum age was 14 years and the maximum age was 45 years. Figure 2 compares the differences in average maternal age between the ACT and Australia from 1991 to 1999, clearly illustrating an ongoing increase in maternal age for both the ACT and Australian populations.

Figure 2: Average maternal age, ACT and Australia, 1991 – 1999



Source: AIHW, NPSU Perinatal Series, Australia's Mothers and Babies, 1991 - 1999

Geographical changes in the fertility patterns need to be monitored as they have important implications for service planning. The majority of women that gave birth resided on the South side (54.5%) while women residing on the North side of Canberra accounted for 45.5% of ACT resident women who gave birth in the ACT in 1999, an increase of 6.3% since 1994, with a corresponding decrease over the period for the South side. A particular growth area was Gungahlin-Hall where birth rates have risen from 3.5% of ACT resident women giving birth in 1994 to 11.1% in 1999 (Table 6).

The majority of women who gave birth in the ACT in 1999 were ACT residents. The percentage of non-ACT residents giving birth in the ACT increased by one per cent from 10.7% in 1996 to 11.7% in 1999, with women residing in NSW accounting for 11.5% of women who gave birth in the ACT in 1999, an increase of 1.3% since 1994.⁷

2.2 ACT Indigenous maternal demographic characteristics

The reported number of Indigenous women who gave birth in the ACT during 1999 was 59.

Indigenous women who gave birth in the ACT were more likely to have their babies at a younger age, with 71.2% less than 30 years of age at the time of the birth compared with 48.2% of non-Indigenous women (Table 8). There were 28.8% of Indigenous women that were 30 years or older at the time of the birth compared with 51.9% of non-Indigenous women.

The Indigenous women who gave birth in 1999 tended to be dispersed throughout the ACT geographical subdivisions, although there were slightly more who were usual residents on the South side (56.0%) than on the North side (44.0%).

Table 8: Age and usual place of residence by Indigenous status, ACT, 1999

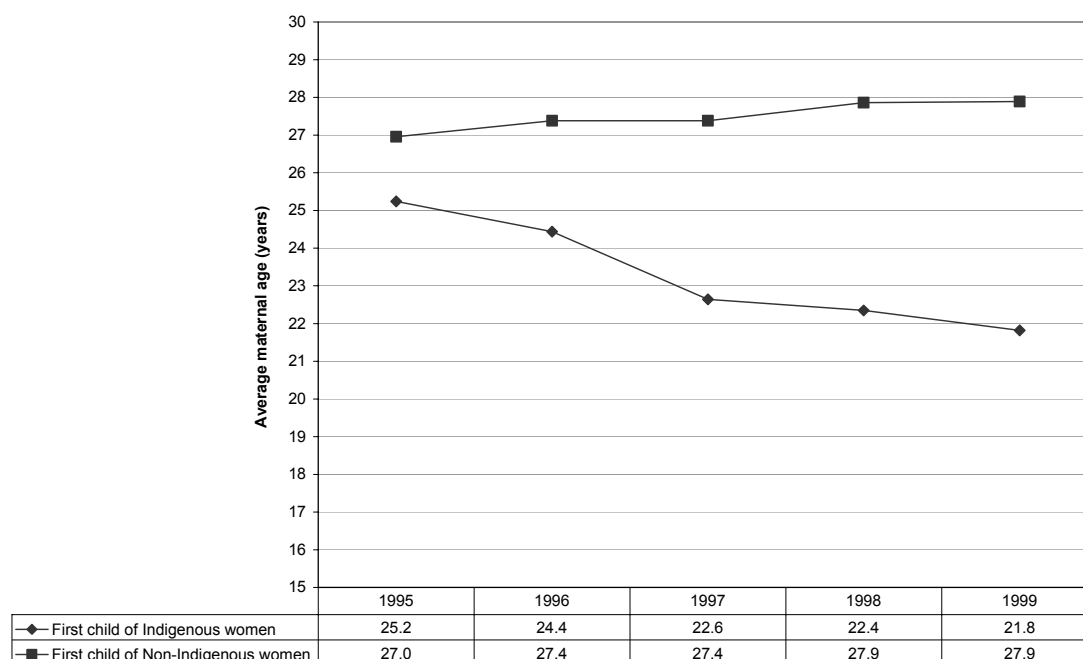
		Indigenous		Non-Indigenous	
		No.	%	No.	%
Age groups	Less than 20 years	15	25.4	161	3.6
	20 - 24 years	18	30.5	601	13.3
	25 - 29 years	9	15.3	1,414	31.3
	30 - 34 years	11	18.6	1,451	32.1
	35 years or more	6	10.2	895	19.8
	Total	59	100.0	4,522	100.0
Usual place of residence	ACT residents	50	84.7	3,991	88.3
	North Side	22	44.0	1,813	45.4
	South Side	28	56.0	2,178	54.6
	Non ACT residents	9	15.3	531	11.8
	New South Wales	9	15.3	520	11.5
	Other states / overseas	0	0.0	11	0.3
	Total	59	100.0	4,522	100.0

Note: Five records where indigenous status was 'not stated' have been excluded. Due to the rounding of percentages some totals may not equal 100.0.

Source: ACT Maternal Perinatal Data Collection, 1999 data

Figure 3 shows a general trend in the ACT for the average age of Indigenous women giving birth to their first child to be younger than non-Indigenous women. As the average age for women who gave birth to their first child has increased for non-Indigenous women (27.0 in 1995 to 27.9 in 1999) and decreased for Indigenous women (25.2 in 1995 to 21.8 in 1999) over time in the ACT there was a large age disparity (6.1 years) between Indigenous and Non-Indigenous women who gave birth to their first child in 1999.

Figure 3: Average maternal age for first born child by Indigenous status, ACT, 1995 – 1999



Source: ACT Maternal Perinatal Data Collection, 1995 - 1999 data

2.3 Pregnancy profile

The information on the previous pregnancies, parity and previous pregnancy outcome is reported to the midwife at the time of admission.

The number of pregnancies and a woman's parity may differ depending on the birth outcome for each pregnancy. Parity refers to the number of children a woman has borne that are either live births or stillbirths. As not all pregnancies progress to 20 weeks gestation (that is they are aborted), a woman may have one or more pregnancies before a birth outcome of either a live birth or a stillbirth is achieved, thus adding to a woman's parity. Parity also increases by more than one depending on the birth outcome for multiple pregnancies.

Table 9: Pregnancy profile characteristic, ACT, 1999

		No.	%
Previous pregnancies	No previous pregnancy	1,396	30.4
	One previous pregnancy	1,430	31.2
	Two previous pregnancies	884	19.3
	Three previous pregnancies	475	10.4
	Four or more previous pregnancies	401	8.7
	Total	4,586	100.0
Parity	No previous births	1,905	41.5
	One previous birth	1,584	34.5
	Two previous births	725	15.8
	Three previous births	242	5.3
	Four or more previous births	130	2.8
	Total	4,586	100.0

Source: ACT Maternal Perinatal Data Collection, 1999 data

Table 10 shows parity of women by the hospital of birth. Women giving birth at the Calvary Hospitals appeared to be more likely to choose the private hospital for their third child (21.1%) when compared with the public hospital (15.1%).

Table 10: Parity by hospital of birth, ACT, 1999

Parity	The Canberra Hospital		Calvary Public Hospital		Calvary Private Hospital		John James Memorial Hospital	
	No.	%	No.	%	No.	%	No.	%
No previous births	946	41.0	544	44.8	119	44.1	289	38.4
One previous birth	780	33.8	391	32.2	84	31.1	314	41.7
Two previous births	372	16.1	183	15.1	57	21.1	104	13.8
Three previous births	138	6.0	62	5.1	5	1.9	35	4.6
Four or more previous births	73	3.2	35	2.9	5	1.9	11	1.5
Total	2,309	100.0	1,215	100.0	270	100.0	753	100.0

Note: Parity refers to the number of children a woman has borne that are either live births or stillbirths, it does not include pregnancies where the fetus is delivered before 20 weeks gestation. Due to the rounding of percentages some totals may not equal 100.0.
Source: ACT Maternal Perinatal Data Collection, 1999 data

Table 11 looks at maternal age, usual place of residence and marital status by pregnancy status. Primigravida refers to a woman pregnant for the first time and multigravida refers to a woman who has been pregnant more than once. As would be expected higher percentages of primigravida women are less than 29 years old, while higher percentages of multigravida women are 30 years or older.

Single women were more likely to be primigravida (11.6%) than multigravida (6.5%) in 1999. There were similar percentages for maternal country of birth with both primigravida and multigravida women.

Table 11: Selected maternal characteristics by pregnancy status, ACT, 1999

		Primigravida		Multigravida	
		No.	%	No.	%
Age groups	Less than 20 years	104	7.4	72	2.3
	20 - 24 years	259	18.6	360	11.3
	25 - 29 years	552	39.5	872	27.3
	30 - 34 years	344	24.6	1,121	35.1
	35 - 39 years	121	8.7	643	20.2
	40 years or more	16	1.1	122	3.8
	Total	1,396	100.0	3,190	100.0
Usual place of residence	ACT residents	1,227	88.0	2,819	88.4
	North Side	610	43.8	1,229	38.5
	South Side	617	44.3	1,590	49.9
	Non ACT residents	167	12.0	370	11.6
	Total	1,394	100.0	3,189	100.0
Marital status	Married (inc. de facto)	1,225	87.9	2,923	91.9
	Never married	161	11.6	206	6.5
	Widowed, Divorced or Separated	7	0.5	53	1.7
	Total	1,393	100.0	3,182	100.0

Note: Three records where usual place of residence was 'not stated', and eleven records where marital status was 'not stated' have been excluded. Due to the rounding of percentages some totals may not equal 100.0.
Source: ACT Maternal Perinatal Data Collection, 1999 data

As the previous pregnancy outcome information is self reported by the woman on admission to hospital there may be some inaccuracies due to recall omissions or the desire not to report for a variety of reasons. However the data in Table 12 gives a general overview of previous pregnancy outcomes for women in the ACT.

Table 12 shows that 16.7% of women who have had one or more previous pregnancies (multigravida) had not previously experienced a live birth during their reproductive life.

Only a relatively small percentage of women that gave birth in 1999 had previously experienced a neonatal death (0.3%) or stillbirth (2.7%) during their reproductive life.

Fetal loss includes miscarriage (spontaneous abortion), termination of pregnancy (induced abortion) and ectopic pregnancies that are before 20 weeks gestation. A relatively high percentage of women that gave birth in 1999 had previously experienced a fetal loss (46.8%) during their reproductive life.

Table 12: Previous pregnancy outcomes for multigravida women, ACT, 1999

		No.	%
Previous live births	No previous live births	534	16.7
	One previous live birth	1,592	49.9
	Two previous live births	721	22.6
	Three previous live births	224	7.0
	Four or more previous live births	119	3.7
	Total	3,190	100.0
Previous neonatal deaths	No previous neonatal death	3,180	99.7
	One or more previous neonatal deaths	10	0.3
	Total	3,190	100.0
Previous stillbirths	No previous stillbirths	3,103	97.3
	One previous stillbirth	80	2.5
	Two or more previous stillbirths	7	0.2
	Total	3,190	100.0
Previous fetal loss	No previous fetal loss	1,699	53.3
	One previous fetal loss	991	31.1
	Two previous fetal losses	342	10.7
	Three previous fetal losses	92	2.9
	Four or more fetal losses	66	2.1
	Total	3,190	100.0

Note: Previous fetal loss includes spontaneous abortions, induced abortions and ectopic pregnancies. The information contained in this table is reported to the midwife at the time of admission. Due to the rounding of percentages, some totals may not equal 100.0

Source: ACT Maternal Perinatal Data Collection, 1999 data

2.4 Multiple births

The ACT has the highest percentage of multiple births in Australia in 1999. Table 13 shows that there were 87 multiple births in the ACT in 1999, accounting for 1.9% of all ACT births compared with the Australian percentage of 1.5%².

Table 13: Women having a multiple birth, ACT, 1999

		No.	%
Plurality	Singleton	4,499	98.1
	Multiple birth	87	1.9
	Total	4,586	100.0

Note: There were less than five triplets born in 1999.

Source: ACT Maternal Perinatal Data Collection, 1999 data

The Canberra Hospital (TCH) had the highest number of multiple births (Table 14). TCH accepts referrals for multiple births from the surrounding Australian Capital Region, which contributes to the higher rate of multiple births observed in the ACT. Table 15 shows that among the 529 NSW residents who gave birth in the ACT in 1999, 24 (4.5%) NSW residents had a multiple birth compared with 62 (1.5%) ACT residents.

Table 14: Multiple birth by hospital of birth, ACT, 1999

Plurality	The Canberra Hospital		Calvary Public Hospital		Calvary Private Hospital		John James Memorial Hospital	
	No.	%	No.	%	No.	%	No.	%
Singleton	2,253	97.6	1,208	99.4	260	96.3	739	98.1
Multiple birth	56	2.4	7	0.6	10	3.7	14	1.9
Total	2,309	100.0	1,215	100.0	270	100.0	753	100.0

Source: ACT Maternal Perinatal Data Collection, 1999 data

A clear association between multiple pregnancy and advanced maternal age has been reported each year in Australia's Mothers and Babies since 1991. Table 15 shows that 68.9% of all multiple births in the ACT were to women 30 years or over in 1999. A probable physiological reason is an increased chance of multiple ovulation as maternal age increases. Also assisted reproductive treatments increases the likelihood of having a multiple pregnancy, with older women more likely to seek assisted reproductive treatments for infertility.

Table 15: Selected maternal characteristics for multiple births, ACT, 1999

		Singleton		Multiple		Total	
		No.	%	No.	%	No.	%
Age groups	Less than 20 years	176	3.9	0	0.0	176	3.8
	20 - 24 years	610	13.6	9	10.3	619	13.5
	25 - 29 years	1,406	31.3	18	20.7	1,424	31.1
	30 - 34 years	1,434	31.9	31	35.6	1,465	31.9
	35 years or more	873	19.4	29	33.3	902	19.7
	Total	4,499	100.0	87	100.0	4,585	100.0
Indigenous status	Indigenous	59	1.3	0	0.0	59	1.3
	Non-Indigenous	4,435	98.6	87	100.0	4,522	98.6
	Not stated	5	0.1	0	0.0	5	0.1
	Total	4,499	100.0	87	100.0	4,586	100.0
Usual state of residence	ACT residents	3,984	88.8	62	71.3	4,046	88.4
	New South Wales	505	11.2	24	27.6	529	11.6
	Total	4,488	100.0	87	100.0	4,575	100.0

Note: Eleven records have been excluded where maternal usual state of residence was either other states, overseas or not stated. Annual rates may fluctuate due to the small numbers. Due to the rounding of percentages some totals may not equal 100.0.
Source: ACT Maternal Perinatal Data Collection, 1999 data

Table 16 compares multiple births in the ACT to Australian figures for a five-year period from 1995 to 1999. The ACT had a higher percentage of multiple births when compared with the Australia population. The increase that is evident in the non-ACT data reflects changes to maternity services in the surrounding NSW area, with more non-ACT residents accessing ACT services for multiple births.

Table 16: Women having a multiple birth, ACT and Australia, 1995 – 1999

Year	ACT residents		Non ACT residents		All ACT		Australia	
	No.	%	No.	%	No.	%	No.	%
1995	58	1.34	11	2.44	69	1.43	3,570	1.39
1996	66	1.57	17	3.38	83	1.77	3,569	1.41
1997	53	1.29	24	3.97	77	1.64	3,709	1.47
1998	63	1.56	27	4.54	90	1.94	3,751	1.49
1999	62	1.53	25	4.66	87	1.90	3,929	1.55

Note: Multiple birth includes all multiple births. ACT's annual rates fluctuate due to the small numbers.
Source: ACT Maternal Perinatal Data Collection and AIHW, NPSU Perinatal Series, Australia's Mothers and Babies, 1995 - 1999

2.5 Antenatal care

Antenatal care is the care that a woman receives during pregnancy. The aim of this care is to decrease the incidence of unfavourable pregnancy outcomes by detecting and treating problems. For example screening pregnant women for anaemia (using a blood test) and providing iron supplements to those found to be anaemic^{8 9}.

The following section outlines the antenatal services offered in the ACT and reflects changes in models of antenatal care.

2.5.1 Antenatal visits

The number of antenatal visits indicates the amount of care provided to a woman during a pregnancy. The number of visits gives some indication about the accessibility of antenatal care in the ACT. The majority of pregnant women in the ACT had five or more antenatal visits in 1999 (Table 17).

Table 17: Antenatal visits, ACT, 1999

		No.	%
As collected in OBICARE at The Canberra Hospital (codes changed for 2000 data)	No antenatal care	<5	-
	Less than two visits	13	0.6
	2 to 4 visits	185	8.0
	5 to 7 visits	332	14.3
	8 or more visits	1,788	77.1
Total		2,318	100.0
As collected on ACT MDCF for Calvary and John James Memorial Hospitals and Homebirths	No visits	8	0.4
	1 to 5 visits	126	5.6
	6 to 10 visits	1,131	49.9
	11 to 15 visits	868	38.3
	16 visits or more	40	1.8
	Not stated	92	4.1
Total		2,265	100.0

Note: Less than five women were reported to have had "No antenatal care" in OBICARE. OBICARE is an Access database used to collect data for the ACT Maternal Perinatal Data Collection at The Canberra Hospital. ACT MDCF stands for ACT Midwives Data Collection Form.
Source: ACT Maternal Perinatal Data Collection, 1999 data

Additional categories on the number of antenatal visits were introduced on the ACT Midwives Data Collection Form in January 1999 to improve the information. Unfortunately the additional categories were not changed in OBICARE until January 2000. Therefore the ACT Maternal Perinatal Data Collection has two sets of codes for this data item.

2.5.2 Antenatal diagnostic procedures

A number of different antenatal diagnostic procedures are available for women in the ACT during their pregnancy. Data for 1999 for all women having antenatal procedures during their pregnancy prior to giving birth in the ACT are presented in Table 18. The following is a brief explanation about these procedures and why they are used.

Abdominal ultrasounds are widely used because a great deal of information can be obtained with minimum risk to the mother or fetus. It may be used to confirm the pregnancy, detect multiple gestations, determine gestational age, confirm fetal viability, determine the position of the uterus, placenta or the foetus, or to check the amount of amniotic fluid.¹⁰ More than 90% (4,152) of pregnant women in the ACT reported to have had at least one ultrasound in 1999. Note that these data could be subject to under reporting, as annual reported rates have been inconsistent between birth facilities since 1997.

Cardiotocography (CTG) measures uterine activity and the fetal heart rate. This procedure is used for both low-risk and high-risk women during labour. It supplies data about the fetus and provides a permanent printed record.¹⁰ There has been an increase in the reported use of cardiotocography (CTG) from 34.2% in 1996 to 48.0% in 1999. This is most likely due to improved reporting using OBICARE at The Canberra Hospital (TCH), with TCH reporting the highest percentages (57.0%) of CTG in 1999. However, these data are also likely to be under reported by the other birth facilities.

Amniocentesis is used to assess the foetal health and maturity. It can also be used to diagnose chromosomal or genetic abnormalities.¹¹ A needle is inserted through the abdominal wall guided by ultrasound, to withdraw amniotic fluid.¹²

Chorionic villi sampling is used to diagnose genetic or chromosomal abnormalities. It is usually done between 9 and 12 weeks gestation. A catheter is inserted through the cervix and a sample of chorionic villi aspirated.¹⁰ Data for chorionic villus sampling and amniocentesis reported in the ACT Maternal Perinatal Data have been supplemented with data from the Fetal Medicine Unit. It is possible that this procedure is under-reported. Therefore it would be useful to obtain data from other clinics in the ACT that performed this procedure in order to accurately identify the number of chorionic villus sampling and amniocentesis performed in 1999.

Xray pelvimetry is done to determine whether the pelvis is adequate for a vaginal birth, with an Xray taken of the pelvic region. It is not often used because of the risks associated with radiation.¹³

Computerised tomography (CT) scanning is used for assessment and management of women with breech presentations. CT scans are more accurate for assessing pelvic diameters than Xray pelvimetry. The exact flexion and extension of the fetal head can be determined using CT scans, and helps the decision making process regarding the safest birth method.¹³

A cervical suture is used for cervical incompetence (premature dilatation of the cervix associated with 2nd trimester abortions). A Shirodkar-Barter operation is used to reinforce the weakened cervix by encircling it with suture material. A purse-like suture is placed in the cervix at 14 to 18 weeks gestation. This suture must be removed if the woman goes into labour.¹³

Table 18: Antenatal diagnostic procedures, ACT, 1999

		No.	%
Antenatal procedures	Ultrasound	4,152	90.5
	Cardiotocography (CTG)	2,202	48.0
	Amniocentesis <20 weeks	234	5.1
	Amniocentesis 20 weeks or more	21	0.5
	Chorionic villus sampling	35	0.8
	X-Ray	21	0.5
	CT scan	19	0.4
	Cervical suture	12	0.3

Source: ACT Maternal Perinatal Data Collection, 1999 data

2.5.3 Responsibility for antenatal care

Women in the ACT are accessing a variety of models of antenatal care. Over the five-year period 1995 to 1999, the use of antenatal services provided by general practitioners and obstetricians declined, and the use of shared care, antenatal clinics increased (Table 19).

It is also important to note that models of antenatal care have changed considerably over this period. A major change in the provision of hospitalisations for antenatal care from 1995 to 1999 was the move from inpatient care to outpatient care. For example, women with mild hypertension or placenta praevia are managed as outpatients with Midcall observing symptoms and monitoring their general well being after their initial presentation. The benefits include the women being able to be at home with her family as well as reduction of treatment costs. Women are re-admitted for on-going treatment as required.

In 1995, the Fetal Medicine Unit (FMU) was established for assessment and management of complicated pregnancies. As a result there has been an increase in the referral of women from regional areas with complicated pregnancies to TCH. When appropriate these women are also managed as outpatients for their antenatal care.

There have also been a series of changes from 1995 with the provision of antenatal services in the Birth Centre and the Canberra Midwifery Program. The Community Midwives Pilot Program provided care by a team of midwives. The pilot program commenced in 1995 and continued as the Community Midwives Program from October 1996 until 1999 when it amalgamated with the Birth Centre to form the Canberra Midwifery Program.

In 1999 the Canberra Midwifery Program commenced providing continuity of midwifery care by teams of midwives to women throughout their pregnancy, birth and up to two weeks after the birth. The models of maternity care have continued to evolve with some of the teams now providing one to one midwifery care. The changes centred around midwives taking more responsibility for the provision of antenatal care, with an initial health check and ordering of diagnostic tests performed by a medical practitioner early in the pregnancy. Shared care with the midwife and a medical practitioner is arranged for women with pre-existing maternal medical conditions or obstetric complications as required. Responsibility for antenatal care is outlined in Table 19. Obstetricians (35.5%) provided the majority of antenatal care in 1999, followed by shared care (26.8%) and the antenatal clinic (20%).

Table 19: Responsibility for antenatal care, ACT, 1995 – 1999

Service providers	1995		1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%	No.	%
Obstetrician	2,333	48.3	2,132	45.4	1,914	40.7	1,790	38.6	1,626	35.5
GP	813	16.8	634	13.5	285	6.1	256	5.5	136	3.0
Midwife	29	0.6	72	1.5	64	1.4	95	2.1	102	2.2
Antenatal clinic	587	12.2	773	16.4	1,154	24.5	876	18.9	916	20.0
BC/CMP or CMP					271	5.8	544	11.7	494	10.8
Shared care	908	18.8	983	20.9	989	21.0	985	21.3	1,228	26.8
Not stated	160	3.3	107	2.3	24	0.5	86	1.9	77	1.7
Total	4,830	100.0	4,701	100.0	4,701	100.0	4,632	100.0	4,579	100.0

Note: BC/CMP refers to the combined Birth Centre/ Community Midwifery Program from 1997 to 1998. CMP refers to the Canberra Midwifery Program that commenced in 1999. CMP figures in 1999 from the birth register births were counted as 529 (11.6%) which is very similar to the 1998 figures. Shared care refers to a model of antenatal care where more than one professional clinician or clinic has been involved in a woman's antenatal care. Due to the rounding of percentages some totals may not equal 100.0. Source: ACT Maternal Perinatal Data Collection, 1995 - 1999 data

Table 20 suggests younger women were more likely to choose the antenatal clinic or shared care options for antenatal care, and women from 25 years onwards were more likely to go to an obstetrician in 1999.

Table 20: Responsibility for antenatal care by age groups, ACT, 1999

Service providers	Less than 20yrs		20- 24 years		25 – 29 years		30- 34 years		35 yrs or more	
	No.	%	No.	%	No.	%	No.	%	No.	%
Obstetrician	7	4.0	95	15.4	457	32.1	633	43.2	434	48.2
GP	7	4.0	23	3.7	44	3.1	42	2.9	20	2.2
Midwife	<5	-	17	2.8	34	2.4	24	1.6	23	2.6
Antenatal clinic	59	33.7	173	28.1	320	22.5	252	17.2	112	12.4
BC/CMP CMP	19	10.9	72	11.7	151	10.6	145	9.9	107	11.9
Shared care	76	43.4	228	37.1	398	27.9	333	22.7	193	21.4
Not stated	<5	-	7	1.1	20	1.4	35	2.4	12	1.3
Total	175	100.0	615	100.0	1,424	100.0	1,464	100.0	901	100.0

Note: Seven records where responsibility for antenatal care was "no antenatal care" were excluded. Source: ACT Maternal Perinatal Data Collection, 1999 data

Eighty-nine per cent (89.1%) of women who chose private hospital accommodation had their antenatal care provided by obstetricians in 1999 (Table 21). In comparison, women who chose public hospital accommodation accessed antenatal care from a variety of services, with only 15.5% of the antenatal care being provided by obstetricians.

Table 21: Responsibility for antenatal care by accommodation status, ACT, 1999

Service providers	Public		Private		Total	
	No.	%	No.	%	No.	%
Obstetrician	517	15.5	1,109	89.1	1,626	35.5
GP	118	3.5	18	1.4	136	3.0
Midwife	84	2.5	18	1.4	102	2.2
Antenatal clinic	896	26.9	20	1.6	916	20.0
BC/CMP or CMP	474	14.2	20	1.6	494	10.8
Shared care	1,201	36.0	27	2.2	1,228	26.8
Not stated	45	1.3	32	2.6	77	1.7
Total	3,335	100.0	1,244	100.0	4,579	100.0

Note: Seven records where responsibility for antenatal care was "no antenatal care" and nine records where hospital accommodation status was "not stated" were excluded. Women who gave birth at home have private accommodation status.
Source: ACT Maternal Perinatal Data Collection, 1999 data

2.5.4 Antenatal length of stay in hospital

The antenatal length of stay in hospital is calculated using the baby's date of birth minus the woman's date of admission for the birth event. An antenatal stay of one day or less indicates that pregnant women were most likely admitted to hospital for labour and birth and not for antenatal complications. The percentage of women with an antenatal length of stay in hospital of one day or less has risen slightly over the past five years, from 91.1% in 1995 to 94.4% in 1999 (Table 22).

Table 22: Antenatal length of stay in hospital, ACT, 1995 - 1999

Antenatal length of stay	1995		1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 1 day	2,871	60.0	2,819	60.3	2,804	60.2	2,781	60.4	2,786	61.3
1 day	1,489	31.1	1,413	30.2	1,459	31.3	1,488	32.3	1,507	33.1
2 - 6 days	311	6.5	306	6.5	307	6.6	262	5.7	201	4.4
7 - 13 days	63	1.3	77	1.6	54	1.2	43	0.9	33	0.7
14 days or more	51	1.1	59	1.3	34	0.7	24	0.5	20	0.4
Total	4,788	100.0	4,674	100.0	4,651	100.0	4,598	100.0	4,547	100.0

Note: Antenatal length of stay only includes hospital births. Six records in total from 1996 to 1998 where antenatal length of stay was not available were excluded. Due to the rounding of percentages some totals may not equal 100.0.
Source: ACT Maternal Perinatal Data Collection, 1995 - 1999 data

2.6 Medical conditions

The pre-existing maternal medical conditions, such as diabetes mellitus, epilepsy, hypertension, renal or cardiovascular disease and asthma, add an additional level of complexity to the obstetric management of the pregnancy. The maternal medical conditions were reported from three sources for 1999. These were the ACT Midwives Data Collection, OBICARE database and ACT Admitted Patient Care (ACT APC) Data Collection. Ninety-four per cent (94.2%; 4,318) of women who gave birth in the ACT in 1999 had no reported pre-existing maternal medical conditions, while six per cent (5.6%; 258) had one reported condition and less than one per cent (0.2%; 10) had multiple reported conditions. Among those with a maternal medical condition, asthma was the most frequently reported pre-existing condition.

Table 23: Maternal medical conditions, ACT, 1999

Maternal medical conditions (ICD-10-AM)	No.	%
Pre-existing diabetes mellitus (E10 –E14, O24.0-3)	21	0.5
Epilepsy (G40)	24	0.5
Essential hypertension (I10, O10, I27)	35	0.8
Renal disease (N00 – N29)	16	0.3
Cardiovascular disease (I20 – I52)	22	0.5
Asthma (J45)	162	3.5

Note: Percentages for the specified medical conditions are for all women who gave birth in the ACT. Figures from ACT APC were based on patients not separations, if a woman has more than one admission for the same condition only one condition was counted. A woman may have more than one reported condition. Definitions and standards are as per the provided ICD-10-AM codes. Data prior to 1999 is not directly comparable as data extraction criteria changed to accommodate ICD-10-AM codes. Also gestational diabetes was removed and Asthma was added since last report.

Source: ACT Maternal Perinatal Data Collection, 1999 data

Comparisons have been made between the maternal medical conditions reported among women who gave birth in the ACT in 1999 (Table 23) and those reported among Australian women aged between 15 and 49 years from the National Health Survey (NHS) 1995. Similar prevalence rates are observed in both populations for these conditions. Australian women aged between 15 and 49 years: asthma (2.8%), hypertension (0.9%), renal disease (0.3%), diabetes mellitus/high blood sugar (0.2%), epilepsy (0.1%) and cardiovascular disease (0.1%)¹⁴.

2.7 Obstetric complications

Obstetric complications add an additional level of complexity to the obstetric management of the pregnancy. Obstetric complications were reported from three sources. These were the ACT Midwives Data Collection, OBICARE database and ACT Admitted Patient Care (ACT APC) Data Collection. Fifty per cent (50.0%; 2,293) of women who gave birth in the ACT in 1999 had no reported obstetric complications, while thirty-five per cent (34.7%; 1,591) had one reported complication. Fifteen per cent (15.3%; 702) had multiple reported complications with the maximum number of obstetric complications reported for a woman being six.

Table 24 presents obstetric complications in the ACT by diagnosis. The most commonly diagnosed obstetric complications were: premature (pre-labour) rupture of membranes (9.7%), prolonged pregnancy (8.9%); maternal care for known or suspected pelvic abnormality (8.6%); maternal care for known or suspected malpresentation of fetus (8.0%); maternal care for other known or suspected fetal problems (4.4%); pre-eclampsia (4.4%) and diabetes mellitus arising in pregnancy (gestational diabetes) (4.0%).

Table 24: Obstetric complications, ACT, 1999

Obstetric Complications (ICD-10-AM : ICD-9-CM)	No.	%
Pre-eclampsia (O11-O12 & O14 : 642 & 646)	198	4.4
Gestational hypertension without significant proteinuria (O13 : 642.4)	105	2.3
Eclampsia in pregnancy (O15.0 : 642.6)	**	<0.1
Unspecified maternal hypertension (O16 : 642.3)	44	1.0
Haemorrhage in early pregnancy (O20 : 640)	38	0.8
Excessive vomiting of pregnancy (O21 : 643)	56	1.2
Venous complications in pregnancy (O22 : 671)	17	0.4
Infections of genitourinary tract in pregnancy (O23 : 646.6)	66	1.4
Diabetes mellitus arising in pregnancy (gestational diabetes) (O24.4,8 : 648.8-9)	184	4.0
Maternal care for other conditions predominantly related to pregnancy (O26 : 646 & 669)	55	1.2
Complications from anaesthesia during pregnancy (O29 : 668)	**	<0.1
Complication specific to multiple gestation (O30.0- O31 : 646.0 & 651.3)	72	1.6
Papyraceous fetus/ continuing pregnancy after abortion of one fetus or more (O31.0 - O31.1: 646.01, 651.31)	5	0.1
Maternal care for known or suspected malpresentation of fetus (O32 : 652)	368	8.0
Maternal care for known or suspected disproportion (O33 : 653)	61	1.3
Maternal care for known or suspected pelvic abnormality (O34 : 654)	396	8.6
Maternal care for known or suspected fetal abnormality or damage (O35 : 655)	19	0.4
Maternal care for other known or suspected fetal problems (O36 : 656)	200	4.4
Disorders of amniotic fluid and membranes (O40 – O41 : 658)	84	1.8
Premature (pre-labour) rupture of membranes (O42 : 658)	443	9.7
Placental disorders (O43 : 656)	43	0.9
Placenta praevia (O44 : 641)	35	0.8
Premature separation of placenta (O45 : 641)	27	0.6
Other specified or unspecified antepartum haemorrhage (O46 : 641)	88	1.9
False labour (O47 : 644)	177	3.9
Prolonged pregnancy (O48 : 645)	408	8.9

Note: Obstetric complications with less than five presentations have not been reported. Percentages for the specified obstetric complications are for all women who gave birth in the ACT. Reported figures are based on patients not separations, if a woman has more than one admission for the same complication only one complication is counted. One woman may have more than one complication. Definitions and standards as per the ICD-10-AM manuals, ICD-10-AM and ICD-9-CM codes are provided. The ICD-10-AM criteria for data extraction have been expanded since the last report in 1998 to include all obstetric complications.

Source: ACT Admitted Patient Care Data Collection, 1999 data

2.8 Place of birth for women

Between 1995 and 1999, women in the ACT had the option of giving birth in one of the four ACT hospitals (two public and two private hospitals), the Birth Centre or at home. Seventy-seven per cent (76.8%) of women chose to give birth in an ACT public hospital in 1999 compared with 73.1% in 1996. Twenty-two per cent (22.3%) of women chose to give birth in an ACT private hospital in 1999 compared with 27.1% in 1996 (Table 25).

Table 25: Place of birth, ACT, 1995 – 1999

	1995		1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%	No.	%
Women who gave birth at:										
Public Hospitals	3,528	73.1	3,401	72.3	3,409	72.4	3,390	73.0	3,524	76.8
TCH-Delivery suite	2,234	46.3	2,047	43.5	1,998	42.4	1,963	42.3	1,963	42.8
TCH-Birth Centre	276	5.7	364	7.7	372	7.9	389	8.4	346	7.5
Calvary Public	1,018	21.1	990	21.1	1,039	22.1	1,038	22.3	1,215	26.5
Private Hospitals	1,260	26.1	1,275	27.1	1,250	26.5	1,211	26.1	1,023	22.3
Calvary Private	356	7.4	345	7.3	307	6.5	307	6.6	270	5.9
John James Memorial	904	18.7	930	19.8	943	20.0	904	19.5	753	16.4
Homebirth	35	0.7	24	0.5	46	1.0	41	0.9	22	0.5
Born before arrival	7	0.1	<5	-	<5	-	<5	-	17	0.4
Total	4,830	100.0	4,701	100.0	4,708	100.0	4,645	100.0	4,586	100.0

Note: Born before arrival refers to babies born before the mother arrives at the planned birth facility, where the mother and baby are subsequently admitted to that facility. The medical records in 1999 have been checked to verify the data for born before arrival.
Source: ACT Maternal Perinatal Data Collection, 1995 - 1999 data

From 1994 to 1998, the percentage of babies “born before arrival” was 0.1% or less (Table 25). As the percentage in 1999 increased to 0.4%, the medical records have been checked to verify the data for those classified as “born before arrival”.

2.9 Accommodation status by place of birth

Women admitted to public hospital can elect their accommodation status to be public or private. Table 26 shows small percentages of women choosing private accommodation at both The Canberra Hospital (6.8%) and at Calvary Public Hospital (3.5%).

Table 26: Accommodation status by hospital of birth, ACT, 1999

Accommodation status	The Canberra Hospital		Calvary Public Hospital		Calvary Private Hospital		John James Memorial Hospital	
	No.	%	No.	%	No.	%	No.	%
Public	2,152	93.2	1,173	96.5	0	0.0	0	0.0
Private	157	6.8	42	3.5	270	100.0	753	100.0
Total	2,309	100.0	1,215	100.0	270	100.0	753	100.0

Source: ACT Maternal Perinatal Data Collection, 1999 data

2.10 Labour and birth

Labour onset may be spontaneous or induced, with the management of the labour being directly affected by the type of onset. In some cases there will be no labour if an elective caesarean section is planned. In most cases, the labour progress (or lack of progress) affects the level of intervention and method of birth used.

The following section outlines the onset and type of labour as well as the method of birth experienced for women who gave birth in the ACT in 1999.

Table 27 presents information on the onset of labour and the type of labour experienced by women who gave birth in the ACT in 1999. In the ACT approximately one in five women were induced compared with the Australian population figures of approximately 26%.¹⁵

Table 27: Labour characteristics, ACT, 1999

		No.	%
Onset of labour	Spontaneous	3,104	67.7
	Induced	939	20.5
	No labour	543	11.8
	Total	4,586	100.0
Type of labour	Spontaneous	2,143	46.7
	Augmentation	961	21.0
	Augmentation - medical	340	7.4
	Augmentation - surgical	416	9.1
	Augmentation - combined	205	4.5
	Induced	939	20.5
	Induced - medical	322	7.0
	Induced - surgical	108	2.4
	Induced - combined / other	509	11.1
	No labour	543	11.8
Total	4,586	100.0	

Source: ACT Maternal Perinatal Data Collection, 1999 data

Table 28 shows that among the women who gave birth in the ACT during 1999, 69.1% had a normal birth and 19.4% had a caesarean section, compared with the Australian population figures of 66.2% and 21.9% respectively.¹⁶

Table 28: Method of birth, ACT, 1995 - 1999

Method of birth	1995		1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal birth	3066	63.5	3073	65.4	3100	65.8	3168	68.2	3,169	69.1
Caesarean section	978	20.3	985	20.9	953	20.2	872	18.8	891	19.4
Forceps	434	9.0	362	7.7	370	7.9	366	7.9	283	6.2
Vacuum extraction	310	6.4	243	5.2	237	5.0	207	4.5	213	4.6
Vaginal breech	42	0.9	38	0.8	48	1.0	32	0.7	30	0.7
Total	4830	100.0	4701	100.0	4708	100.0	4645	100.0	4,586	100.0

Note: The method of birth table above presents the number of women who gave birth, in the case of multiple births the method of birth of the first-born baby is reported. Other and not stated have been recoded to normal birth for 1997 and 1998 births.
Source: ACT Maternal Perinatal Data Collection, 1995 - 1999 data

Table 29 shows an increased likelihood of a normal birth when the onset of labour was spontaneous (85.9%) compared with a labour that was augmented (68.6%) or induced (71.2%). Elective caesarean section can be identified where there was "no labour". Table 29 shows that 543 women had an elective caesarean section, that is there was no labour.

Table 29: Method of birth by type of labour, ACT, 1999

Method of birth	Spontaneous		Augmentation		Induced		No labour	
	No.	%	No.	%	No.	%	No.	%
Normal birth	1,841	85.9	659	68.6	669	71.2	0	0.0
Caesarean section	144	6.7	88	9.2	116	12.4	*543	100.0
Forceps	64	3.0	139	14.5	80	8.5	0	0.0
Vacuum extraction	78	3.6	69	7.2	66	7.0	0	0.0
Vaginal breech	16	0.7	6	0.6	8	0.9	0	0.0
Total	2,143	100.0	961	100.0	939	100.0	543	100.0

Note: * Women who have an elective caesarean section have no labour (11.8%). Due to the rounding of percentages some totals may not equal 100.0.

Source: ACT Maternal Perinatal Data Collection, 1999 data

Table 30 shows the method of birth by hospital of birth in the ACT, 1999. The majority of women who gave birth at each hospital had a normal birth (TCH 73.8%, Calvary Public 72.6%, Calvary Private 55.9%, JJMH 52.3%). However there was considerable variation in the caesarean rates between hospitals. The Canberra Hospital had the lowest Caesarean section rate (16.2%), with John James Memorial Hospital having the highest (29.6%). The percentages of forceps deliveries performed in private hospitals (Calvary Private 9.3%, JJMH 10.6%) are higher than the percentage performed in public hospitals (TCH 5.5%, Calvary Public 4.2%).

Table 30: Method of birth by hospital of birth, ACT, 1999

Method of birth	The Canberra Hospital		Calvary Public Hospital		Calvary Private Hospital		John James Memorial Hospital	
	No.	%	No.	%	No.	%	No.	%
Normal birth	1,704	73.8	882	72.6	151	55.9	394	52.3
Vaginal breech	18	0.8	8	0.7	1	0.4	4	0.5
Forceps	127	5.5	51	4.2	25	9.3	80	10.6
Vacuum extraction	85	3.7	43	3.5	33	12.2	52	6.9
Caesarean section	375	16.2	231	19.0	60	22.2	223	29.6
Total	2,309	100.0	1,215	100.0	270	100.0	753	100.0

Note: One woman who gave birth at The Canberra Hospital and one at John James Memorial Hospital where method of birth was "not stated" have been counted as normal births. Due to the rounding of percentages some totals may not equal 100.0.

Source: ACT Maternal Perinatal Data Collection, 1999 data

2.11 Caesarean section

The ACT has had the lowest caesarean section rate in Australia since 1998. The rate in 1999 was 19.4% compared with the national rate of 21.9%.

Table 31 shows the selected characteristics for caesarean section in the ACT, 1999. Almost two-thirds of caesarean sections were performed in a public hospital (61.7%). Overall 19.4% of all births were by caesarean section.

Fifty-seven percent (57.4%) of women who had a caesarean section were already mothers, with the majority aged between 25 to 34 years (64.6%). Most infants born by caesarean section were term (82.8%), with weights between 2500- 3999 grams (74.2%) and vertex presentation (77.9%). Breech presentation accounted for 16.3%.

Table 31: Selected characteristics for caesarean section, ACT, 1999

		No.	% of Caesareans	% of all women who gave birth
Accommodation	Public	550	61.7	12.0
	Private	341	38.3	7.4
	Total	891	100.0	19.4
Parity	Primipara	380	42.6	8.2
	Multipara	511	57.4	11.1
	Total	891	100.0	19.4
Plurality	Singleton	851	95.6	18.6
	Multiple	40	4.4	0.9
	Total	891	100.0	19.4
Maternal Indigenous Status	Indigenous	11	1.2	0.2
	Non-Indigenous	880	98.8	19.2
	Total	891	100.0	19.4
Maternal age	Less than 20 years	18	2.0	0.4
	20 - 24 years	79	8.9	1.7
	25 - 29 years	242	27.2	5.3
	30 - 34 years	333	37.4	7.3
	35 - 39 years	177	19.9	3.9
	40 years or more	42	4.7	0.9
	Total	891	100.0	19.4
Presentation (for first born)	Vertex (inc. POP)	694	77.9	15.1
	Breech	145	16.3	3.2
	Other (inc. brow and face)	24	2.7	0.5
	Not stated	28	3.1	0.6
	Total	891	100.0	19.4
Birthweight (for first born)	Less than 1,500 grams	41	4.6	0.9
	1,500 to 2499 grams	73	8.2	1.6
	2500 to 3999 grams	660	74.2	14.4
	4000 grams or more	115	12.9	2.5
	Total	889	100.0	19.4
Gestational age	Preterm (20 to 36 weeks)	128	14.4	2.8
	Term (37 to 41 weeks)	734	82.8	16.0
	Post term (42 weeks or more)	25	2.8	0.5
	Total	887	100.0	19.4

Note: Two records where birthweight was "not stated" and four records where gestational age was "not stated" were excluded. Difference in the reported ACT Caesarean rate (19.6%) in Australia's mothers and babies 1999 is due to late data cleaning of the ACT data. ACT Caesarean rate calculated from the ACT Admitted Patient Care data collection for the financial year 1999-2000 was 19.7%. Slight differences are expected when reviewing data from different sources with different time frames.
Source: ACT Maternal Perinatal Data Collection, 1999 data

Figures from the ACT Admitted Patient Care Data Collection in Table 32 show a decrease in the rate of caesarean sections in the ACT over the last six financial years from 21.6% in 1994-1995 to 20.2% in 1999-2000.

Table 32: Caesarean section rates by type of hospital, ACT, July 1994 - June 2000

Financial years	Public		Private		Public & Private	
	No.	%	No.	%	No.	%
1994-1995	825	21.3	203	23.1	1,028	21.6
1995-1996	640	18.9	284	27.4	924	20.9
1996-1997	615	17.8	342	27.0	957	20.3
1997-1998	584	17.2	310	25.0	894	19.3
1998-1999	606	17.4	301	26.9	907	19.7
1999-2000	606	17.6	309	28.4	915	20.2

Note: Percentages are calculated using the total number of births for each hospital reported in the admitted patient care data.
Source: ACT Admitted Patient Care Data Collection, July 1994 - June 2000

2.12 Perineal status

Perineal lacerations are a source of significant discomfort to many women. Twenty-one per cent of women reported perineal pain in an Australian study examining the first six postnatal months¹⁷. The following section outlines the perineal outcomes of women who gave birth vaginally in the ACT in 1999.

The episiotomy rate progressively decreased from 21.7% in 1997⁶, 17.9% in 1998 to 13.8% in 1999, with a corresponding increase in all perineal lacerations from 35.9% in 1997⁶, 43.2% in 1998 to 45.9% in 1999 (Table 33 for 1998 and 1999 percentages). A reduction in perineal trauma (that is, increase in intact perineum rate) is a possible outcome of reducing episiotomies. Table 33 shows a slight increase in the intact perineum rate from 1998 to 1999.

Table 33: Perineal status for vaginal births, ACT, 1998 - 1999

Perineal Status	1998		1999	
	No.	%	No.	%
Intact	1,448	38.4	1,472	39.8
First degree laceration	688	18.2	648	17.5
Second degree laceration	921	24.4	994	26.9
Third degree laceration	22	0.6	54	1.5
Episiotomy	630	16.7	458	12.4
Laceration and episiotomy	*59	1.2	**52	1.4
Other (unspecified trauma)	5	0.1	17	0.5
Total	3,773	100.0	3,695	100.0

Note: The reporting of perineal status for vaginal births changed in 1998 to be consistent with the National Health Data Dictionary. *In 1998 fourteen of the 59 women who had both a laceration and an episiotomy had a third degree laceration. **In 1999 fourteen of the 52 women who had both a laceration and an episiotomy had a third degree laceration. When referring to the episiotomy rate, women having both a laceration and episiotomy are included in the overall episiotomy rate of 17.9% in 1998 and 13.8% in 1999. There were no reported fourth degree lacerations in 1999.

Source: ACT Maternal Perinatal Data Collection, 1998 – 1999 data

In 1999, less than one percent (0.6%) of women had both an episiotomy (or sutured laceration) and an emergency caesarean section (ie. six women of the 889 women who had a caesarean section).¹⁸ These women comprised 0.13% of all women giving birth (six of 4,586 women).

Table 34 shows the perineal status for vaginal births by hospital of birth. Forty-seven percent (46.8%) of women who gave birth vaginally at TCH had an intact perineum (39% at Calvary Public), and between 20 to 22% of women who gave birth at either Calvary Private or JJMH. Episiotomy rates ranged from 5.9% (TCH) to 32.3% (JJMH). A perineal laceration was reported following homebirths for 40.9% (9 of 22) of women during 1999 (27.3% for first degree and 13.6% for second degree lacerations). No episiotomies were reported following homebirths in 1999.

Table 34: Perineal status for vaginal births by hospital of birth, ACT, 1999

Perineal status	The Canberra Hospital		Calvary Public Hospital		Calvary Private Hospital		John James Memorial Hospital	
	No.	%	No.	%	No.	%	No.	%
Intact	906	46.8	384	39.0	42	20.0	119	22.5
1st degree laceration	316	16.3	165	16.8	43	20.5	115	21.7
2nd degree laceration	541	28.0	277	28.1	64	30.5	106	20.0
3rd degree laceration	36	1.9	8	0.8	<5	-	7	1.3
Episiotomy	114	5.9	123	12.5	50	23.8	171	32.3
Laceration & episiotomy	21	1.1	17	1.7	<5	-	10	1.9
Not stated	0	0.0	9	0.9	<5	-	<5	-
Total	1,934	100.0	983	100.0	210	100.0	529	100.0

Note: There were no "Fourth degree lacerations" reported in 1999.

Source: ACT Maternal Perinatal Data Collection, 1999 data

2.13 Manual removal of the placenta

Retained placenta is potentially life threatening because of associated haemorrhage or infections, and complications related to its removal¹⁹. Management of the third stage of labour (when the placenta is delivered) can directly affect maternal blood loss, the need for manual removal of the placenta and postpartum haemorrhage.

Methods used to manage the third stage of labour include active (the use of cord traction and uterotonics) or expectant management (watchful waiting)²⁰. A properly conducted birth can reduce the incidence of retained placenta. If retention occurs, timely appropriate treatment can save a life¹⁹.

Manual removal of a retained placenta was performed for 2.4% (89 of 3,697 women)¹⁸ of vaginal births in 1999.

2.14 Complications of labour, birth and puerperium

Complications that occur during labour, birth or the puerperium affect the management and level of intervention experienced by women. The types of complications and incidence, among women who gave birth in the ACT during 1999, are shown below.

Forty-six per cent (46.1%) of women who gave birth in the ACT had one or more complications of labour and birth recorded in the ACT Admitted Patient Care (ACT APC) data. The most commonly reported complications were first or second degree perineal laceration (25.6%; 1,176), long labour (8.8%; 402), postpartum haemorrhage (7.9%; 364) and fetal distress (7.1%; 326). More details on the complications of labour and birth are provided in Table 35.

Table 35: Complications of labour and birth reported during a hospital birth, ACT, 1999

Complications of labour and birth (ICD-10-AM : ICD-9-CM)	No.	%
Preterm birth (O60 : 624.2)	230	5.0
Failed induction of labour (O61 : 659.0-1)	24	0.5
Abnormal forces of labour (O62 : 661)	243	5.3
Long labour (O63 : 662)	402	8.8
Obstructed labour (O64 – O66 : 660)	132	2.9
Intrapartum haemorrhage (O67 : 641)	8	0.2
Fetal stress [distress] (O68 : 656.3)	326	7.1
Umbilical cord complications (O69 : 663.0-9)	172	3.8
Perineal laceration while giving birth (O70 : 664)	1,176	25.6
Other obstetric trauma (O71 : 665 & 664.8)	64	1.4
Postpartum haemorrhage (O72 : 666)	364	7.9
Retained placenta or membranes, without haemorrhage (O73 : 667)	29	0.6
Complications of the administration of anaesthetic or other sedation in labour and birth (O74 : 668)	20	0.4
Other complications of labour and birth, NEC (O75 : 654.2, 658 & 659)	248	5.4

Note: Percentages for the specified complications of labour are for all women who gave birth in the ACT. Reported figures are based on patients not separations, if a woman has more than one admission for the same complication only one complication is counted. One woman may have more than one complication. Definitions and standards as per the ICD-10-AM manuals, both ICD-10-AM and ICD-9-CM codes are provided. NEC refers to "not elsewhere classified". Changes in the structure of this table since the last report are due to the ICD-10-AM coding.

Source: ACT Admitted Patient Care Data, 1999

Sixteen per cent (16.4%) of women who gave birth in the ACT had one or more complications of the puerperium reported in the ACT APC data. The most commonly reported complications were anaemia (2.6%; 119), puerperal infections (2.4%; 112) and venous complication (2.4%; 108). More details on the complications of the puerperium are provided in Table 36.

Table 36: Complications of puerperium reported during a hospital birth, ACT, 1999

Complications of puerperium (ICD-10-AM : ICD-9-CM)	No.	%
Puerperal sepsis (O85 : 670.0)	20	0.4
Other puerperal infections (O86.0-8 : 646.1,5-6 & 672.0 & 674.3)	92	2.0
Venous complication in the puerperium (O87 : 671)	108	2.4
Obstetric embolism (O88 : 673)	5	0.1
Complications of anaesthesia during the puerperium (O89 : 668)	11	0.2
Complications of the puerperium, not elsewhere classified (O90 : 674)	37	0.8
Infections of breast associated with childbirth (O91 : 675)	19	0.4
Other disorders of breast and lactation associated with childbirth (O92 : 676)	195	4.3
Obstetric death (O95 –O97)	0	0.0
Maternal infectious and parasitic diseases (O98 : 647)	36	0.8
Other maternal diseases and conditions (O99 or 648)	518	11.3

Note: Percentages for the specified complications of puerperium are for all women who gave birth in the ACT. Reported figures are based on patients not separations, if a woman has more than one admission for the same complication only one complication is counted. One woman may have more than one complication. Data in the six months following the birth are also included where directly related to the birth occurring in the previous year. Definitions and standards as per the ICD-10-AM manuals, both ICD-10-AM and ICD-9-CM codes are provided. Changes in the structure of this table since the last report are due to the ICD-10-AM coding. Source: ACT Admitted Patient Care Data, 1999

The ACT APC data has been coded using ICD-10 code since July 1998. The 1999 data was extracted from the ACT APC using the ICD-10-AM codes for complication of labour, birth and puerperium. The changes to the criteria for extracting the data are broader than the ICD-9-CM codes used in previous years, therefore data from previous years may not be directly comparable.

2.15 Postnatal length of stay in hospital

The postnatal length of stay in hospital is calculated using the woman's date of discharge minus the baby's date of birth for the birth event. In 1999, 50.3% of women who gave birth in ACT hospitals stayed for three days or less after the birth, compared with 38.3% in 1995. The average length of postnatal stay in 1999 was 3.8 days, compared with 4.3 days in 1995 (Table 37).

Table 37: Postnatal length of stay in hospital, ACT, 1995 - 1999

Postnatal length of stay	1995		1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 1 day	86	1.8	112	2.5	143	3.1	142	3.2	160	3.6
1 day	428	9.1	415	9.1	453	9.9	470	10.5	440	10.0
2 days	560	11.9	629	13.8	602	13.2	574	13.2	712	16.2
3 days	730	15.5	840	18.4	846	18.6	874	19.5	898	20.5
4 days	765	16.3	752	16.5	731	16.1	734	16.3	745	17.0
5 days	764	16.3	646	14.2	680	14.9	610	13.6	561	12.8
6 days	634	13.5	540	11.8	507	11.1	474	10.6	425	9.7
7 - 13 days	720	15.3	611	13.4	576	12.6	577	12.8	435	9.9
14 days or more	13	0.3	20	0.4	16	0.4	17	0.4	12	0.3
Total	4,700	100.0	4,565	100.0	4,554	100.0	4,492	100.0	4,388	100.0
Average postnatal stay	4.33 days		4.13 days		4.03 days		4.00 days		3.77 days	

Note: Postnatal length of stay includes only hospital admissions not transferred for further care to another hospital. Source: ACT Maternal Perinatal Data Collection, 1995 – 1999 data

On average, women who gave birth in private hospitals stayed longer than those who gave birth in public hospitals (Table 38). The majority of women giving birth in the public hospitals stayed three days or less in hospital (TCH with 60.7% and Calvary Public with 67.8%), whereas in the ACT private hospitals the majority of women stayed between four and six days (Calvary Private with 65.3% and JJMH with 60.1%).

Table 38: Postnatal length of stay by hospital of birth, ACT, 1999

Postnatal length of stay	The Canberra Hospital		Calvary Public Hospital		Calvary Private Hospital		John James Memorial Hospital	
	No.	%	No.	%	No.	%	No.	%
3 days or less	1331	60.7	800	67.8	31	11.7	48	6.4
4 to 6 days	750	34.2	357	30.2	173	65.3	451	60.1
7 days or more	111	5.1	24	2.0	61	23.0	251	33.5
Total	2,192	100.0	1,181	100.0	265	100.0	750	100.0
Average postnatal stay	3.19 days		3.09 days		5.34 days		6.01 days	

Note: Postnatal length of stay includes only hospital admissions not transferred for further care to another hospital.

Due to the rounding of percentages some totals may not equal 100.0.

Source: ACT Maternal Perinatal Data Collection, 1999 data

The average postnatal length of stay in hospital for Indigenous women (3.89 days) was only slightly higher when compared with the average postnatal length of stay in hospital for non-Indigenous women (3.77 days) in 1999 (Table 39).

Table 39: Postnatal length of stay in hospital by Indigenous status, ACT, 1999

Postnatal length of stay	Indigenous		Non-Indigenous		Total	
	No.	%	No.	%	No.	%
3 days or less	34	59.6	2174	50.3	2208	50.4
4 to 6 days	18	31.5	1711	39.6	1729	39.5
7 days or more	5	8.8	441	10.2	446	10.2
Total	57	100.0	4,326	100.0	4,383	100.0
Average postnatal stay	3.89 days		3.77 days		3.77 days	

Note: Postnatal length of stay includes only hospital admissions not transferred for further care to another hospital.

Due to the rounding of percentages some totals may not equal 100.0.

Source: ACT Maternal Perinatal Data Collection, 1999 data

2.16 Maternal discharge status from hospital

Ninety-six per cent (96.1%) of women were discharged home with 41.4% referred to Midcall or Canberra Midwifery Program (CMP) for additional midwifery care at home following the birth admission in hospital (Table 40). Three per cent (3.1%) of women were transferred to another ACT hospital, with less than one per cent (0.4%) transferred to interstate hospitals.

Table 40: Maternal discharge status from hospital, ACT, 1999

	No.	%
Maternal discharge status		
Discharged home	2,487	54.7
Discharged home on Midcall or CMP	1,884	41.4
Transferred to ACT hospital	142	3.1
Transferred to interstate hospital	17	0.4
Not stated	17	0.4
Total	4,547	100.0

Note: Midcall is an early discharge program with follow up at home by a registered midwife for antenatal or postnatal care. CMP means Canberra Midwifery Program. Homebirths and stillbirths have been excluded. Due to the rounding of percentages some totals may not equal 100.0.

Source: ACT Maternal Perinatal Data Collection, 1999 data

Among the Indigenous mothers discharged from hospital, 27 (46.6%) were discharged home and 30 (57.1%) were referred to Midcall/CMP²¹.

Table 41 shows that women who gave birth in an ACT public hospital in 1999 were more likely to go home from hospital on Midcall, the early discharge program (59.5% from TCH and 39.3% from Calvary Public) when compared with women who gave birth in an ACT private hospital (3.7% from Calvary Private and 3.1% from JJMH).

Table 41: Maternal discharge status by hospital of birth, ACT, 1999

Maternal discharge	The Canberra Hospital		Calvary Public Hospital		Calvary Private Hospital		John James Memorial Hospital	
	No.	%	No.	%	No.	%	No.	%
Discharged home	819	35.5	695	57.2	251	93.0	722	95.9
Midcall/CMP	1,373	59.5	478	39.3	10	3.7	23	3.1
Transferred	117	5.1	34	2.8	5	1.9	<5	0.4
Died	0	0.0	0	0.0	<5	0.0	<5	0.0
Not stated	0	0.0	8	0.7	<5	1.5	5	0.7
Total	2,309	100.0	1,215	100.0	207	100.0	753	100.0

Note: Midcall is an early discharge program with follow up at home by a registered midwife for antenatal or postnatal care. CMP means Canberra Midwifery Program. Homebirths and stillbirths have been excluded. There are some reporting inconsistencies between the number of mother and babies. Due to the rounding of percentages some totals may not equal 100.0.

Source: ACT Maternal Perinatal Data Collection, 1999 data

3 BABIES' CHARACTERISTICS

The babies' characteristics, including place of birth, birth condition, plurality, sex, presentation, birthweight and gestational age are presented in this section in Table 42 and Table 43.

3.1 Place of birth for babies born

Seventy-seven per cent (76.8%) of babies were born in an ACT public hospital in 1999 compared with 73.1% in 1995. Twenty-two per cent (22.4%) of babies were born in an ACT private hospital in 1999 compared with 26.0% in 1996 (Table 42).

Table 42: Babies' place of birth, ACT, 1995 – 1999

Babies born at:	1995		1996		1997		1998		1999	
	No.	%	No.	%	No.	%	No.	%	No.	%
Public Hospitals	3,582	73.1	3,464	72.3	3,467	72.5	3,463	73.0	3,589	76.8
TCH-Delivery suite	2,283	46.6	2,099	43.8	2,044	42.7	2,024	42.7	2,021	43.2
TCH-Birth Centre	276	5.6	364	7.6	372	7.8	390	8.2	346	7.4
Calvary Public	1,023	20.9	1,001	20.9	1,051	22.0	1,049	22.1	1,222	26.1
Private Hospitals	1,275	26.0	1,299	27.1	1,268	26.5	1,230	26.0	1,047	22.4
Calvary Private	362	7.4	349	7.3	309	6.5	312	6.6	280	6.0
John James Memorial	913	18.6	950	19.8	959	20.0	918	19.4	767	16.4
Homebirth	35	0.7	24	0.5	47	1.0	41	0.9	22	0.5
Born before arrival	7	0.1	<5	-	<5	-	<5	-	17	0.4
Total	4,899	100.0	4,788	100.0	4,785	100.0	4,737	100.0	4,675	100.0

Note: Born before arrival refers to babies born before the mother arrives at the planned birth facility, where the mother and baby are subsequently admitted to that facility. The medical records in 1999 have been checked to verify the data for born before arrival.

Due to rounding of percentages, some totals may not equal 100.

Source: ACT Maternal Perinatal Data Collection, 1995 - 1999 data

3.2 All babies born in the ACT

Ninety-nine per cent (99.2%) of babies were live born in the ACT in 1999, and 0.8% were stillborn.

Ninety-six per cent (96.2%) of babies were singleton births in the ACT in 1999, and 3.7% were multiple births.

The ACT followed the national trend with male births (50.8%) exceeding female births (49.2%).

Ninety-three per cent (93.2%) of babies born in the ACT in 1999 were vertex presentation (the first presenting part was the crown of head), 4.5% were breech (the first presenting part was the buttocks) and the remainder (2.2%) were face, brow, other (usually compound presentation eg. hand and head or cord and head) or not stated.

In 1999, 78.8% of babies born in the ACT weighed between 2,500 and 3,999 grams at birth, with 3,376 grams the average birthweight. The ACT had the highest percentage of babies with a birthweight of less than 2,500 grams (7.1%), compared with (6.7% nationally)². This figure reflects referrals for high-risk births that the Centre for Newborn Care at The Canberra Hospital accepts from the surrounding New South Wales area. Nineteen per cent of babies born to women not usually resident in the ACT weighed less than 2,500 grams compared with 5.5% for ACT women.

Eighty-nine per cent (88.9%) of babies born in the ACT in 1999 were between 37 and 41 weeks gestation, with an average gestational age of 39 weeks, and 8.3% were classified as preterm babies (less than 37 weeks gestation at birth). This was higher than the Australian population (7.7%)².

Twenty-one per cent of births among women not usually resident in ACT were preterm, compared with 6.6% of births among women from the ACT.

Table 43: Babies' characteristics, ACT, 1999

		No.	%
Birth condition	Live	4,637	99.2
	Stillborn	38	0.8
	Total	4,675	100.0
Plurality	Singleton	4,499	96.2
	Twins	170	3.6
	Triplets	6	0.1
	Total	4,675	100.0
Sex	Male	2,373	50.8
	Female	2,302	49.2
	Total	4,675	100.0
Presentation	Vertex (crown of head)	4,356	93.2
	Breech	213	4.6
	Face or brow	11	0.2
	Other	25	0.5
	Not stated	70	1.5
	Total	4,675	100.0
Birthweight	Less than 1,000 grams	55	1.2
	1,000 to 1,499 grams	43	0.9
	1,500 to 2,499 grams	235	5.0
	2,500 to 3999 grams	3,684	78.8
	4000 or more grams	652	13.9
	Not stated	6	0.1
	Total	4,675	100.0
Gestational age	20 to 27 weeks	55	1.2
	28 to 31 weeks	52	1.1
	32 to 36 weeks	281	6.0
	37 to 41 weeks	4,158	88.9
	42 or more weeks	113	2.4
	Not stated	16	0.3
Total	4,675	100.0	

Note: There were less than 5 babies whose sex was "indeterminate". These babies have been randomly assigned to either male or female. Due to the rounding of percentages some totals may not equal 100.0.
Source: ACT Maternal Perinatal Data Collection, 1999 data

Table 44: Birthweight and gestational age by mother's usual state of residence, ACT, 1999

		ACT residents		Non ACT residents		All ACT births	
		No.	%	No.	%	No.	%
Birthweight	Less than 1500 grams	58	1.4	40	7.1	98	2.1
	1500 to 2499 grams	167	4.1	68	12.1	235	5.0
	2500 grams or more	3,878	94.5	455	80.8	4,333	92.9
	Total	4,103	100.0	563	100.0	4,666	100.0
Gestational age	20 to 27 weeks	29	0.7	26	4.6	55	1.2
	28 to 31 weeks	41	1.0	11	2.0	52	1.1
	32 to 36 weeks	201	4.9	80	14.3	281	6.0
	37 to 41 weeks	3,728	91.0	427	76.1	4,155	89.2
	42 weeks or more	96	2.3	17	3.0	113	2.4
	Total	4,095	100.0	561	100.0	4,656	100.0

Note: Three records where mother's usual state of residence was "overseas or not stated" have been excluded. Six records where birthweight was "not stated" and sixteen records where gestational age was "not stated" have been excluded.
Due to the rounding of percentages some totals may not equal 100.0.
Source: ACT Maternal Perinatal Data Collection, 1999 data

Table 45 indicates that 10.6% of babies born at TCH weighed less than 2,500 grams compared with 2.9% to 5.0% of babies born at other ACT hospitals in 1999. There were 252 babies with a birthweight of less than 2,500 grams born at TCH, with 58 of these babies weighing less than 1,500 grams.

In 1999, TCH had the highest percentage of preterm babies (11.7%) with 4.1% of these babies being 31 weeks gestation or less. Only 0.4% of babies that were 31 weeks gestation or less were born at the other ACT hospitals.

Table 45: Birthweight by hospital of birth, ACT, 1999

	The Canberra Hospital		Calvary Public Hospital		Calvary Private Hospital		John James Memorial Hospital	
	No.	%	No.	%	No.	%	No.	%
Birthweight								
Less than 2,500 grams	252	10.6	35	2.9	14	5.0	31	4.1
2,500 grams or more	2,115	89.4	1,181	97.1	266	95.0	736	96.0
Total	2,367	100.0	1,216	100.0	280	100.0	767	100.0
Gestational age								
Less than 37 weeks	277	11.7	47	3.8	17	6.1	45	6.0
37 to 41 weeks	2,029	85.7	1,141	93.4	259	92.5	695	92.3
42 or more weeks	61	2.6	34	2.8	<5	1.4	13	1.7
Total	2,367	100.0	1,222	100.0	280	100.0	753	100.0

Note: Six records from Calvary Public Hospital where Birthweight was "not stated" have been excluded. Fourteen records from John James Memorial Hospital where gestational age was "not stated" have been excluded. Due to the rounding of percentages some totals may not equal 100.0.

Source: ACT Maternal Perinatal Data Collection, 1999 data

3.2.1 Babies' usual area of residence

Table 46 shows the majority of babies born to ACT women were born to women normally residing on the South side of Canberra (47.9%). Twelve per cent (11.9%) of babies born in the ACT were born to women normally residing in New South Wales.

Table 46: Babies born by maternal usual place of residence, ACT, 1999

Usual place of residence	No.	%
ACT residents	4,109	87.9
North side	1,868	40.0
North Canberra	394	8.4
Belconnen	1,019	21.8
Gungahlin – Hall	455	9.7
South side	2,241	47.9
South Canberra	222	4.7
Woden Valley	332	7.1
Weston Creek	251	5.4
Tuggeranong	1,436	30.7
Non ACT residents	563	12.0
New South Wales	554	11.9
Other states	9	0.2
Not stated	3	0.1
Total	4,675	100.0

Source: ACT Maternal Perinatal Data Collection, 1999 data

3.3 Apgar scores and resuscitation

The apgar score is a measure of the condition of a baby at birth (a detailed definition is in the glossary). The closer the apgar score is to 10 the better the baby's condition. The majority of babies (84.2%) had apgar scores between 7 and 10 at one minute after birth, with 97.4% attaining those scores at five minutes after birth (Table 47). An apgar score between 7 and 10 at one minute after birth corresponds with the 75.2% of babies requiring no resuscitation or suction only at birth. An apgar score of less than 7 at one minute after birth indicates that the baby needs some assistance with breathing. The decrease in the number of babies with scores of less than 7 at five minutes indicates successful resuscitation in the majority of these births.

Table 47: Apgar scores and resuscitation procedures for live births, ACT, 1999

		No.	%
Apgar scores at 1 minute	0 to 3	165	3.6
	4 to 6	517	11.1
	7 to 10	3,904	84.2
	Not stated	51	1.1
	Total	4,637	100.0
Apgar scores at 5 minutes	1 to 3	113	0.2
	4 to 6	56	1.2
	7 to 10	4,517	97.4
	Not stated	51	1.1
	Total	4,637	100.0
Resuscitation active measures	No resuscitation	2,366	51.0
	Suction only	1,122	24.2
	Oxygen *	732	15.8
	IPPR via bag and mask	339	7.3
	IPPR via endotracheal intubation	69	1.5
	External cardiac massage & ventilation	9	0.2
	Total	4,637	100.0
Resuscitation drug therapy	No resuscitation using drug therapy	4,371	94.3
	Narcotic antagonist	179	3.9
	Other drugs / Combinations of drugs	17	0.4
	Not stated	70	1.5
	Total	4,637	100.0

Note: Categories in the Resuscitation section have changed in 1999 data. *The oxygen category in the resuscitation section appears high which may be due to babies receiving very small amounts of facial oxygen. Due to the rounding of percentages some totals may not equal 100.0.

Source: ACT Maternal Perinatal Data Collection, 1999 data

Narcotic antagonists were administered to 3.9% of babies to reverse the effects of narcotic drugs given to women during labour in 1999 (Table 47).

3.4 Birth defects

Information on birth defects was reported to the ACT Maternal Perinatal Data Collection (ACT MPDC) for 1999 from the ACT Midwives Data Collection, the TCH OBICARE database and the ACT Admitted Patient Care data collection. Reported birth defects accounted for 4.4% of all babies born in the ACT in 1999, with 35 (0.7%) babies reported to have multiple birth defects. The majority of reported birth defects were for defects of the musculo-skeletal system (1.2%), urinary system (1.0%), genital tract (0.5%) and defects of the skin (0.3%).

The birth defect rates presented in Table 48 are for a five-year period from 1995 to 1999, due to the small number and fluctuation of rates when reporting annual rates.

Table 48: Birth defects, ACT, 1995 – 1999

Birth Defects (ICD-10-AM : ICD-9-CM)	1995 - 1999	
	No.	Rate per 10,000
Anencephaly and similar birth defects (Q00 : 740)	4	1.7
Encephalocele (Q01 : 742.0)	6	2.5
Other birth defects of brain (Q02 - Q04 : 742.1-4)	35	14.7
Spina bifida (Q05 : 741)	5	2.1
Other birth defects of spinal cord & nervous system (Q06 - Q07 : 742.5-9)	3	1.3
Birth defects of eye (Q10 - Q15 : 743)	27	11.3
Birth defects of ear, face and neck (Q16 - Q18: 744)	37	15.5
Birth defects of cardiac chambers, connections and septa (Q20 - Q21 : 745)	115	48.1
Other birth defects of heart including cardiac valves (Q22 - Q24 : 746)	53	22.2
Other birth defects of circulatory system (Q25 - Q28 : 747)	49	20.5
Birth defects of respiratory system (Q30 - Q34 : 748)	30	12.6
Cleft palate and/or cleft lip (Q35 - Q37 : 749)	52	21.8
Other birth defects of upper alimentary tract (Q38 - Q40: 750)	39	16.3
Other birth defects of digestive system (Q41 - Q45 : 751)	27	11.3
Birth defects of genital organs (Q50 - Q56 : 752)	211	88.3
Birth defects of urinary system (Q60 - Q64 : 753)	119	49.8
Reportable musculoskeletal birth defects (see exclusions) (Q65 - Q68 : 754)	243	101.7
Other reportable birth defects of limb(s) (see exclusions) (Q69 - Q74 : 755)	98	41.0
Other reportable birth defects of musculoskeletal system (Q75 - Q79 : 756)	59	24.7
Reportable birth defects of skin (see exclusions) (Q80 - Q84 : 757)	155	64.9
Other birth defects, not elsewhere classified (Q85 - Q89 : 759)	3	1.3
Chromosome birth defects (Q90 - Q99: 758)	54	22.6
Down's syndrome (Q90 : 758.0)	35	14.7
Edwards' syndrome and Patau's syndrome (Q91: 758.1-2)	9	3.8
Other chromosome birth defects (Q92 - Q99: 758.3-9)	10	4.2
Total Birth defects (* Rate per 100)	1,478	*6.2

Note: Figures from the ACT Admitted Patient Care Data Collection are based on patients not separations; if a baby has more than one admission for the same defect only one defect is counted. One baby may have more than one defect. Data includes stillbirths but excludes pre twenty week fetuses. Definitions and standards as per the ICD-10-AM manual, codes are provided. Mapping between ICD-9-CM and ICD-10-AM was performed where required. ICD-10-AM descriptions with the words "Congenital anomalies or malformations" replaced with "Birth defects" in this publication. See exclusions in the following text. Source: ACT Admitted Patient Care Data Collection and ACT Maternal Perinatal Data Collection, 1995 - 1999 data

There are some reported birth defects that were not presented in Table 48. These are exclusions from the nationally reported birth defects data, which is collected by the National Perinatal Statistical Unit. The reason for the exclusion of the following birth defects is that they are considered to be either minor birth defects or physiological conditions related to gestational age. The majority of these exclusions are:

- patent ductus arteriosus where the gestational age is less than 37 weeks or the birthweight is less than 2,500 grams (9 cases);
- undescended testicles where the gestational age is less than 37 weeks or the birthweight is less than 2,500 grams (8 cases);
- tongue tie (13 cases);
- other specified anomalies of the skin (26 cases, mostly skin tags); and
- talipes equinovarus (28 cases), calcaneovarus (16 cases), unspecified talipes or other deformities of the feet (63 cases).

Data checks were done on 82 records where unspecified or non-specific ICD-10-AM codes were allocated in the ACT APC. These records were edited based on those findings. Forty-four per cent of codes checked were identified as reportable birth defects, the remainder were either incorrectly allocated a birth defect code or not a reportable birth defect.

3.5 Perinatal deaths

The fetal, neonatal and infant deaths are important indicators of our community's health. There were 38 stillbirths (0.8%), 14 neonatal deaths (0.3%) and 5 post neonatal deaths (0.1%) reported for all ACT births in 1999 (Table 49). In 1999, the ACT had a stillbirth rate of 8.1 per 1,000 births for all births in the ACT and a rate of 6.8 per 1,000 for ACT residents' births, compared with an Australian rate of 7.1 per 1,000 births². In 1999, the ACT had a neonatal death rate of 2.8 per 1,000 births for all birth in the ACT and a rate of 2.7 per 1,000 for ACT residents' births, compared with an Australian rate of 3.2 per 1,000 births².

In Australia, the major causes of registered fetal deaths in 1999 were intrauterine hypoxia, birth defects including chromosomal abnormalities, and disorders related to length of gestation and fetal growth.²² Nineteen of the 38 fetal deaths in the ACT in 1999 weighed less than 1,000 grams at birth and were between 20 and 27 completed weeks gestation.

Nationally the major cause of registered neonatal deaths in 1999 was birth defects including chromosomal abnormalities. Other major causes included respiratory and cardiovascular disorders specific to the perinatal period, and disorders related to length of gestation and fetal growth.²² Ten of the 14 neonatal deaths in the ACT during 1999 weighed less than 1,000 grams at birth and nine were between 20 and 27 completed weeks gestation.

The perinatal death (neonatal deaths and fetal deaths), fetal death, and infant death (neonatal deaths and post-neonatal deaths) rates reported below are based on the birth cohort of ACT residents for a calendar year, not by year of death nor year of death registration. These figures will vary from those published by Australian Bureau of Statistics due to the differences in methods of collection.

Table 49: Birth status and survival, ACT residents' births, 1995 – 1999

	1995	1996	1997	1998	1999
ACT residents'	Numbers				
Births	4,383	4,261	4,154	4,115	4,109
Livebirths	4,346	4,231	4,123	4,078	4,081
Survived to one year	4,326	4,215	4,104	4,052	4,068
Infant Deaths	20	16	19	26	13
Post neonatal deaths	5	<5	6	6	<5
Neonatal deaths	15	12	13	20	11
Stillbirths – fetal deaths	37	30	31	37	28
Perinatal Deaths	52	42	44	57	39
	Rate per 1,000				
Livebirths	991.6	993.0	992.5	991.0	993.2
Survived to one year	995.4	996.2	995.4	993.6	996.8
Infant Deaths	4.6	3.8	4.6	6.4	3.2
Post neonatal deaths	1.2	0.9	1.5	1.5	0.5
Neonatal deaths	3.5	2.8	3.2	4.9	2.7
Stillbirths – fetal deaths	8.4	7.0	7.5	9.0	6.8
Perinatal Deaths	11.9	9.9	10.6	13.9	9.5

Note: 1995 to 1999 Birth Cohort Data includes reported deaths for ACT residents' births only. Refer to the glossary for definitions. Rate per 1,000 ACT residents' livebirths for neonatal, post neonatal and infant deaths. Rate per 1,000 ACT residents' births for perinatal and fetal deaths. Annual rates fluctuate due to small numbers. Data corrections account for slight differences from previously reported deaths.

Source: ACT Maternal Perinatal Data Collection, 1995 – 1999 data

The figures in Table 49 show a decrease in perinatal deaths in 1999 for births to ACT residents, with a decrease in the numbers of both fetal and neonatal deaths. Examination of the figures for the last five years (1995 - 1999) shows marked fluctuations in the numbers in each category. There is no obvious trend evident over time. It would be necessary to examine rates over a longer period to provide a more informed analysis of this measure of perinatal outcome.

The Canberra Hospital provides tertiary services to the ACT region for high-risk pregnancies that accounts for the stillbirth rate of 1.2%. The stillbirths at the other ACT hospitals (0.4%) are generally already diagnosed as fetal death in utero (Table 50).

Table 50: Birth status by hospital of birth, ACT, 1999

Birth status	The Canberra Hospital		Other ACT Hospital	
	No.	%	No.	%
Live birth	2,339	98.8	2,259	99.6
Stillbirth	28	1.2	10	0.4
Total	2,367	100.0	2,269	100.0

Source: ACT Maternal Perinatal Data Collection, 1999 data

3.6 Babies' length of stay in hospital

Table 51 indicates that 50.3% of babies born in ACT in 1999 stayed in hospital up to three days after birth, 36.9% stayed in hospital for between 4 to 6 days and 12.8% stayed in hospital for more than a week after birth.

Table 51: Babies' length of stay in hospital, for live births ACT, 1999

Babies' length of stay in hospital	No.	%
Less than 1 day	226	5.1
1 day	419	9.5
2 days	694	15.7
3 days	884	20.0
4 days	714	16.2
5 days	517	11.7
6 days	397	9.0
7 - 13 days	458	10.4
14 - 20 days	42	1.0
21 - 27 days	12	0.3
28 days or more	50	1.1
Total	4,413	100.0

Note: Babies' length of stay for hospital births with transfers excluded.

Source: ACT Maternal Perinatal Data Collection, 1999 data

3.7 Babies' discharge status from hospital

Ninety-six per cent (95.7%) of babies were discharged home with 42.5% referred to Midcall or Canberra Midwifery Program (CMP) and 3.0% referred to the Neonatal and Parent Support Service for additional care at home following the hospital birth admission (Table 52).

Table 52: Babies' discharge status from hospital, ACT, 1999

		No.	%
Babies' discharge	Discharged home	2,306	50.2
	Discharged home on Midcall or CMP	1,955	42.5
	Neonatal & Parent Support Service	138	3.0
	Transferred to ACT hospital	157	3.4
	Transferred to interstate hospital	22	0.5
	Died	15	0.3
	Not stated	5	0.1
	Total	4,598	100.0

Note: Midcall is an early discharge program with follow up at home by a registered midwife for antenatal or postnatal care. CMP means Canberra Midwifery Program. Homebirths and stillbirths have been excluded. Due to the rounding of percentages some totals may not equal 100.0.

Source: ACT Maternal Perinatal Data Collection, 1999 data

Neonatal and Parent Support Service arranges home visits by a neonatal intensive care nurse who provides supervision and continued care to enable early discharge of the baby from hospital. The Canberra Hospital (TCH) had 5.6% of babies discharged to the Neonatal and Parent Support Service in 1999 (Table 53).

Table 53 also show that 8.3% of the babies were transferred from Calvary Private, the majority of these transfers were to Calvary Public hospital.

Table 53: Babies' discharge status by hospital of birth, ACT, 1999

Babies' discharge	The Canberra Hospital		Calvary Public Hospital		Calvary Private Hospital		John James Memorial Hospital	
	No.	%	No.	%	No.	%	No.	%
Discharged	728	31.1	606	49.8	242	87.1	730	95.5
Midcall/CMP	1,347	57.6	571	46.9	13	4.7	24	3.1
NAPSS	130	5.6	<5	-	0	0.0	5	0.7
Transferred	119	5.1	32	2.6	23	8.3	5	0.7
Died	15	0.6	0	0.0	0	0.0	0	0.0
Not stated	0	0.0	5	0.4	0	0.0	0	0.0
Total	2,239	100.0	1,217	100.0	278	100.0	764	100.0

Note: Midcall is an early discharge program with follow up at home by a registered midwife for antenatal or postnatal care. CMP means Canberra Midwifery Program. NAPSS means Neonatal and Parent Support Service. Homebirths and stillbirths have been excluded. There are some reporting inconsistencies in the discharge status data between the number of mother and babies.

Due to the rounding of percentages some totals may not equal 100.0.

Source: ACT Maternal Perinatal Data Collection, 1999 data

4 ACT MATERNAL PERINATAL DATA COLLECTION

The Population Health Research Centre (PHRC) is responsible for the data management, analysis and reporting of the ACT Maternal Perinatal Data Collection (ACT MPDC). The Centre was formed in January 2002 when the Population Information Unit (PIU) and the Clinical Epidemiology and Health Outcomes Centre (CEHOC) amalgamated.

A major goal of the PHRC is to produce publications using the data derived from the collection in consultation with key stakeholders. This is the fourth publication in the Heath Series developed in consultation with the ACT Maternal Perinatal Information Network. For more information on the Network see Section 4.1.2 on page 42.

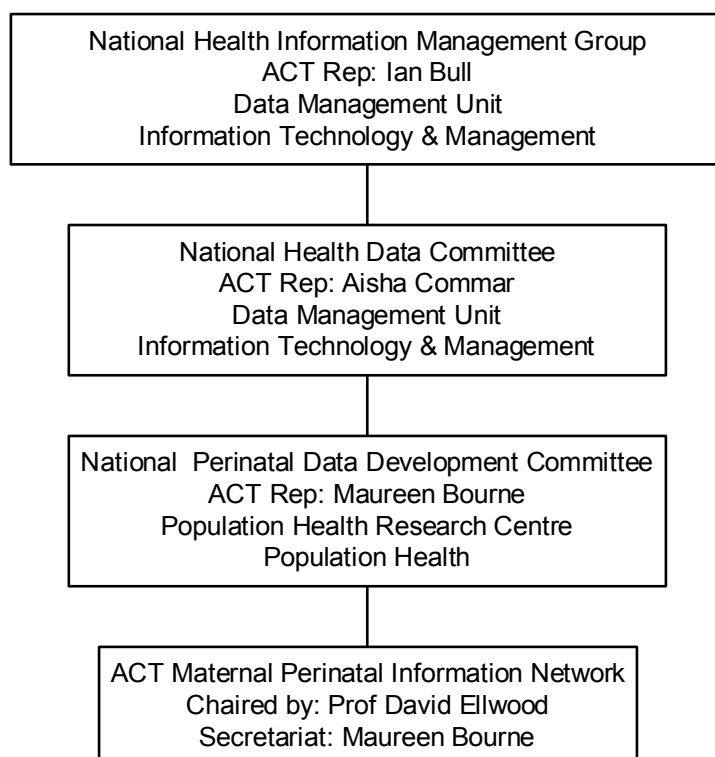
Computerisation of the collection is a major goal of ACT Maternal Perinatal Information Network (ACT MPIN). Since October 1996, The Canberra Hospital (TCH) has collected data for the ACT MPDC in an Access database called "OBICARE". Data extracted from OBICARE is presented in this report, although it should be noted that there are a number of unresolved data issues with OBICARE. Due to ongoing problems with OBICARE, TCH Women's and Children's Health has developed a new database for the collection of the Maternity Unit's data following unsuccessful negotiation with the Queensland Health Department to purchase an updated version of OBICARE. The TCH Information Management Unit continues to manage the ongoing development in consultation with a TCH Maternity Database Working Group. The new Maternity Unit's database, Perinatal and Newborn Data Access (PANDA) was launched and implemented in November 2002. The data extraction process of the TCH data to the ACT MPDC is currently being developed, along with additional improvements to PANDA.

4.1 Committees associated with Maternal Perinatal Health Information in the ACT

4.1.1 Committee structure

The organisational chart below outlines the current ACT representatives and structure of various committees associated with Maternal Perinatal Health Information in the ACT.

Figure 4: Committee Structure for Maternal Perinatal Health Information, ACT



4.1.2 ACT Maternal Perinatal Information Network

The ACT Maternal Perinatal Information Network was formed in October 1998 following the successful work of the ACT Maternal Perinatal Status Working Group.

The membership includes a representative from each of the ACT birthing facilities, including the public and private ACT hospitals, Queen Elizabeth II Family Centre, Child, Family and Youth Health Services, the Data Management Unit, the Health Planning and Performance section, the Population Health Research Centre, a consumer representative and a homebirth midwife.

The chairperson of the network is Professor David Ellwood. Three to four meetings are held each year. The last meeting was held in October 2002.

The aims of the network are:

1. To encourage and facilitate communication about maternal and perinatal data information issues between service providers, policy makers, information managers, researchers and consumer representatives involved in Maternity and Perinatal Services in the ACT, as well as nationally and internationally.
2. To improve the Maternal and Perinatal Data Collection and the reporting of the information within the ACT.
3. To promote the use of the ACT Maternal and Perinatal Data Collection for relevant research to guide policy development, and underpin the development of evidence based policy and clinical decision-making to improve Maternal and Perinatal outcomes in the ACT.

The objectives of the network are:

1. To contribute to the improvement of ACT Maternity and Perinatal Services based on sound evidence.
2. To improve the ACT Maternal and Perinatal Data Collection by:
 - using standardised definitions and codes that reflect clinical practice;
 - regularly reviewing the relevance and coverage of data collected and the method of collection for the ACT Maternal Perinatal Data; and
 - computerising the ACT Maternal and Perinatal Data Collection using Australian standardised definitions and codes.
3. To have regular, timely and relevant publications on the Maternal and Perinatal Status in ACT, including:
 - Multiple years trend reports; and
 - yearly report of a set of tables that are agreed to by the network.

The terms of reference of the network are:

- to influence data collection and reporting issues in the ACT and nationally;
- to set the scope of the information collected to include pregnancy to one year after birth, except for specific subgroups eg. preterm infants where the time frame may be increased (this would include extending the collection to outcomes of pregnancy under 20 weeks and improving collection related to birth defects);
- to interact nationally through the National Perinatal Data Development Committee which is organised by the National Perinatal Statistic Unit;
- to report to the Chief Health Officer through the Population Health Research Centre and have a reporting structure through the Chief Health Officer to the Senior Executive of ACT Health; and
- to report on the progress of the network and discuss data collection issues within each representative's area with both their supervisors and fellow workers.

4.1.3 National Perinatal Data Development Committee

The role of the National Perinatal Data Development Committee (NPDDC) is to prepare submissions to the National Health Data Committee (NHDC) on perinatal health metadata standards. The NPDDC obtains information and assistance from the National Health Information Development Unit when preparing these submissions for the National Health Data Dictionary.

The membership of the NPDDC includes one representative from each State and Territory; the Australian Bureau of Statistics; the Perinatal Society of Australia and New Zealand; and the Director of the National Perinatal Statistics Unit. The ACT representative is Maureen Bourne from Population Health Research Centre, Population Health, ACT Health. The NPDDC is currently chaired by the New South Wales representative with the National Perinatal Statistics Unit providing the secretarial support. The committee usually meets annually in Sydney or by teleconference as required.

4.1.4 National Health Data Committee

The National Health Data Committee²³ (NHDC) is a standing committee of the National Health Information Management Group (NHIMG). The primary role of the NHDC is to assess data definitions proposed for inclusion in the National Health Data Dictionary.

The National Health Data Dictionary, Version 10, 2001, updates the data definitions recommended for use in Australian health data collections. An online version of the dictionary is at <http://www.aihw.gov.au/publications/hwi/nhdd10/index.html>.

The National Health Data Dictionary Summary Edition, Version 11, 2002, contains a summary of changes since Version 10 (<http://www.aihw.gov.au/publications/hwi/nhdd11/index.html>).

The Chairperson of the NHDC, currently Geoff Sims from the Australian Institute of Health and Welfare, was appointed by the NHIMG.

The National Health Data Committee comprises representatives from:

- the Commonwealth Department of Health and Aged Care;
- each State and Territory government health authority;
- the Australian Institute of Health and Welfare;
- the Australian Bureau of Statistics;
- the Australian Private Hospitals' Association;
- Lysaght's Hospital and Medical Club (representing private health insurance);
- the Department of Veterans' Affairs;
- the National Centre for Classification in Health; and
- other members designated by the NHIMG.

4.1.5 Expert Group on Health Classifications

The Expert Group on Health Classifications provides a structure to develop and endorse a Family of Health Classifications for general use in Australia. More detail on the expert group is available at <http://www.aihw.gov.au/committees/health/expertgroup/index.html>.

4.1.6 National Health Information Management Group

The National Health Information Management Group (NHIMG) directs the implementation of the National Health Information Agreement (NHIA). The Agreement, signed by Commonwealth, State and Territory health and statistical authorities, is the cornerstone of national health information development in Australia. More details are available on the Internet at <http://www.aihw.gov.au/committees/health/nhimg/index.html>. The current Agreements are available on the Internet at <http://www.health.gov.au/haf/docs/hca/index.htm>.

More details on AIHW National Committees are available on the Internet at http://www.aihw.gov.au/committees/nat_committees.html.

4.2 Data sources

The ACT Maternal and Perinatal Data Collection (ACT MPDC) presented in this report includes data from the:

- ACT Midwives Data Collection Form for both Calvary public and private hospitals, John James Memorial Hospital and homebirth midwives;
- OBICARE data for The Canberra Hospital (TCH);
- ACT Admitted Patient Care Data Collection (previously called the ACT Hospital Morbidity Data Collection); and
- ACT Death Data from the ACT Death Registry and Australian Bureau of Statistics (ABS).

4.2.1 ACT Midwives Data Collection Form

Midwives complete the ACT Midwives Data Collection (ACT MDC) form in all ACT birth facilities, except TCH. The midwife caring for the mother and baby completes sections of the form at the initial admission, when the baby is born, and on discharge from the birth facility. Following discharge after the birth of the baby, the forms are sent to the Medical Records Department, and then sent to the PHRC for data entry, collation, analysis and reporting.

An updated ACT MDC form was used for the 1999 data collection. The form was revised during 1998 and introduced in January 1999. The ACT MPIN introduced two further revisions to the form in November 2000 and April 2002. In 2000, layout changes were made and the neonatal morbidity requiring treatment section was removed. Codes were changed for the method of induction and augmentation to comply with the National Health Data Dictionary (NHDD) Version 9. No other data items or codes were changed in the November 2000 revision.

In 2002 data item code changes to the onset of labour and the resuscitation of baby were introduced to comply with the NHDD Version 10. Alcohol consumption and substance abuse in pregnancy questions, and two questions relating to previous birth by caesarean section were also added to the form. Layout changes and the removal of the date of completion of last pregnancy were required to accommodate the new questions.

Figure 5: ACT Midwives Data Collection Form in 1999 - 2000 data



ACT Midwives Data Collection Form

MOTHER		BABY'S PLACE OF BIRTH		BABY																												
PIN (Mother's) <input type="text"/> Mother's Birthdate <input type="text"/> Suburb <input type="text"/> Postcode <input type="text"/> Admission Date <input type="text"/> Family Status Separated <input type="checkbox"/> 4 Married/Defacto <input type="checkbox"/> 5 Divorced <input type="checkbox"/> 3 Never Married <input type="checkbox"/> 1 Widowed <input type="checkbox"/> 2 Country of birth <input type="text"/> Indigenous Status Not Indigenous <input type="checkbox"/> 4 Aust. Aboriginal <input type="checkbox"/> 1 Torres Strait Islander <input type="checkbox"/> 2 Class of Patient Public <input type="checkbox"/> 1 Private <input type="checkbox"/> 2		The Canberra Hospital <input type="checkbox"/> 1 John James Memorial <input type="checkbox"/> 5 TCH Birth Centre <input type="checkbox"/> 2 National Capital Private <input type="checkbox"/> 6 Calvary Public <input type="checkbox"/> 3 Homebirth <input type="checkbox"/> 7 Calvary Private <input type="checkbox"/> 4 Born before arrival <input type="checkbox"/> 8 Intended place of birth at onset of labour Hospital <input type="checkbox"/> 1 Birth Centre <input type="checkbox"/> 2 Home <input type="checkbox"/> 4 Was mother transferred Antenatally? No <input type="checkbox"/> 1 Prior to labour <input type="checkbox"/> 2 During labour <input type="checkbox"/> 3 Transferred FROM Planned Homebirth <input type="checkbox"/> 1 Another ACT hospital <input type="checkbox"/> 3 Birth Centre <input type="checkbox"/> 2 Interstate hospital <input type="checkbox"/> 4 Reason for transfer <input type="text"/> Did mother smoke during pregnancy? No <input type="checkbox"/> 2 Yes <input type="checkbox"/> 1 Average number of cigarettes per day during the second half of pregnancy <input type="text"/>		PIN (Baby's) <input type="text"/> Baby's Birthdate <input type="text"/> Birth Condition Live Birth <input type="checkbox"/> 1 Stillbirth <input type="checkbox"/> 2 Sex Male <input type="checkbox"/> 1 Female <input type="checkbox"/> 2 Indeterminate <input type="checkbox"/> 3 Plurality Single <input type="checkbox"/> 1 Twins <input type="checkbox"/> 2 Triplets <input type="checkbox"/> 3 Birth order (enter 1 if singleton birth) <input type="text"/> Birth weight (grams) <input type="text"/> Head circumference (cm) <input type="text"/> Length (cm) <input type="text"/> APGAR: 1 minute <input type="text"/> 5 minutes <input type="text"/> Resuscitation - Active Measures None <input type="checkbox"/> 1 Suction <input type="checkbox"/> 2 IPPV - bag & mask <input type="checkbox"/> 4 O ₂ Therapy <input type="checkbox"/> 3 IPPV - intubation <input type="checkbox"/> 5 Laryngoscopy <input type="checkbox"/> 7 External cardiac massage + ventilation <input type="checkbox"/> 6 Resuscitation - Drug Therapy None <input type="checkbox"/> 1 Narcotic antagonist <input type="checkbox"/> 2 Adrenalin <input type="checkbox"/> 4 Sodium Bicarbonate <input type="checkbox"/> 3 Other drugs related to resuscitation <input type="checkbox"/> 5 Admission to SCN / NICU No <input type="checkbox"/> 2 Yes <input type="checkbox"/> 1 length of stay in days <input type="text"/>																												
PREVIOUS PREGNANCIES 0 <input type="checkbox"/> No previous pregnancies Last pregnancy Number <input type="text"/> Outcome <input type="text"/> 1 <input type="checkbox"/> Yes Live Births <input type="text"/> 1 Neonatal Deaths <input type="text"/> 2 Stillbirths <input type="text"/> 3 Spontaneous Abortions <input type="text"/> 4 Induced Abortions <input type="text"/> 5 Ectopic Pregnancies <input type="text"/> 6 Other <input type="text"/> 7 Date of completion of last pregnancy <input type="text"/> Plurality of last pregnancy: Single <input type="checkbox"/> 1 Multiple <input type="checkbox"/> 2		LABOUR, BIRTH AND PUERPERIUM Onset and type of Labour No Labour <input type="checkbox"/> 1 Method: A.R.M. <input type="checkbox"/> 1 Spontaneous <input type="checkbox"/> 2 Oxytocin <input type="checkbox"/> 2 Spontaneous + Augmented <input type="checkbox"/> 3 Induction <input type="checkbox"/> 4 Prostaglandins <input type="checkbox"/> 3 Reason for augmentation or induction <input type="text"/> Analgia / Anaesthesia None <input type="checkbox"/> 1 Local <input type="checkbox"/> 2 Spinal <input type="checkbox"/> 5 Nitrous Oxide <input type="checkbox"/> 2 Pudendal <input type="checkbox"/> 3 General <input type="checkbox"/> 6 IMI Narcotic <input type="checkbox"/> 3 Epidural <input type="checkbox"/> 4 Other <input type="text"/> 8 Presentation Vertex <input type="checkbox"/> 1 Face <input type="checkbox"/> 3 Other (compound) <input type="checkbox"/> 8 Breech <input type="checkbox"/> 2 Brow <input type="checkbox"/> 4 Method of Birth Spontaneous <input type="checkbox"/> 1 Caesarean Section <input type="checkbox"/> 4 Forceps <input type="checkbox"/> 2 Vacuum Extraction <input type="checkbox"/> 5 Vaginal Breech <input type="checkbox"/> 3 Other <input type="text"/> 8 Perineal status Intact <input type="checkbox"/> 1 3° Laceration <input type="checkbox"/> 4 1° Laceration <input type="checkbox"/> 2 4° Laceration <input type="checkbox"/> 7 2° Laceration <input type="checkbox"/> 3 Episiotomy <input type="checkbox"/> 5 Was the vulva, vagina or perineum sutured? Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 2 Complications of Labour & Birth None <input type="checkbox"/> PPH <input type="checkbox"/> Fetal Distress <input type="checkbox"/> Retained Placenta <input type="checkbox"/> Cord Prolapse <input type="checkbox"/> Major Infection <input type="checkbox"/> Obstructed Labour <input type="checkbox"/>		Neonatal morbidity requiring treatment Nervous system <input type="checkbox"/> Circulatory system <input type="checkbox"/> Respiratory system <input type="checkbox"/> Digestive system <input type="checkbox"/> Musculoskeletal system <input type="checkbox"/> Skin & subcutaneous <input type="checkbox"/> Endocrine or Metabolic disease <input type="checkbox"/> Chromosomal <input type="checkbox"/> Does the baby have birth defect(s)? Yes <input type="checkbox"/> 1 Suspected <input type="checkbox"/> 3 No <input type="checkbox"/> 2 Describe briefly - Complete a more detailed form <input type="text"/> Autopsy Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 2 N/A <input type="checkbox"/> 3																												
THIS PREGNANCY Gravidity <input type="text"/> Parity <input type="text"/> Date of Last Menstrual Period <input type="text"/> Clinically estimated gestation (weeks) <input type="text"/> Maternal medical conditions while pregnant Diabetes Mellitus <input type="checkbox"/> Epilepsy <input type="checkbox"/> Chronic Renal Disease <input type="checkbox"/> Cardiac Disease <input type="checkbox"/> Essential Hypertension <input type="checkbox"/> Other Condition <input type="checkbox"/> Obstetric Complications APH - Placenta Praevia <input type="checkbox"/> Abruption Placenta <input type="checkbox"/> APH - Other <input type="checkbox"/> Pre-eclampsia <input type="checkbox"/> Prelabour Ruptured Membranes <input type="checkbox"/> Gestational Diabetes <input type="checkbox"/> Threatened Abortion <input type="checkbox"/> Threatened Preterm Labour <input type="checkbox"/> Procedures and Operations Number of Ultrasounds <input type="text"/> Cardiotocography <input type="checkbox"/> Assisted Conception <input type="checkbox"/> Chorionic Villus Sampling <input type="checkbox"/> X-Ray <input type="checkbox"/> Amniocentesis < 20 wks <input type="checkbox"/> CT Scan <input type="checkbox"/> Amniocentesis > 20 wks <input type="checkbox"/> Cervical Suture <input type="checkbox"/>		TYPE OF FEEDING at birth on discharge Breast <input type="checkbox"/> 1 <input type="checkbox"/> 1 Breast feeding problems Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 2 EBM <input type="checkbox"/> 2 <input type="checkbox"/> 2 Formula <input type="checkbox"/> 3 <input type="checkbox"/> 3 (tick more than one type of feeding if needed)		DISCHARGE STATUS Mother's Discharge <input type="text"/> Baby's Discharge <input type="text"/> <table border="1"> <thead> <tr> <th></th> <th>Mother</th> <th>Baby</th> </tr> </thead> <tbody> <tr> <td>Discharged home</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 1</td> </tr> <tr> <td>Midcall</td> <td><input type="checkbox"/> 2</td> <td><input type="checkbox"/> 2</td> </tr> <tr> <td>Neonatal & Parent Support Service</td> <td><input type="checkbox"/> 3</td> <td><input type="checkbox"/> 3</td> </tr> <tr> <td>Canberra Midwifery Program</td> <td><input type="checkbox"/> 4</td> <td><input type="checkbox"/> 4</td> </tr> <tr> <td>Died</td> <td><input type="checkbox"/> 5</td> <td><input type="checkbox"/> 5</td> </tr> <tr> <td>Transferred to QEII</td> <td><input type="checkbox"/> 6</td> <td><input type="checkbox"/> 6</td> </tr> <tr> <td>Transferred to ACT Hospital</td> <td><input type="checkbox"/> 7</td> <td><input type="checkbox"/> 7</td> </tr> <tr> <td>Transferred to Interstate Hospital</td> <td><input type="checkbox"/> 8</td> <td><input type="checkbox"/> 8</td> </tr> </tbody> </table>			Mother	Baby	Discharged home	<input type="checkbox"/> 1	<input type="checkbox"/> 1	Midcall	<input type="checkbox"/> 2	<input type="checkbox"/> 2	Neonatal & Parent Support Service	<input type="checkbox"/> 3	<input type="checkbox"/> 3	Canberra Midwifery Program	<input type="checkbox"/> 4	<input type="checkbox"/> 4	Died	<input type="checkbox"/> 5	<input type="checkbox"/> 5	Transferred to QEII	<input type="checkbox"/> 6	<input type="checkbox"/> 6	Transferred to ACT Hospital	<input type="checkbox"/> 7	<input type="checkbox"/> 7	Transferred to Interstate Hospital	<input type="checkbox"/> 8	<input type="checkbox"/> 8
	Mother	Baby																														
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Transferred to Interstate Hospital	<input type="checkbox"/> 8	<input type="checkbox"/> 8																														
Responsibility for Antenatal Care No of visits Obstetrician <input type="checkbox"/> 1 None <input type="checkbox"/> 1 General Practitioner <input type="checkbox"/> 2 1 to 5 <input type="checkbox"/> 2 Midwife (with max 2 GP) <input type="checkbox"/> 3 6 to 10 <input type="checkbox"/> 3 Antenatal Clinic <input type="checkbox"/> 4 11 to 15 <input type="checkbox"/> 4 Antenatal Clinic & GP <input type="checkbox"/> 5 16 to 20 <input type="checkbox"/> 5 Other shared care <input type="checkbox"/> 6 More than 20 <input type="checkbox"/> 6 Duration of pregnancy at first visit (wks) <input type="text"/>		Return this page of the completed form to: Clinical Health Outcomes Centre The Canberra Hospital		Midwife completing the form at birth (print surname & initial) _____ (date) ____/____/____ Midwife completing the form on discharge (print surname & initial) _____ (date) ____/____/____																												

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Figure 6: ACT Midwives Data Collection Form for 2001 data



ACT Midwives Data Collection Form

MOTHER		BABY'S PLACE OF BIRTH		BABY	
PIN (Mother's) <input type="text"/> Mother's Birthdate <input type="text"/> Suburb <input type="text"/> Postcode <input type="text"/> Admission Date <input type="text"/> Family Status: Married/Defacto <input type="checkbox"/> 5, Divorced <input type="checkbox"/> 3, Never Married <input type="checkbox"/> 1, Widowed <input type="checkbox"/> 2, Separated <input type="checkbox"/> 4 Country of birth <input type="text"/> Indigenous Status: Aust. Aboriginal <input type="checkbox"/> 1, Torres Strait Islander <input type="checkbox"/> 2, Not Indigenous <input type="checkbox"/> 4 Class of Patient: Public <input type="checkbox"/> 1, Private <input type="checkbox"/> 2		The Canberra Hospital <input type="checkbox"/> 1, TCH Birth Centre <input type="checkbox"/> 2, Calvary Public <input type="checkbox"/> 3, Calvary Private <input type="checkbox"/> 4, John James Memorial <input type="checkbox"/> 5, National Capital Private <input type="checkbox"/> 6, Home <input type="checkbox"/> 7, Born before arrival <input type="checkbox"/> 8 Intended place of birth at onset of labour: Hospital <input type="checkbox"/> 1, Birth Centre <input type="checkbox"/> 2, Home <input type="checkbox"/> 4 Was mother transferred Antenatally? No <input type="checkbox"/> 1, Prior to labour <input type="checkbox"/> 2, During labour <input type="checkbox"/> 3 Transferred FROM: Planned Homebirth <input type="checkbox"/> 1, Another ACT hospital <input type="checkbox"/> 3, Birth Centre <input type="checkbox"/> 2, Interstate hospital <input type="checkbox"/> 4 Reason for transfer <input type="text"/> Did mother smoke during pregnancy? No <input type="checkbox"/> 2, Yes <input type="checkbox"/> 1, Average number of cigarettes per day during the second half of pregnancy <input type="text"/>		PIN (Baby's) <input type="text"/> Baby's Birthdate <input type="text"/> Birth Condition: Live Birth <input type="checkbox"/> 1, Stillbirth <input type="checkbox"/> 2 Sex: Male <input type="checkbox"/> 1, Female <input type="checkbox"/> 2, Indeterminate <input type="checkbox"/> 3 Plurality: Single <input type="checkbox"/> 1, Twins <input type="checkbox"/> 2, Triplets <input type="checkbox"/> 3 Birth order (enter 1 if singleton birth) <input type="text"/> Birth weight (grams) <input type="text"/> Head circumference (cm) <input type="text"/> Length (cm) <input type="text"/> APGAR: 1 minute <input type="text"/> 5 minutes <input type="text"/> Resuscitation - Active Measures: Suction <input type="checkbox"/> 2, IPPV - bag & mask <input type="checkbox"/> 4, O ₂ Therapy <input type="checkbox"/> 3, IPPV - intubation <input type="checkbox"/> 5, Laryngoscopy <input type="checkbox"/> 7, External cardiac massage + ventilation <input type="checkbox"/> 6 Resuscitation - Drug Therapy: Narcotic antagonist <input type="checkbox"/> 2, Adrenalin <input type="checkbox"/> 4, Sodium Bicarbonate <input type="checkbox"/> 3, Other drugs related to resuscitation <input type="checkbox"/> 5 Admission to SCN / NICU: No <input type="checkbox"/> 2, Yes <input type="checkbox"/> 1, length of stay in days <input type="text"/> Does the baby have birth defect(s)? Yes <input type="checkbox"/> 1, Suspected <input type="checkbox"/> 3, No <input type="checkbox"/> 2 Describe briefly - Complete a more detailed form <input type="text"/>	
PREVIOUS PREGNANCIES <input type="checkbox"/> No previous pregnancies <input type="checkbox"/> Yes: Live Births <input type="text"/> 1, Neonatal Deaths <input type="text"/> 2, Stillbirths <input type="text"/> 3, Spontaneous Abortions <input type="text"/> 4, Induced Abortions <input type="text"/> 5, Ectopic Pregnancies <input type="text"/> 6 Date of completion of last pregnancy <input type="text"/> Plurality of last pregnancy: Single <input type="checkbox"/> 1, Multiple <input type="checkbox"/> 2		LABOUR, BIRTH AND PUERPERIUM Onset and type of Labour: No Labour <input type="checkbox"/> 3, Spontaneous <input type="checkbox"/> 1, Spontaneous + Augmented <input type="checkbox"/> 4, Induction <input type="checkbox"/> 2 Method: Oxytocin <input type="checkbox"/> 1, Prostaglandins <input type="checkbox"/> 2, A.R.M. <input type="checkbox"/> 3, Other <input type="checkbox"/> 4 Reason for augmentation or induction <input type="text"/> Analgesia: None <input type="checkbox"/> 1, Nitrous Oxide <input type="checkbox"/> 2, IM/Narcotic <input type="checkbox"/> 3, Epidural <input type="checkbox"/> 4, Spinal <input type="checkbox"/> 5, Other <input type="checkbox"/> 6 Anaesthesia: None <input type="checkbox"/> 1, Local <input type="checkbox"/> 2, Pudendal <input type="checkbox"/> 3, Epidural <input type="checkbox"/> 4, Spinal <input type="checkbox"/> 5, General <input type="checkbox"/> 6, Other <input type="checkbox"/> 9 Presentation: Vertex <input type="checkbox"/> 1, Face <input type="checkbox"/> 3, Other (compound) <input type="checkbox"/> 8, Breech <input type="checkbox"/> 2, Brow <input type="checkbox"/> 4 Method of Birth: Spontaneous <input type="checkbox"/> 1, Forceps <input type="checkbox"/> 2, Vaginal Breech <input type="checkbox"/> 3, Caesarean Section <input type="checkbox"/> 4, Vacuum Extraction <input type="checkbox"/> 5, Other <input type="checkbox"/> 6 Perineal status: Intact <input type="checkbox"/> 1, 1 ^o Laceration <input type="checkbox"/> 2, 2 ^o Laceration <input type="checkbox"/> 3, 3 ^o Laceration <input type="checkbox"/> 4, 4 ^o Laceration <input type="checkbox"/> 7, Episiotomy <input type="checkbox"/> 6 Was the vulva, vagina or perineum sutured? Yes <input type="checkbox"/> 1, No <input type="checkbox"/> 2 Complications of Labour & Birth: PPH <input type="checkbox"/> 1, Retained Placenta <input type="checkbox"/> 2, Major Infection <input type="checkbox"/> 3, Fetal Distress <input type="checkbox"/> 4, Cord Prolapse <input type="checkbox"/> 5, Obstructed Labour <input type="checkbox"/> 6		TYPE OF FEEDING at birth on discharge Breast <input type="checkbox"/> 1, EBM <input type="checkbox"/> 2, Formula <input type="checkbox"/> 3 Breast feeding problems: Yes <input type="checkbox"/> 1, No <input type="checkbox"/> 2 (tick more than one type of feeding if needed)	
THIS PREGNANCY Gravidity <input type="text"/> Parity <input type="text"/> (exclude this preg) Date of Last Menstrual Period <input type="text"/> Clinically estimated gestation (weeks) <input type="text"/> Maternal medical conditions while pregnant: Diabetes Mellitus <input type="checkbox"/> 1, Chronic Renal Disease <input type="checkbox"/> 2, Essential Hypertension <input type="checkbox"/> 3, Epilepsy <input type="checkbox"/> 4, Cardiac Disease <input type="checkbox"/> 5, Other Condition <input type="checkbox"/> 6 Obstetric Complications: APH - Placenta Praevia <input type="checkbox"/> 1, APH - Other <input type="checkbox"/> 2, Abruption Placenta <input type="checkbox"/> 3, Pre-eclampsia <input type="checkbox"/> 4, Prelabour Ruptured Membranes <input type="checkbox"/> 5, Gestational Diabetes <input type="checkbox"/> 6, Threatened Abortion <input type="checkbox"/> 7, Threatened Preterm Labour <input type="checkbox"/> 8 Procedures and Operations: Number of Ultrasounds <input type="text"/> Cardiotocography <input type="checkbox"/> 1, Assisted Conception <input type="checkbox"/> 2, Chorionic Villus Sampling <input type="checkbox"/> 3, Amniocentesis < 20 wks <input type="checkbox"/> 4, Amniocentesis > 20 wks <input type="checkbox"/> 5, X-Ray <input type="checkbox"/> 6, CT Scan <input type="checkbox"/> 7, Cervical Suture <input type="checkbox"/> 8 Responsibility for Antenatal Care: No of visits: Obstetrician <input type="checkbox"/> 1, General Practitioner <input type="checkbox"/> 2, Midwife (with max 2 GP) <input type="checkbox"/> 3, Antenatal Clinic <input type="checkbox"/> 4, Antenatal Clinic & GP <input type="checkbox"/> 5, Other shared care <input type="checkbox"/> 6, None <input type="checkbox"/> 1, 1 to 5 <input type="checkbox"/> 2, 6 to 10 <input type="checkbox"/> 3, 11 to 15 <input type="checkbox"/> 4, 16 to 20 <input type="checkbox"/> 5, More than 20 <input type="checkbox"/> 6 Duration of pregnancy at first visit (wks) <input type="text"/>		DISCHARGE STATUS Mother's Discharge <input type="text"/> Baby's Discharge <input type="text"/> Discharged home: Mother <input type="checkbox"/> 1, Baby <input type="checkbox"/> 1, Midcall <input type="checkbox"/> 2 Neonatal & Parent Support Service <input type="checkbox"/> 3 Canberra Midwifery Program <input type="checkbox"/> 4 Transferred to QEII <input type="checkbox"/> 6 Transferred to ACT Hospital <input type="checkbox"/> 7 Transferred to Interstate Hospital <input type="checkbox"/> 8 Died <input type="checkbox"/> 5 Autopsy: Yes <input type="checkbox"/> 1, No <input type="checkbox"/> 2, N/A <input type="checkbox"/> 3 Midwife completing the form at birth: (print surname & initial) _____ (date) ____/____/____ Midwife completing the form on discharge: (print surname & initial) _____ (date) ____/____/____			
F00103/1100, S7613, 12/9/95		Return this page of the completed form to: Clinical Epidemiology and Health Outcomes Centre The Canberra Hospital			

Figure 7: ACT Midwives Data Collection Form for June 2002 - ongoing data



ACT Midwives Data Collection Form

MOTHER		BABY'S PLACE OF BIRTH		BABY	
PIN (Mother's) <input type="text"/> Mother's Birthdate <input type="text"/> Suburb <input type="text"/> Postcode <input type="text"/> Admission Date <input type="text"/> Family Status: Married/Defacto <input type="checkbox"/> 5, Divorced <input type="checkbox"/> 3, Never Married <input type="checkbox"/> 1, Widowed <input type="checkbox"/> 2 Country of birth <input type="text"/> Indigenous Status: Aust. Aboriginal <input type="checkbox"/> 1, Torres Strait Islander <input type="checkbox"/> 2, Not Indigenous <input type="checkbox"/> 4 Classification of Patient: Public <input type="checkbox"/> 1, Private <input type="checkbox"/> 2		The Canberra Hospital <input type="checkbox"/> 1, TCH Birth Centre <input type="checkbox"/> 2, Calvary Public <input type="checkbox"/> 3, Calvary Private <input type="checkbox"/> 4, John James Memorial <input type="checkbox"/> 5, National Capital Private <input type="checkbox"/> 6, Home <input type="checkbox"/> 7, Born before arrival <input type="checkbox"/> 8 Intended place of birth at onset of labour: Hospital <input type="checkbox"/> 1, Birth Centre <input type="checkbox"/> 2, Home <input type="checkbox"/> 4 Was mother transferred Antenatally? No <input type="checkbox"/> 1, Prior to labour <input type="checkbox"/> 2, During labour <input type="checkbox"/> 3 Transferred FROM: Planned Homebirth <input type="checkbox"/> 1, Another ACT hospital <input type="checkbox"/> 2, Birth Centre <input type="checkbox"/> 2, Interstate hospital <input type="checkbox"/> 4 Reason for transfer <input type="text"/> Did mother smoke during pregnancy? Yes <input type="checkbox"/> 1, No <input type="checkbox"/> 2 Average number of cigarettes per day during the second half of pregnancy <input type="text"/> Alcohol consumption during pregnancy: Yes <input type="checkbox"/> 1, No <input type="checkbox"/> 2 Number of standard drinks per week <input type="text"/> Was substance abuse documented? Yes <input type="checkbox"/> 1, No <input type="checkbox"/> 2		PIN (Baby's) <input type="text"/> Baby's Birthdate <input type="text"/> Birth Condition: Live Birth <input type="checkbox"/> 1, Stillbirth <input type="checkbox"/> 2 Sex: Male <input type="checkbox"/> 1, Female <input type="checkbox"/> 2, Indeterminate <input type="checkbox"/> 3 Plurality: Single <input type="checkbox"/> 1, Twins <input type="checkbox"/> 2, Triplets <input type="checkbox"/> 3 Birth order (enter 1 if singleton birth) <input type="text"/> Birth weight (grams) <input type="text"/> Head circumference (cm) <input type="text"/> Length (cm) <input type="text"/> APGAR: 1 minute <input type="text"/> 5 minutes <input type="text"/> Resuscitation - Active Measures: None <input type="checkbox"/> 1, Suction <input type="checkbox"/> 2, IPPV - bag & mask <input type="checkbox"/> 4, O ₂ Therapy <input type="checkbox"/> 3, IPPV - intubation <input type="checkbox"/> 5, External cardiac massage + ventilation <input type="checkbox"/> 6, Laryngoscopy: Yes <input type="checkbox"/> 1, No <input type="checkbox"/> 2 Resuscitation - Drug Therapy: None <input type="checkbox"/> 1, Narcotic antagonist <input type="checkbox"/> 2, Adrenalin <input type="checkbox"/> 4, Sodium Bicarbonate <input type="checkbox"/> 3, Other drugs related to resuscitation <input type="checkbox"/> 5 Admission to SCN / NICU: Yes <input type="checkbox"/> 1, length of stay in days <input type="text"/> , No <input type="checkbox"/> 2 Does the baby have birth defect(s)? Yes <input type="checkbox"/> 1, Suspected <input type="checkbox"/> 3, No <input type="checkbox"/> 2 Describe briefly - Complete a more detailed form <input type="text"/>	
PREVIOUS PREGNANCIES <input type="checkbox"/> No previous pregnancies <input type="checkbox"/> Yes: Live Births <input type="text"/> 1, Neonatal Deaths <input type="text"/> 2, Stillbirths <input type="text"/> 3, Spontaneous Abortions <input type="text"/> 4, Induced Abortions <input type="text"/> 5, Ectopic Pregnancies <input type="text"/> 6 Plurality of last pregnancy: Single <input type="checkbox"/> 1, Multiple <input type="checkbox"/> 2 Was the last birth a caesarean section? Yes <input type="checkbox"/> 1, No <input type="checkbox"/> 2 Number of previous caesarean sections: <input type="text"/>		LABOUR, BIRTH AND PUERPERIUM Onset and type of Labour: Spontaneous <input type="checkbox"/> 1, Augmented: Yes <input type="checkbox"/> 1, No <input type="checkbox"/> 2, Induction <input type="checkbox"/> 2, No Labour <input type="checkbox"/> 3 Method: Oxytocin <input type="checkbox"/> 1, Prostaglandins <input type="checkbox"/> 2, A.R.M. <input type="checkbox"/> 3, Other <input type="checkbox"/> 4 Reason for augmentation or induction <input type="text"/> Analgesia: None <input type="checkbox"/> 1, Nitrous Oxide <input type="checkbox"/> 2, IMI Narcotic <input type="checkbox"/> 3, Epidural <input type="checkbox"/> 4, Spinal <input type="checkbox"/> 5, Other <input type="checkbox"/> 6 Anaesthesia: None <input type="checkbox"/> 1, Local to perineum <input type="checkbox"/> 2, Pudendal <input type="checkbox"/> 3, Epidural <input type="checkbox"/> 4, Spinal <input type="checkbox"/> 5, General <input type="checkbox"/> 6, Other <input type="checkbox"/> 8 Presentation: Vertex <input type="checkbox"/> 1, Face <input type="checkbox"/> 3, Other (compound) <input type="checkbox"/> 8, Breech <input type="checkbox"/> 2, Brow <input type="checkbox"/> 4 Method of Birth: Spontaneous cephalic <input type="checkbox"/> 1, Forceps <input type="checkbox"/> 2, Vaginal Breech <input type="checkbox"/> 3, Caesarean Section <input type="checkbox"/> 4, Vacuum Extraction <input type="checkbox"/> 5, Other <input type="checkbox"/> 6 Perineal status: Intact <input type="checkbox"/> 1, 1° Laceration <input type="checkbox"/> 2, 2° Laceration <input type="checkbox"/> 3, 3° Laceration <input type="checkbox"/> 4, 4° Laceration <input type="checkbox"/> 7, Episiotomy <input type="checkbox"/> 5 Was the vulva, vagina or perineum sutured? Yes <input type="checkbox"/> 1, No <input type="checkbox"/> 2 Complications of Labour & Birth: PPH <input type="checkbox"/> 1, Retained Placenta <input type="checkbox"/> 1, Major Infection <input type="checkbox"/> 1, Fetal Distress <input type="checkbox"/> 1, Cord Prolapse <input type="checkbox"/> 1, Obstructed Labour <input type="checkbox"/> 1		TYPE OF FEEDING at birth on discharge Breast <input type="checkbox"/> 1, EBM <input type="checkbox"/> 2, Formula <input type="checkbox"/> 3 Breast feeding problems: Yes <input type="checkbox"/> 1, No <input type="checkbox"/> 2 (tick more than one type of feeding if needed)	
THIS PREGNANCY Gravidity <input type="text"/> Parity <input type="text"/> (exclude this preg) Date of Last Menstrual Period <input type="text"/> Clinically estimated gestation (weeks) <input type="text"/> Maternal medical conditions while pregnant: Diabetes Mellitus <input type="checkbox"/> 1, Chronic Renal Disease <input type="checkbox"/> 2, Essential Hypertension <input type="checkbox"/> 3, Epilepsy <input type="checkbox"/> 4, Cardiac Disease <input type="checkbox"/> 5, Other Condition <input type="checkbox"/> 6 Obstetric Complications: APH - Placenta Praevia <input type="checkbox"/> 1, Abruptio Placenta <input type="checkbox"/> 2, Other (unspecified) <input type="checkbox"/> 3, Pre-eclampsia <input type="checkbox"/> 4, Gestational Diabetes <input type="checkbox"/> 5, Threatened Abortion <input type="checkbox"/> 6, Threatened Preterm Labour <input type="checkbox"/> 7, Prelabour Ruptured Membranes <input type="checkbox"/> 8 Procedures and Operations: Cardiotocography <input type="checkbox"/> 1, Amniocentesis < 20 wks <input type="checkbox"/> 2, Amniocentesis > 20 wks <input type="checkbox"/> 3, Assisted Conception <input type="checkbox"/> 4, X-Ray <input type="checkbox"/> 5, CT Scan <input type="checkbox"/> 6, Cervical Suture <input type="checkbox"/> 7 Responsibility for Antenatal Care: No of visits: Obstetrician <input type="checkbox"/> 1, General Practitioner <input type="checkbox"/> 2, Midwife (with max 2 GP) <input type="checkbox"/> 3, Antenatal Clinic <input type="checkbox"/> 4, BC or CMP Protocols <input type="checkbox"/> 7, Shared care <input type="checkbox"/> 6, None <input type="checkbox"/> 1, 1 to 5 <input type="checkbox"/> 2, 6 to 10 <input type="checkbox"/> 3, 11 to 15 <input type="checkbox"/> 4, 16 to 20 <input type="checkbox"/> 5, More than 20 <input type="checkbox"/> 6 Duration of pregnancy at first visit (wks) <input type="text"/>		DISCHARGE STATUS Mother's Discharge <input type="text"/> Baby's Discharge <input type="text"/> Discharged home: Mother <input type="checkbox"/> 1, Baby <input type="checkbox"/> 1 Midcall: Mother <input type="checkbox"/> 2, Baby <input type="checkbox"/> 2 Neonatal & Parent Support Service: Mother <input type="checkbox"/> 3, Baby <input type="checkbox"/> 3 Canberra Midwifery Program: Mother <input type="checkbox"/> 4, Baby <input type="checkbox"/> 4 Transferred to QEII: Mother <input type="checkbox"/> 6, Baby <input type="checkbox"/> 6 Transferred to ACT Hospital: Mother <input type="checkbox"/> 7, Baby <input type="checkbox"/> 7 Transferred to Interstate Hospital: Mother <input type="checkbox"/> 8, Baby <input type="checkbox"/> 8 Died or Stillborn: Mother <input type="checkbox"/> 5, Baby <input type="checkbox"/> 5 Autopsy: Yes <input type="checkbox"/> 1, No <input type="checkbox"/> 2, N/A <input type="checkbox"/> 3 Midwife completing the form at birth: _____ /_____/_____ (print surname & initial) (date) Midwife completing the form on discharge: _____ /_____/_____ (print surname & initial) (date)			
Return completed form to Population Health Research Centre The Canberra Hospital					

FD010304.02, S7613.12.05

4.2.2 OBICARE Data

The OBICARE application was a Microsoft Access Version 2 database that was used to collect data at The Canberra Hospital's Maternity Unit until November 2002. The midwives caring for a mother and baby enter the data into OBICARE as the mother progresses through the pre admission, antenatal clinic, delivery suite/birth centre and postnatal ward.

Data for the ACT Maternal Perinatal Data Collection is extracted annually from OBICARE and recoded. This task is the responsibility of the data manager from the Population Health Research Centre. Data was extracted from OBICARE for the first time for the 1997 report.

The information system at The Canberra Hospital's Maternity Unit was revised and upgraded during 2002. A new database, called Perinatal and Newborn Data Access (PANDA) was implemented in November 2002. In the future data will be extracted from PANDA for the ACT MPDC.

4.2.3 ACT Deaths Data

Initially the Australian Bureau of Statistics' ACT Deaths Data was the only death data used to identify and provide information on ACT infant deaths (neonatal and post neonatal deaths). Now new arrangements are in place to receive limited de-identified data for all ACT registered perinatal and infant deaths, from the Registrar General's Office. The use of both ACT Deaths data sources ensures full ascertainment of perinatal and infant deaths for babies born in the ACT.

Babies born in the ACT who die and are registered outside the ACT are not identified from ACT Deaths data sources. The ABS produces a table that gives the number of perinatal deaths that occur in Australia using the state of death registration by place of birth data. From this table the number of babies that are born in the ACT who die outside the ACT can be identified. Additional information on these deaths can be sought from the Death Registry in that state or territory. The ACT has a very small number of babies (between none and five) that are born in the ACT who die outside the ACT each year.

4.2.4 ACT Admitted Patient Care Data Collection

Data from the ACT Admitted Patient Care (ACT APC) data collection is obtained from the Data Management Unit in the Information Technology and Management branch within ACT Health. These data are converted into an Access database and linked to the ACT Maternal Perinatal Data Collection (ACT MPDC).

The purposes of linking the data are fourfold:

- to correct Personal Identifier Numbers (PIN or UR Numbers) in the original ACT MPDC;
- to identify missing records in the collection (each hospital is requested to resubmit an ACT Midwives Data Collection Form for the missing records to ensure the collection is as complete as possible);
- to extract information on birth defects, maternal and perinatal morbidity and mortality, and procedures occurring during hospitalisation; and
- to improve data completeness, by replacing missing or not stated data values in the collection with values in the same or similar data item from the ACT APC data collection.

Note that there are some concerns about the timeliness of completed calendar year data that is related to the acquisition and processing of private hospital data for the ACT APC data collection. Private hospital data needs to be obtained by the department at least twice a year (January to June and July to December). The six monthly blocks of data from both the Public and Private Hospitals need to be collated and validated. This would allow the complying of timely calendar year data. Over the last few years, there have been improvements in the accessibility of financial year data from a shared directory.

The hospital medical record departments code the hospital episode data in the ACT APC data collection, using International Classification of Disease (ICD) Version 10 codes.

The change of coding system from ICD-9-CM to ICD-10-AM occurred in the ACT APC data collection as of 1 July 1998. The 1999 data were coded, extracted and reported using ICD-10-AM code criteria. The ICD-10-AM codes were converted to ICD-9-CM codes using the code mapping files available from the National Centre for Classification in Health's Internet site. The reason for the conversion to the older version was to structure the reporting of the 1999 data to allow for some comparison to the ICD-9-CM codes published in the 1998 report.

4.2.5 Record linkage

Record linkage of the ACT Maternal Perinatal Data Collection and ACT APC data collection is managed in an Access database. The key linking data items are the Personal Identifying Number (PIN) and the Hospital Identification Number. The combined data items give a unique identifying number for linking to specific hospitals. Records cannot be tracked if the patient discharges and is readmitted to another hospital. An ACT wide use of the Patient Master Index (PMI) may enable tracking between hospitals in the future.

Extensive checking and data cleaning was done on the PIN to improve accurate linking. The percentage of linked mothers' and babies' records from all records was 99.6% and 98.7% respectively. To accurately access the percentage of linked records of available records, two exclusion criteria are required. These are homebirths for the mothers and babies records, as there is no hospital admission for the birth, and stillbirths for the baby records as the details of stillbirths are held in the mother's record.

In 1999, the proportion of linked mothers' and babies' records from the available records was 99.9% and 99.5% respectively. As the percentage of linked records was high, no analysis was done to compare the linked and unlinked groups.

4.3 Data items

4.3.1 Perinatal National Minimum Data Set

A National Minimum Data Set (NMDS) is a core set of data elements agreed by the National Health Information Management Group for mandatory collection and reporting at a national level. The Perinatal NMDS is a data set that includes information on live and stillborn babies, of at least 20 weeks gestation or 400 grams or more in birthweight, occurring in Australia in hospitals, birth centres and the community.

Data items are developed or revised by the National Perinatal Data Development Committee (NPDDC) with the agreement of all the States and Territories. Data items are submitted to the National Health Data Committee for approval prior to publishing in the National Health Data Dictionary (NHDD). Data items are added to the minimum data set only after the data item has been published in the National Health Data Dictionary with a set date for implementation.

State and Territory health authorities provide the data to the National Perinatal Statistics Unit (NPSU) of the Australian Institute of Health and Welfare for national collation and reporting, on an annual basis. Listed in Table 54 is the National Minimum Data Set for the perinatal collection as documented in the National Health Data Dictionary (NHDD) (Version 10, 2001).

Table 54: Perinatal Minimum Perinatal Data Set

Knowledgebase ID	Data item	Page no. hard copy	Online page no.
000003	Actual place of birth, version 1	210	237
000019	Birth order, version 1	262	289
000020	Birth plurality, version 1	263	290
000035	Country of birth, version 3 (m)	22	49
000036	Date of birth, version 3 (m)	23	50

Knowledgebase ID	Data item	Page no. hard copy	Online page no.
000050	Establishment identifier, version 3 (m)	184	211
000056	First day of last menstrual period, version 1	149	176
000060	Gestational age, version 1	151	178
000001	Indigenous status, version 3	26	53
000010	Infant weight, neonate, stillborn, version 3	152	179
000093	Method of birth, version 1	266	293
000113	Onset of labour, version 2	267	294
000127	Person identifier, version 1	258	285
000043	Separation date, version 5	388	415
000149	Sex, version 2	30	57
000155	State/Territory of birth, version 1	214	241
000159	Status of the baby, version 1	173	200

Note: (m) modified in NMDS this version

Source: National Health Data Dictionary Version 10, 2001

State and Territory health authorities also provide the data to the NPSU on a number of data items contained in the NHDD had have not been identified as part of the minimum data set (Table 55), as well as some data items that are not currently in the NHDD.

Table 55: Data elements in the National Health Data Dictionary that relates to the Perinatal data collection

Data element name	Knowledge-base ID	NMDS	NPSU requests	ACT provides	Agreed start All states
Actual place of birth, version 1	000003	✓	✓	✓	1996
Admission date, version 4	000008		✓	✓	1999
Admitted patient election status, version 1	000415		✓	✓	
Anaesthesia administered during labour, version 1	000013		✓	✓	2000
Analgesia administered during labour, version 1	000014		✓		2000
Apgar score at 1 minute, version 1	000344		✓	✓	1998
Apgar score at 5 minutes, version 1	000345		✓	✓	1998
Area of usual residence, version 3	000016		✓	✓	1998
Birth order, version 1	000019	✓	✓	✓	1996
Birth plurality, version 1	000020	✓	✓	✓	1997
Complication of labour and birth, version 2	000027		✓	✓	
Complications of pregnancy, version 2	000028		✓	✓	
Congenital malformations, version 2 (uses ICD-10-AM codes)	000030			✓	2000
Congenital malformations—BPA code, version 1	000029		✓		
Country of birth, version 3	000035	✓	✓	✓	1997
Date of birth, version 3 (mother & baby)	000036	✓	✓	✓	1996
Date of completion of last previous pregnancy, version 1	000037				

Data element name	Knowledge-base ID	NMDS	NPSU requests	ACT provides	Agreed start All states
Establishment identifier, version 3	000050	✓			
Establishment number, version 3	000377		✓	✓	1997
Establishment sector, version 3	000379				
Establishment type, version 1	000327				
First day of the last menstrual period, version 1	000056	✓	✓	✓	1996
Gestational age, version 1	000060	✓	✓	✓	1996
Indigenous status, version 3	000001	✓	✓	✓	1999
Infant weight, neonate, stillborn, version 3	000010	✓	✓	✓	1996
Intended place of birth, version 1	000077		✓	✓	1996
Length of stay (antenatal), version 1	000635		✓	✓	
Length of stay (including leave days), version 1 (used for Baby's LOS)	000636		✓	✓	
Length of stay (postnatal), version 1	000637		✓	✓	
Marital status, version 3	000089		✓	✓	1998
Maternal medical conditions, version 2	000090		✓	✓	
Method of birth, version 1	000093	✓	✓	✓	1997
Mode of separation, version 3 (Perinatal collection has different coding needs)	000096		✓	✓	1997
Neonatal morbidity, version 2	000102				
Number of days in special/neonatal intensive care, version 2	000009		✓	✓	
Onset of labour, version 2	000113	✓	✓	✓	
Outcome of last previous pregnancy, version 1	000114				
Perineal status, version 1	000125		✓	✓	2000
Person identifier, version 1	000127	✓	✓	✓	1996
Postpartum complication, version 2	000131		✓	✓	
Presentation at birth, version 1	000133		✓	✓	2000
Previous pregnancies, version 1	000134		✓	✓	
Region code, version 2	000378				
Resuscitation of baby, version 2	000145		✓	✓	2000
Separation date version 5 (mother & baby)	000043	✓	✓	✓	1996
Sex, version 2	000149	✓	✓	✓	1997
State identifier, version 2	000380				
State/Territory of birth, version 1	000155	✓	✓	✓	1996
Status of the baby, version 1	000159	✓	✓	✓	1996
Type of augmentation of labour, version 2	000167		✓	✓	2000
Type of labour induction, version 1	000171		✓	✓	2000

Source: National Health Data Dictionary Version 10, 2001, National Perinatal Statistics Unit (NPSU) and ACT Maternal Perinatal Data Collection (MPDC) specifications and Data Agreement at NPDAC held in Alice Springs in 1998

4.3.2 Current data items

Current data items from ACT Midwives Data Collection Form are listed below in Table 56. Data items that require ICD-10-AM coding on the forms are extracted where possible from the ACT Admitted Patient Care Data Collection. Examples of extracted ICD-10-AM data are the maternal conditions, the obstetric complications and birth defects.

Table 56: List of data items from ACT Midwives Data Collection Form, 1999

No.	Data Item	Requested by NPSU	Data item discontinued	Administrative or recoding
1	Form number – stamped on form in PHRC			✓
2	Mother's PIN (Personal Identifier Number)	✓		
3	Mother's date of birth	✓		
4	Mother's suburb of usual residence	✓		
5	Mother's postcode of usual residence	✓		
6	Admission date of mother	✓		
7	Family status of mother	✓		
8	Country of birth of mother	✓		
9	Indigenous status of mother	✓		
10	Classification of patient (Public/Private)	✓		
11	Previous pregnancies (Yes/No)	✓		
12	Total number of previous: Live births	✓		
13	Total number of previous: Neonatal deaths			✓
14	Total number of previous: Stillbirths	✓		
15	Total number of previous: Spontaneous abortions	✓		
16	Total number of previous: Induced abortions	✓		
17	Total number of previous: Ectopic pregnancies			✓
18	Total number of previous: Others		✓	
19	Outcome of last pregnancy			✓
20	Completion date of last pregnancy		✓	
21	Plurality of last pregnancy			✓
22	Gravidity			
23	Parity (not including current pregnancy)	✓		
24	Date of last menstrual period	✓		
25	Clinically estimated gestation	✓		
26	Maternal medical conditions while pregnant: Diabetes Mellitus	✓		
27	Maternal medical conditions while pregnant: Chronic Renal Disease	✓		
28	Maternal medical conditions while pregnant: Essential Hypertension	✓		
29	Maternal medical conditions while pregnant: Epilepsy	✓		
30	Maternal medical conditions while pregnant: Cardiac Disease	✓		
31	Maternal medical conditions while pregnant: Other	✓		
32	Obstetric complications: APH	✓		
33	Obstetric complications: Pre-eclampsia	✓		

No.	Data Item	Requested by NPSU	Data item discontinued	Administrative or recoding
34	Obstetric complications: Prelabour ruptured membranes	✓		
35	Obstetric complications: Gestational Diabetes	✓		
36	Obstetric complications: Threatened abortion	✓		
37	Obstetric complications: Threatened preterm labour	✓		
38	Procedures and operations: Number of ultrasounds			
39	Procedures and operations: Cardiotocography (CTG)			
40	Procedures and operations: Chorionic villus sampling (CVS)			
41	Procedures and operations: Amniocentesis <20 weeks			
42	Procedures and operations: Amniocentesis =>20 wks			
43	Procedures and operations: Assisted conception			
44	Procedures and operations: X-Ray			
45	Procedures and operations: CT Scan			
46	Procedures and operations: Cervical Suture			
47	Responsibility for antenatal care			
48	Number of antenatal visits			
49	Duration of pregnancy at first visit			
50	Place of baby's birth	✓		✓
51	Intended place of birth at onset of labour	✓		
52	Mother's transferred antenatally			
53	Mother's transferred from			
54	Mother smoked during pregnancy			
55	Avg number smoked per day during the second half of pregnancy			
56	Onset of labour	✓		
57	Method of augmentation or induction (multiple data items)	✓		✓
58	Reason for augmentation or induction			
59	Analgesia during labour	✓		
60	Anaesthesia during labour	✓		
61	Presentation	✓		
62	Method of birth	✓		
63	Perineal status	✓		
64	Vulva, vaginal or perineal sutures			
65	Complications of labour and birth: None			
66	Complications of labour and birth: PPH	✓		
67	Complications of labour and birth: Retained placenta	✓		
68	Complications of labour and birth: Major infection	✓		
69	Complications of labour and birth: Fetal distress	✓		
70	Complications of labour and birth: Cord prolapse	✓		
71	Complications of labour and birth: Obstructed labour	✓		

No.	Data Item	Requested by NPSU	Data item discontinued	Administrative or recoding
72	Type of feeding at birth			
73	Type of feeding at on discharge			
74	Breast feeding problems			
75	Baby's PIN (Personal Identifier Number)	✓		
76	Baby's birth date	✓		
77	Birth condition or status	✓		
78	Sex of baby	✓		
79	Plurality	✓		
80	Birth order (Rank)	✓		
81	Birthweight	✓		
82	Head Circumference			
83	Length			
84	Apgar at 1 minute	✓		
85	Apgar at 5 minutes	✓		
86	Resuscitation: Active measures	✓		
87	Resuscitation: Laryngoscopy			
88	Resuscitation: Drug therapy	✓		
89	Admission to SCN or NICU	✓		
90	Length of stay in SCN or NICU	✓		
91	Neonatal morbidity requiring treatment		✓	
92	Birth defects	✓		
93	Autopsy	✓		
94	Date of mother's discharge	✓		
95	Date of baby's discharge	✓		
96	Discharge status for mother	✓		
97	Discharge status for baby	✓		

Note: NPSU is the National Perinatal Statistic Unit
Source: ACT Maternal Perinatal Collection, Data items in 1999

4.3.3 Recoding of data items

Some data items require recoding if originally collected in more details than required for provision of national data and reporting or if the collected codes differ from the data specifications.

All categorical data items from OBICARE are recoded from OBICARE's unique reference number to the NHDD codes and/or to more specific ACT Maternal Perinatal Data Collection (ACT MPDC) codes.

The data item for the "responsibility for antenatal care" is collected with different descriptions in the ACT Midwives Data Collection Form and the OBICARE program. The details of the data recodes from OBICARE are presented in the following tables.

Table 57: Recodes from OBICARE for the responsibility of antenatal care, ACT, 1997 - 1999

OBICARE Description	Recoded for reporting
Public Hospital - high risk clinic	Antenatal clinic
Public Hospital - low risk clinic	Antenatal clinic
Birthing Centre protocols	Birthing Centre/Canberra midwifery program
Canberra midwifery program	Birthing Centre/Canberra midwifery program
Private GP obstetrician	GP
Public hospital midwives clinic	Midwife
Private midwifery practitioner	Midwife
Private specialist obstetrician	Obstetrician
Shared care with Birth Centre	Shared care
Shared care between high risk clinic and other	Shared care
Shared care between hospital and private obstetrician	Shared care
Shared care between hospital and GP	Shared care
Shared care between GP and midwife	Shared care
Private midwife and private medical practitioner	Shared care

Note: OBICARE is an Access database used to collect The Canberra Hospital Maternity Units data. Shared care with Birth Centre was recoded to Birth Centre / CMP and reported on for 1997 data. Recoding error corrected.

Table 58: Recodes from ACT MDCF for responsibility of antenatal care, ACT, 1997 - 1999

ACT MDCF Description	Recoded for reporting
Antenatal clinic	Antenatal clinic
General practitioner	GP
Midwife	Midwife
Obstetrician	Obstetrician
Shared care between two or more clinicians. For example obstetrician and GP ticked on the form	Shared care

Note: ACT Maternal Perinatal Data Collection (ACT MPDC)

4.4 The data

The ACT Maternal Perinatal Data Collection (ACT MPDC) is managed in an Access database. All data linkage and data quality issues are managed in individual year databases. The individual year's Access database is considered to be the master copy, with data cleaning edits done only in the Access database. Any edited data is then exported to a statistical analysis application (SPSS). Records from the ACT MPDC were exported from Access and analysed in SPSS for this report using SPSS syntax files.

An overall SPSS file combines records from multiple years to facilitate reporting on the data over time. Any edited data is updated in the multiple year database files. Generally the files that contain multiple years of data are not created until all the edits have been completed.

4.4.1 Data quality

Data quality is controlled at the data entry stage by the validation of each data item, using drop down boxes that contain the coded options.

Extensive data cleaning of both mothers' and babies' personal identifier numbers has dramatically improved data linkage between the ACT MPDC and the ACT Admitted Patient Care (ACT APC) data collection. The data cleaning is managed by a series of queries and reports from the database using the linked data. Where possible, missing data was obtained from ACT APC data collection or by direct request to the medical record departments, or homebirth midwife.

The sources of death data checked to present information on perinatal deaths are the:

- ABS death data and tables for the same year as the birth and following year;
- ACT Admitted Patient Care data collection for the same year as the birth and either the following six months or twelve months depending on data availability;
- post mortem data from the ACT Anatomical Laboratory;
- Centre for Newborn Care's database;
- OBICARE database for The Canberra Hospital births and the ACT Midwives Data Collection for other ACT hospitals;
- medical record by request to Medical Record Department where inconsistencies occur;
- de-identified list of perinatal deaths from the ACT Registrar General for Births and Deaths Registry, and
- request to ACT Registrar General for Births and Deaths Registry if unable to identify a previously reported infant death.

4.4.2 Data limitations

The completeness of the records in the ACT Maternal Perinatal Data Collection is dependent on timely notification of births to the collection. Identification and retrieval of missing records from all ACT birthing facilities are extensive. There is no guarantee that all records have been received, although it is estimated the vast majority of ACT births in 1999 are held in this collection.

The Australian Bureau of Statistics (ABS) Birth 1999 report is useful to compare with the figures obtained in this report, thus providing an indication of the completeness of the ACT Maternal Perinatal Data Collection.

The ABS Births 1999⁴ report showed that in the ACT, there were 2,129 registered male births and 2,124 registered female births in 1999. There were also 82 births to ACT residents where the births were registered in other states (assume these babies were not born in the ACT).

The ACT Maternal Perinatal Data Collection showed that during 1999 there were 2072 male births and 2036 female births to ACT residents. A further 300 males and 263 females were born in the ACT during this time, to non-ACT residents.

The ABS reported 64 additional births to ACT residents than were accounted for the ACT MPDC. The ABS reports on registered births in a calendar year to women whose usual area of residence is the ACT, irrespective of where the birth occurs. Therefore births occurring in 1998 that are registered in the following year are included and births occurring in 1999 that are registered in the following year are not included. The ACT MPDC aims to collect all births that occur in the ACT during a calendar year. The different methods of collection will account for small differences in the numbers between the two collections.

5 GLOSSARY

Abortion is a common term often used to mean induced abortion. See definition for 'induced abortion'.

Age specific fertility rates are the number of live births (occurring or registered) during the calendar year according to the age of mother, per 1,000 of the female resident population of the same age at 30 June. For calculating these rates, births to mothers under 15 are included in the 15 to 19 year age group, and births to mothers aged 50 and over are included in the 45-49 age group. Pro rata adjustment is made for births for which the age of the mother is not given.²⁴

Amniocentesis is the sampling of the amniotic fluid to help determine fetal maturity or disease, by aspiration of the fluid through the mother's abdomen.²⁵

Anomaly is a deviation from what is regarded as normal. An example would be a congenital malformation or birth defect.

Antenatal refers to the time period of pregnancy before birth.

Apgar score is a numerical scoring system (1-10) applied after birth to evaluate the condition of the baby (usually assessed at one minute and five minutes). It is based on the clinical assessment of heart rate, respiration, muscle tone, reflex irritability and colour of the baby. A low apgar score indicates poor adaptation to extrauterine life.

Augmentation is the artificial rupturing of membranes and/or use of oxytocin or other drugs to progress labour after spontaneous onset of labour.

Birth refers to the birth or delivery of a child.

Birth defects are the structural or anatomical defects that are present at or existing from the time of birth, usually resulting from abnormal development in the first trimester of pregnancy. Previously reported as congenital abnormalities or anomalies or malformations.

Birth status is the condition of the baby immediately after birth. The status may be a live birth or stillbirth.

Birthweight is the first weight of the baby (stillborn or live born) obtained after birth. It is usually measured to the nearest five grams and obtained within one hour of birth.

Born before arrival refers to babies born before the mother arrives at the planned birth facility, where the mother and baby are subsequently admitted to that facility.

Breech birth – see vaginal breech on page 60.

Caesarean section is an operative birth through an abdominal incision.

Canberra Midwifery Program (CMP) was formed by the amalgamation of the former Community Midwives Program and the Birth Centre. The Canberra Midwifery Program commenced in 1999, providing continuity of midwifery care by a team of midwives to women throughout their pregnancy, birth and up to two weeks after the birth.

Chorionic relates to the outermost of the fetal membranes (chorion).²⁶

Chorionic villus sampling (CVS) is the aspiration of a sample of chorionic tissue for biochemical and chromosome analysis.²⁷

Community Midwives Program was a pilot program to provide midwifery care by a team of midwives. The program commenced in 1997 and continued until 1999 when it amalgamated with the Birth Centre to form the Canberra Midwifery Program.

Confinement refers to a pregnancy resulting in at least one birth. A multiple pregnancy will be one confinement with more than one birth. This term has not been used in this publication, preferring instead to use ‘women giving birth’ or “women who gave birth”.

Congenital anomalies or abnormalities are those malformations that are present at or existing from the time of birth. In this publication the term birth defects has been used instead of congenital anomalies.

Congenital malformations are the structural or anatomical abnormalities that are present at birth, usually resulting from abnormal development in the first trimester of pregnancy. In this publication the term birth defects has been used instead of congenital malformations.

Crude birth rate is the number of live births registered during a calendar year per 1,000 estimated resident population at 30 June of that year (ABS definition).

Crude death rate is the number of deaths per 1,000 population (unless otherwise stipulated) in a given year (ABS definition).

Elective caesarean section refers to an operative birth through an abdominal incision performed before the onset of labour.

Emergency caesarean section refers to an operative birth through an abdominal incision performed after the onset of labour.

Episiotomy is an incision into the perineum and vagina to enlarge the vaginal opening for the birth.

Fertility rate – see total fertility rate on page 60.

First degree tear or graze is a perineal graze or laceration or tear involving one of the following: the fourchette, hymen, labia, skin, vagina or vulva.

Forceps refers to a cephalic vaginal birth where forceps are applied to the head to assist with the birth.

Fourth degree tear is a perineal laceration or tear involving the anal mucosa or rectal mucosa.

Gestation is the period of development of a baby from the time of conception (fertilisation of the ovum) to birth. In humans, this time is usually 37 to 40 weeks gestation.

Gestational age is the duration of the pregnancy in completed weeks from the first day of the last normal menstrual period. This is estimated from clinical assessment (including estimates from ultrasound examinations) when accurate information on the last menstrual period is not available or not consistent with the clinical assessment of gestational age.

Gravidity refers to a pregnancy; the state of being pregnant, it is unrelated to the outcome.

ICD 9 (or ICD-9-CM) refers to the International Classification of Diseases Ninth Revision as developed by the World Health Organisation. The CM stands for Country Modification.

ICD 10 (or ICD-10-AM) refers to the International Classification of Diseases Tenth Revision as developed by the World Health Organisation. The AM stands for Australian Modification. In the ACT and most other states in Australia, ICD-10-AM codes were introduced to code hospital (morbidity) inpatient data in July 1998.

Incidence refers to the number of instances of illness commencing, or of persons falling ill, during a given period in a specified population.²⁸

Indigenous status refers to whether or not a person is of Aboriginal and/or Torres Strait Islander descent who self identifies as an Aboriginal and/or Torres Strait Islander and is accepted as such by the community with which he or she is associated.

Induced abortion refers to the termination of a pregnancy before the completion of 20 weeks gestation.

Induction of labour refers to an intervention undertaken to stimulate the onset of labour by pharmacological or other means.

Instrumental birth refers to an assisted cephalic vaginal birth using forceps or vacuum extraction.

Live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta attached, each product of such a birth is considered live born (**WHO definition**). The Australian definition for a live birth differs from the WHO definition, in that it is not irrespective of the duration of the pregnancy, this is consistent with the definitions for spontaneous or induced abortions. **Live birth** is the complete expulsion or extraction from its mother of a baby of 20 completed weeks gestation or more or at least 400 grams in birthweight or who after being born breathes or shows any other evidence of life, such as a heartbeat (**Australian definition**).

Median is a measure of central tendency. It refers to the point between the upper and lower halves of the set of measurements.

Midcall is an early discharge program with follow up at home by a registered midwife for antenatal or postnatal care.

Miscarriage is a common term used to mean spontaneous abortion. See definition for spontaneous abortion on page 60.

Morbidity is a diseased state or the ratio of sick to well in the community.²⁹

Mortality is a fatal outcome or the relative number of deaths (death rate) in a given population at a given time.

Multigravida refers to a woman who has been pregnant more than once.

Multipara refers to pregnant women who have had at least one previous pregnancy resulting in a live birth or stillbirth.

Multiple birth refers to pregnancy resulting in more than one birth. For example twins, triplets etc.

Neonatal death is the death of a live born baby within 28 days of birth.

Neonatal morbidity refers to any condition or disease of the baby diagnosed within 28 days of birth.

Normal birth refers to a spontaneous cephalic vaginal birth. The term only relates to the birth method excluding other methods of birth such as forceps, vacuum extraction or Caesarean section.

Parity refers to the number of children a woman has borne that are either live births or stillbirths.

Perinatal death refers to a stillbirth or a neonatal death.

Perinatal refers to the period from 20 weeks gestation to within 28 days after birth.

Perineal repair is the surgical suturing of a perineal laceration or episiotomy.

Plurality refers to the number of fetuses or babies from a pregnancy. On this basis a pregnancy may be classified as single or multiple.³⁰

Post neonatal death refers to the death of a baby aged between 28 and 365 days.

Preterm birth refers to a birth before 37 completed weeks of gestation. Extremely preterm refers to births between 20 and 27 weeks gestation; moderately preterm refers to births between 28 and 31 weeks gestation; and mildly preterm refers to births between 32 and 36 weeks gestation.

Prevalence refers to the number of instances of a given disease or other condition in a given population at a designated time.

Primigravida refers to a woman pregnant for the first time.

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

Prolonged rupture of membranes refers to the spontaneous rupture of membranes for at least 24 hours prior to the onset of regular contractions with cervical dilation.

Puerperium is the period from the end of the third stage of labour until the uterus returns to its normal size (approximately 6 weeks).

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

Second degree tear is a perineal laceration or tear involving the pelvic floor or perineal muscles or vaginal muscles.

Separation (from hospital) refers to when a patient is discharged from hospital, transferred to another hospital or other health care accommodation, or dies in hospital following formal admission (ABS definition).

Singleton birth refers to a pregnancy resulting in one birth.

Spontaneous abortion refers to the premature expulsion from the uterus of the products of conception, of the embryo, or of a nonviable fetus³¹ (a fetus of less than 400 grams birthweight or less than 20 weeks gestation). These may be classified as complete or incomplete.

Statistically significant infers that it can be concluded on the basis of statistical analysis that it is highly probable.

Stillbirth or fetal death refers to death prior to the birth of a baby of 20 completed weeks gestation or at least 400 grams in birthweight who did not, at any time after birth, breathe or show any other evidence of life, such as a heartbeat. **Stillbirth** or fetal death refers to death prior to the complete expulsion or extraction from its mother of a product of conception of 20 or more completed weeks of gestation or of 400g or more of birthweight; the death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life, such as the beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles (**WHO definition**).

Third degree tear is a perineal laceration or tear involving the anal sphincter or recto vaginal septum.

Total fertility rate is the sum of the age-specific fertility rates (live births at each age of mother per female population of that age). It represents the number of children a woman would bear during her lifetime if she experienced current age-specific fertility rates at each age of her reproductive life.³²

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

Vaginal breech refers to a birth in which the baby's buttocks or lower limbs are the presenting parts, also includes vaginal breech birth with forceps to the after coming head.

6 NATIONAL AND STATE PUBLICATIONS

6.1 National publications

The **National Perinatal Statistics Unit** (NPSU), Australian Institute of Health and Welfare (AIHW), publish national Australian data in a series of health reports. These series are:

- Perinatal Statistics Series
- Assisted Conception Series
- Birth Defects Series
- Maternal morbidity and mortality series
- Neonatal Network Series

The most recent publications in these series are as follows:

- Australia's mothers and babies 2000
- Indigenous mothers and their babies, Australia 1994 - 1996
- Assisted conception Australia and New Zealand 1999 and 2000
- Congenital malformations Australia 1997
- Report on Maternal Deaths in Australia, 1994 -1996
- Australia and New Zealand Neonatal Network 1998

National contact:

Elizabeth Sullivan
AIHW National Perinatal Statistics Unit
Sydney Children's Hospital
Randwick Hospitals Campus
Randwick, Sydney, NSW

NPSU main Internet address is <http://www.npsu.unsw.edu.au/> with the publications at <http://www.npsu.unsw.edu.au/Publications.htm>.

A list of Australian Institute of Health and Welfare (AIHW) health publications is at <http://www.aihw.gov.au/publications/health.html>.

The **Australian Bureau of Statistics** (ABS) publishes reports on births and causes of infant and child deaths. These two publications are annual reports that bring together statistics and indicators for births and perinatal deaths registration in Australia. The State figures are based on registered live births for the mother's usual state of residence. The ABS Internet address is at <http://www.abs.gov.au/>.

6.2 State publications

The states and territories in Australia produce publications on maternal and perinatal health status from their midwives data collections. Recent states and territories publications on maternal and/or perinatal health status are:

Australian Capital Territory:

ACT Maternal Perinatal 1998 Tables

<http://136.153.4.27/healthinfo/healthseries/hs26.pdf>

ACT Maternal Perinatal 1997 Tables

<http://136.153.4.27/healthinfo/healthseries/hs25.pdf>

Maternal and Perinatal Status, ACT, 1994 - 96

<http://136.153.4.27/healthinfo/healthseries/hs18.pdf>

ACT Health web sites: <http://www.health.act.gov.au/>

New South Wales:

2000 Mothers and Babies Report

<http://www.health.nsw.gov.au/public-health/mdc/mdcrep00.html>

1999 Mothers and Babies Report

<http://www.health.nsw.gov.au/public-health/mdc/mdcrep99.html>

1998 Mothers and Babies Report

<http://www.health.nsw.gov.au/public-health/mdc/mdcrep98.html>

Internet site for a comprehensive list of NSW Health publications

<http://www.health.nsw.gov.au/public-health/pubs.html>

or publications specific to babies and pregnancy

http://www.health.nsw.gov.au/pubs/babies_pregnancy/

Victoria:

Births in Victoria 1999 - 2000

http://www.dhs.vic.gov.au/phd/perinatal/downloads/annrep_9900.pdf

Report on Models of Antenatal Care "Who Usually Delivers Whom and Where"

<http://www.dhs.vic.gov.au/phd/perinatal/downloads/9907061.pdf>

Birth Defects in Victoria, 1983 – 1998

<http://www.dhs.vic.gov.au/phd/0006114/index.htm>

Victorian Perinatal Health publications

<http://www.dhs.vic.gov.au/phd/perinatal/pubs.htm>

The Consultative Council on Obstetrics and Paediatrics Mortality and Morbidity, Annual Report 1999 and Council home page

http://www.dhs.vic.gov.au/phd/perinatal/downloads/consult_council99.pdf

<http://www.dhs.vic.gov.au/phd/perinatal/ccopmm.htm>

Queensland:

Perinatal Statistics, Queensland, 1999
http://www.health.qld.gov.au/hic/peri99/peri_99.htm

Perinatal Statistics, Queensland, 1998
<http://www.health.qld.gov.au/hic/1998peri/home.htm>

Statistics from the Queensland Perinatal Data Collection 1987 - 1998
<http://www.health.qld.gov.au/hic/1998peri/sumstat.pdf>

Maternal, Perinatal and Paediatric Mortality in Queensland 1999
Maternal, Perinatal and Paediatric Mortality in Queensland 1998
<http://www.uq.net.au/qcopmm/pdf/qcopmm98.pdf>

Western Australia:

Perinatal Statistics in Western Australia. Seventeenth Annual Report of the Western Australian Midwives' Notification System 1999

Perinatal, Infant and Maternal Mortality in Western Australia. A triennial cohort of 1996-1998 births. Department of Health Western Australia, Perth, WA 2002

The Birth Defects Registry of WA, 1980 - 2000, October 2001

TVW Telethon Institute for Child Health Research, Perth, WA
<http://www.ichr.uwa.edu.au/>

South Australia:

Pregnancy Outcomes in South Australia 2000

Maternal, Perinatal and Infant Mortality in SA 2000

SA Birth Defects Register. Annual Report 1999. Women's and Children's Hospital

Northern Territory:

NT Mothers and Babies Report 1999

Mortality in the Northern Territory 1979 - 1997
http://www.nt.gov.au/health/health_gains/epidemiology/mortality/index.html

Trends in the health of mothers and babies, Northern Territory 1986 – 95
<http://www.nt.gov.au/nths/epidemiology/trends.pdf>

Northern Territory publications can be accessed via
<http://www.nt.gov.au/health/publications.shtml>

Tasmania:

The Council of Obstetric and Paediatric Mortality and Morbidity Tasmania Combined Annual Report 1997 - 1999

The Council of Obstetric and Paediatric Mortality and Morbidity Tasmania Annual Report 1996

6.2.1 Contacts for information on midwives data collections

Australian Capital Territory:	Maureen Bourne Population Health Research Centre, Population Health, ACT Health maureen.bourne@act.gov.au
New South Wales:	Lee Taylor Epidemiology and Surveillance Branch, Public Health Division, NSW Health ltayl@doh.health.nsw.gov.au Margaret Pym Information Management and Clinical Systems Branch Public Health Division, NSW Health mpym@doh.health.nsw.gov.au
Victoria:	Michael Batchelor Manager, Genetics and Perinatal Programs Prevention and Perinatal Health, Department of Human Services michael.batchelor@dhs.vic.gov.au Odette Taylor Victorian Perinatal Data Collection Unit, Victoria Health perinatal.data@dhs.vic.gov.au http://www.dhs.vic.gov.au/phd/perinatal/index.htm
Queensland:	Sue Cornes and Meegan Snell Data Services Unit, Health Information Centre Queensland Department of Health Suzanne.Cornes@health.qld.gov.au Meegan.Snell@health.qld.gov.au
Western Australia:	Vivien Gee and Margo O'Neill Health Information Centre, Health Department of WA Vivien.Gee@health.wa.gov.au
South Australia:	Annabelle Chan, Joan Scott and Robyn Kennare Pregnancy Outcome Unit, Epidemiology Branch Department of Human Services Annabelle.Chan@dhs.sa.gov.au
Northern Territory:	Margaret Stewart Northern Territory Midwives Collection Corporate Information Services Branch Department of Health and Community Services Margaret.Stewart@nt.gov.au
Tasmania:	Karen Hinton Manager of Clinical Data Hospitals and Ambulance Service Division Department of Health and Human Services karen.hinton@dhhs.tas.gov.au

7 HEALTH SERIES PUBLICATIONS

The Population Health Research Centre of ACT Health maintains and adds to an ongoing health series of publications to inform health professionals, policy developers and the community on health status in the Territory. Information contained therein will assist in the development of appropriate policy and service delivery models, the evaluation of programs, and an understanding of how the ACT compares with Australia as a whole with regard to health status. Publications prepared after Health Series Number 13 are available online at <http://www.health.act.gov.au/healthinfo/publications.html>.

- Number 1: ACT's Health: A report on the health status of ACT residents, Carol Gilbert, Ursula White, October 1995
- Number 2: The Epidemiology of Injury in the ACT, Carol Gilbert, Chris Gordon, February 1996
- Number 3: Cancer in the Australian Capital Territory 1983 - 1992, Norma Briscoe, April 1996
- Number 4: The Epidemiology of Asthma in the ACT, Carol Gilbert, April 1996
- Number 5: The Epidemiology of Diabetes Mellitus in the ACT, Carol Gilbert, Chris Gordon, July 1996
- Number 6: Developing a Strategic Plan for Cancer Services in the ACT, Kate Burns, June 1996
- Number 7: The First Year of The Care Continuum and Health Outcomes Project, Bruce Shadbolt, June 1996
- Number 8: The Epidemiology of Cardiovascular Disease in the ACT, Carol Gilbert, Ursula White, January 1997
- Number 9: Health Related Quality of Life in the ACT: 1994 - 95, Darren Gannon, Chris Gordon, Brian Egloff, Bruce Shadbolt, February 1997
- Number 10: Disability and Ageing in the ACT: An Epidemiological Review, Carol Gilbert, April 1997
- Number 11: Mental Health in the ACT, Ursula White, Carol Gilbert, May 1997
- Number 12: Aboriginal and Torres Strait Islander Health in the ACT, Norma Briscoe, Josie McConnell, Michelle Petersen, July 1997
- Number 13: Health Indicators in the ACT: Measures of health status and health services in the ACT, Carol Kee (Gilbert), George Johansen, Ursula White, Josie McConnell, January 1998
- Number 14: Health status of the ACT by statistical sub divisions, Carol Kee, George Bodilson (Johansen), April 1998
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