

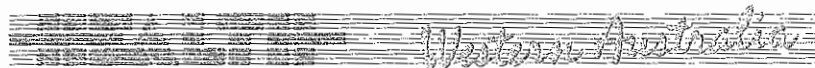
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PERINATAL STATISTICS IN WESTERN AUSTRALIA

Fourteenth Annual Report
of the Western Australian Midwives'
Notification System
1996

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WESTERN AUSTRALIAN MIDWIVES' NOTIFICATION SYSTEM
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- The Western Australian Branch of the Bureau of Statistics for providing Western Australian population figures.

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Another feature of modern obstetrics is the increased use of epidural analgesia and anaesthesia. In 1996 40.1% (n=10073) mothers received an epidural at some stage during labour and delivery. Among women delivering by elective caesarean section, 90.4% had an epidural anaesthetic. The number of women receiving a general anaesthetic at some stage during labour and delivery was 686 (2.7%). It should be noted that some hospitals conducting booked deliveries do not offer an epidural service.

Complications of pregnancy were recorded for 36.2% of women. The more common complications were threatened abortion in early pregnancy (5.4%) and pre-eclampsia (7.3%).

A significant proportion of pregnant women have pre-existing medical conditions. In 1996, the most common of these conditions was asthma, affecting 6.9% of mothers. Diabetes was recorded for 0.2%, epilepsy for 0.5% and thyroid disorders for 0.9% of mothers.

One of the most important factors affecting the survival of a baby is birthweight. In 1996, most babies (66.8%) weighed 3000-3999g at birth, and the average birthweight was 3340g. The percentage of low birthweight (<2500g) babies was 6.5%, and this percentage has been static over the decade.

Among the babies born in 1996 there were 136 stillbirths and 73 neonatal deaths, providing a perinatal mortality rate of 8.2 perinatal deaths/1000 total births. The perinatal mortality rate has declined significantly over the decade, from 9.8/1000 in 1997.

Babies of Aboriginal mothers do not fare as well as babies of non-Aboriginal women. The percentage of low birthweight Aboriginal babies (13.2% in 1996) is approximately double that of non-Aboriginal babies (6.1% in 1996). Mortality rates of Aboriginal babies are more than double the non-Aboriginal rates. The Aboriginal perinatal mortality rate in 1996 was 15.3/1000 compared with 7.8/1000 among non-Aboriginal babies. There has been some improvement in Aboriginal perinatal mortality over the decade.

The maternal mortality rate remains very low with an average of 0.06 maternal deaths/1000 livebirths per year. There were a total of 13 maternal deaths during the past decade: these deaths include deaths due to obstetric causes as well as deaths from other causes such as accidents, suicide and pre-existing medical conditions.

2. INTRODUCTION

This is the Fourteenth Annual Report on Perinatal Statistics in Western Australia from the Midwives' Notification System. All routine reports from the collection are in statistical form without identification of individual patients, midwives, doctors or hospitals.

This report contains information on women and their babies delivered in Western Australia during the 1996 calendar year. Only those pregnancies which resulted in a final product of conception having a birthweight equal to or greater than 500 grams have been included. Notifications were received for 84 babies whose birthweight was less than 500 grams.

To assist with standardisation of the information collected on the Midwives' Form 2, a second Edition of 'Guidelines for Completion of the Notification of Case Attended Midwives Form 2'¹ was distributed in late 1989. These Guidelines were sent to midwives and all Western Australian hospitals with obstetric beds for use in collection of data in 1990 and subsequent years.

When the Notification of Case Attended (Midwives') Form 2 are received by the Maternal and Child Health Studies Unit, the information is checked for completeness and, if necessary, followed up for additional details. The information is then transcribed into a coded format, using the World Health Organisation - International Classification of Diseases, 9th Revision Clinical Modification² (ICD-9-CM) to code morbidity. Once this coding is complete, the data are entered to create the computer data base. A validation study of the 1992 data was published in July 1994.

To ensure the complete ascertainment of perinatal deaths within Western Australia, information is collated from the Midwives' Notification System, Hospital Morbidity System, Registrar General's Office and Community and Child Health Services. This is then manually linked to the birth cohort.

Population estimates based on census data were obtained from the Western Australian Branch of the Bureau of Statistics.

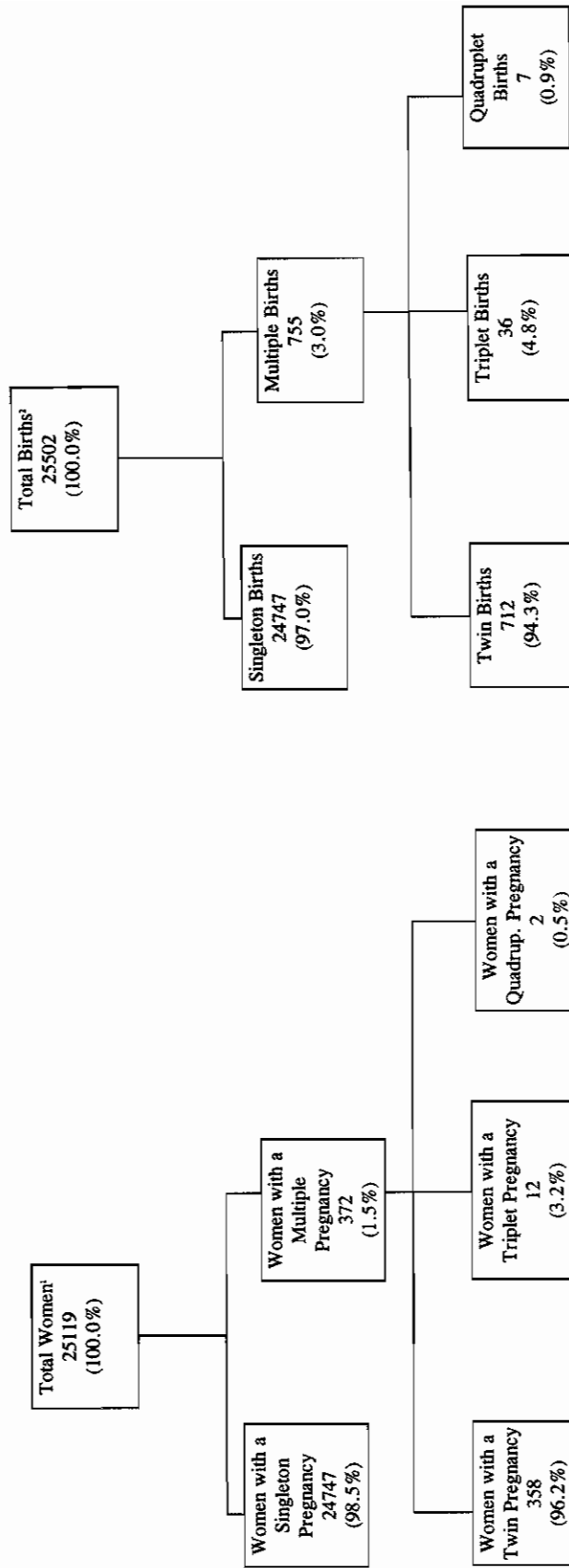
Additional tabulations are available upon request to:

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TREE DIAGRAM 1

PREGNANCIES AND BIRTHS IN WESTERN AUSTRALIA, 1996



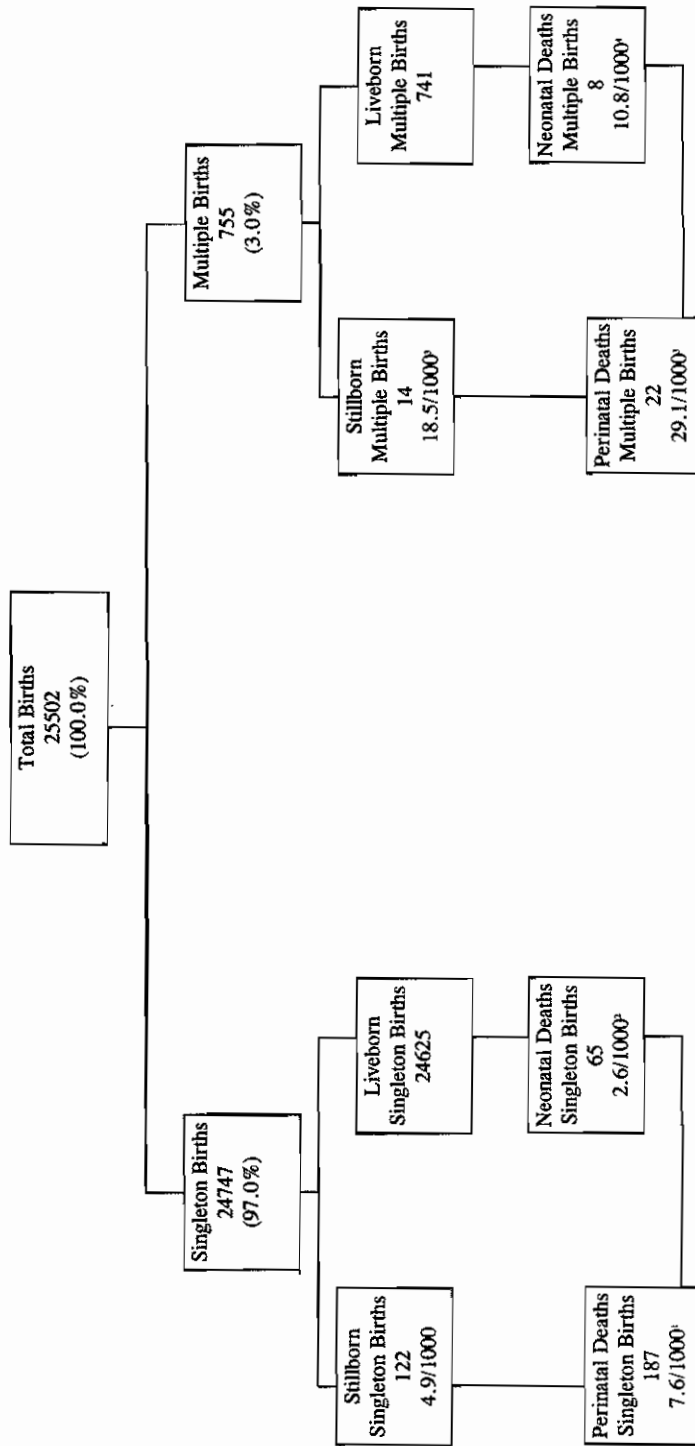
Excludes births less than 500 grams birthweight.

- ¹ Includes four women with a twin pregnancy where one twin weighed less than 500 grams birthweight.
- ¹ Includes one woman with a quadruplet pregnancy where one quadruplet weighed less than 500 grams birthweight.
- ² Includes four single twin births whose birthweight was 500 grams or more.
- ² Includes three quadruplets whose birthweight was 500 grams or more (from one multiple birth).

SOURCE: MIDWIVES' NOTIFICATION SYSTEM

TREE DIAGRAM 2

PLURALITY OF BIRTHS AND PERINATAL DEATHS IN WESTERN AUSTRALIA, 1996



Excludes births less than 500 grams birthweight.

¹/1000 total singleton births ²/1000 singleton livebirths

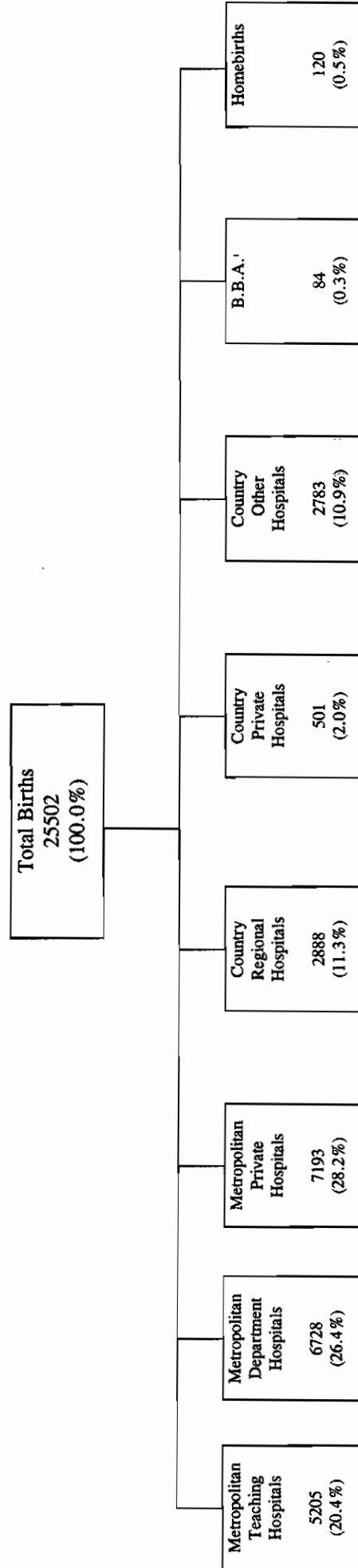
³/1000 total multiple births ⁴/1000 multiple livebirths

**SOURCE: MIDWIVES' NOTIFICATION SYSTEM
REGISTRAR GENERAL'S OFFICE**

**HOSPITAL MORBIDITY SYSTEM
COMMUNITY AND CHILD HEALTH SERVICES**

TREE DIAGRAM 3

PLACE OF DELIVERY FOR ALL BIRTHS IN WESTERN AUSTRALIA 1996



Excludes births less than 500 grams birthweight.

¹ B.B.A. - Born Before Arrival at hospital

SOURCE: MIDWIVES' NOTIFICATION SYSTEM

3. MATERNAL DEMOGRAPHIC INFORMATION

3.1 Age

There were 25119 women confined in Western Australia during 1996. The range of maternal age for these women was 13 to 48 years with a mean age of 28.4 years. Women aged between 20 and 34 years represented 80.6% of all women confined. Young women aged 19 years or less represented 6.0% of total women confined with the 35 year and older group increasing to 13.4% from 12.7% in 1995, 11.8% in 1994 and 11.2% in 1993. Among Aboriginal mothers, 24.5% of births were to teenagers whereas 5.0% of births to caucasian mothers were to teenagers (Table 1). Trend data for maternal age are provided in Section 7 (Table 51).

TABLE 1:

AGE AND RACE OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Maternal Age	Race						Total	
	Caucasian		Aboriginal		Other		No.	%
	No.	%		%	No.	%		
<14	6	-	18	1.3	1	0.1	25	0.1
15	21	0.1	29	2.0	-	-	50	0.2
16	79	0.4	49	3.4	9	0.5	137	0.6
17	182	0.8	87	6.1	13	0.7	282	1.1
18	342	1.6	64	4.5	17	0.9	423	1.7
19	465	2.1	101	7.10	34	1.7	600	2.4
<19	1095	5.0	348	24.5	74	3.7	1517	6.0
20-24	3873	17.9	484	34.0	289	14.4	4646	18.5
25-29	7356	33.9	351	24.7	621	31.0	8328	33.2
30-34	6479	29.9	181	12.7	606	30.3	7266	28.9
35-39	2492	11.5	55	3.9	353	17.6	2900	11.6
40-44	389	1.8	4	0.3	54	2.7	447	1.8
<45	11	0.1	-	-	4	0.2	15	0.1
TOTAL	21695	100.0	1423	100.0	2001	100.0	25119	100.0

Excludes births less than 500 grams birthweight.

Mean = 28.4 years. Standard Deviation = 5.5 years.

3.2 Race

Ethnic grouping of women identified the majority (86.4%) of women confined as caucasian. The remaining thirteen percent was comprised of Aboriginal women (5.7%) and women of 'other' races (8.0%).

There were 2001 women confined whose race was identified as 'other' than caucasian or Aboriginal. Examination of a 10% sample of women in this group showed 73.0% to be of Asian racial origin and 4.7% of Maori or Pacific Islander racial origin.

3.3 Conjugal State

Ten percent of all women confined in Western Australia during 1996 were reported to be socially unsupported, being either single, widowed, separated or divorced. Single women represented the largest unsupported group (10.1%). For women with multiple pregnancy 8.0% were unsupported (Table 2). Trend data for the conjugal state of women confined are provided in Section 7 (Table 51).

TABLE 2:

CONJUGAL STATE AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Conjugal State	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
Single	2546	10.3	25	6.7	2571	10.1
Married/Defacto	21973	88.8	342	91.9	22315	88.0
Other ¹	228	0.9	5	1.3	233	0.9
TOTAL	24747	100.0	372	100.0	25119	100.0

Excludes births less than 500 grams birthweight.

¹ Other includes separated, divorced and widowed.

3.4 Health Zone

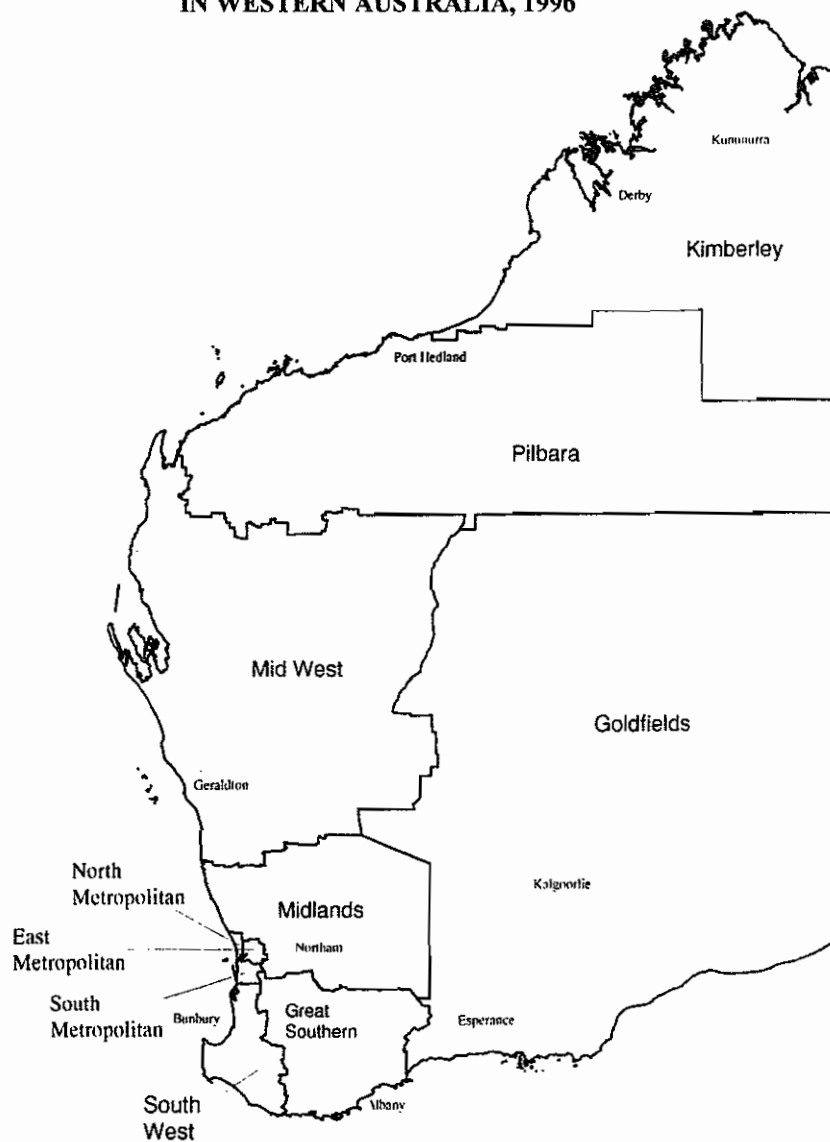
More than two thirds (69.7%) of women confined in 1996 gave their residential address as being within the three Metropolitan Health Zones. There were 30.3% of women confined whose usual place of residence was within the seven Country Health Zones and 52 women (0.2%) were not residents of Western Australia.

Among Aboriginal women confined, 32.0% were Metropolitan residents and 67.8% were residents of country Health Zones. (Table 3).

Information on Western Australian women confined in other States and outside Australia during 1996 is not included in this report.

FIGURE 1

**HEALTH ZONE OF RESIDENCE OF WOMEN CONFINED
IN WESTERN AUSTRALIA, 1996**



HEALTH ZONE		%
Metropolitan:	North	22.4
	East	22.1
	South	25.2
Total Metropolitan		69.7
Country:		
	Kimberly	2.4
	Pilbara	3.0
	MidWest	3.8
	Midlands	3.0
	Goldfields	4.4
	South West	9.2
	Grt Southern	4.3
Total	Country	30.3

Excludes births less than 500 grams birthweight and those 52(0.2%) mothers resident outside Western Australia.

SOURCE: Midwives' Notification System

TABLE 3:

HEALTH ZONE OF RESIDENCE AND RACE OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Health Authority	Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Metropolitan								
North	4936	22.8	110	7.3	586	29.3	5632	22.4
East	4939	21.8	175	12.3	641	32.0	5555	22.1
South	5652	26.0	171	12.0	501	25.1	6324	25.2
Country								
Kimberley	204	0.9	377	26.5	14	0.7	595	2.4
Pilbara	541	2.5	153	10.8	66	3.3	760	3.0
MidWest	747	3.4	161	11.3	39	2.0	947	3.8
Midland	719	3.3	31	2.2	12	0.6	762	3.0
Goldfields	945	4.4	106	7.5	52	2.6	1103	4.4
South West	2185	10.1	76	5.3	45	2.3	2306	9.2
Grt Southern	999	4.6	61	4.3	23	1.2	1083	4.3
Outside WA	28	0.1	2	0.1	22	1.1	52	0.2
TOTAL	21695	100.0	1423	100.0	2001	100.0	25119	100.0

Excludes births less than 500 grams birthweight.

Metropolitan Health Zones

There were 25119 women confined in Western Australia during 1996, of whom 18785 (69.1%) were confined in hospitals within the metropolitan area (Table 6). These included 17319 (68.9%) women resident in the metropolitan area, a further 1429 (5.7%) women with a country residential address and 37 (0.1%) women resident outside Western Australia (Table 4).

Consideration of the maternal usual place of residence within Health Zone in relation to place of confinement, showed that most women were confined at hospitals within the region of their residence. The referral rate of women to metropolitan teaching hospitals influenced the numbers within the East Metropolitan Health Zone.

Of women resident in the North Metropolitan Health Zone 94.8% were confined at hospitals within the area. Of these 23.6% were confined at a metropolitan teaching hospital and 71.2% at other hospitals in the area.

In the East Metropolitan Health Zone, less than half (43.0%) of women were confined in the Zone, 30.5% in a metropolitan teaching hospital and a further 21.3% in the North Metropolitan Health Zone.

For women residing in the South Metropolitan Health Zone, 65.0% were confined in hospitals within the area with a further 22.3% confined in a metropolitan teaching hospital (Table 4, Figure II).

TABLE 4:

MATERNAL RESIDENCE AND BIRTH HOSPITAL IN METROPOLITAN HEALTH ZONE FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Health Zone of Maternal Residence	BIRTH HOSPITALS IN MANAGEMENT AUTHORITIES												Total			
	North Metro			East Metro			South Metro			Country			Non Hospital		No.	%
	Teaching		Other	No.		%	No.		%	No.		%	No.			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
North Metro	1328	23.6	4012	71.2	179	3.2	69	1.2	5	0.1	39	0.7	5632	100.0		
East Metro	1697	30.5	1182	21.3	2391	43.0	229	4.1	11	0.2	45	0.8	5555	100.0		
South Metro	1412	22.3	252	4.0	457	7.2	4111	65.0	28	0.4	64	1.0	6324	100.0		
Total	4437	25.3	5446	31.1	3027	17.3	4409	17.3	44	0.3	148	0.8	17511	100.0		

Excludes births less than 500 grams birthweight.

Country Health Zones

One quarter, 6130 (24.4%) of women confined in Western Australian hospitals during 1996 were confined in country hospitals (Table 6). There were a further 1426 (5.7%) women, with a country residential address, confined in metropolitan hospitals. This indicates the movement of women from the country to deliver in the metropolitan area. Women living in country health zones closer to the city are more likely to travel to Perth for delivery than women in distant country health zones (Table 5).

TABLE 5:

MATERNAL RESIDENCE AND BIRTH HOSPITAL IN HEALTH ZONES FOR WOMEN CONFINED IN COUNTRY AREAS OF WESTERN AUSTRALIA, 1996

Health Zone of Maternal Residence	Birth Hospitals in Health Zones										Total	
	Internal		Metropolitan				Country		Non Hosp			
	No.	%	Teaching		Other		No.	%	No.	%	No.	%
Kimberley	502	84.4	46	7.7	21	3.5	22	3.7	4	0.7	595	100.0
Pilbara	608	80.0	63	8.3	74	9.7	13	1.7	2	0.3	760	100.0
Midwest	747	78.9	94	9.9	88	9.3	13	1.4	5	0.5	947	100.0
Midlands	331	43.4	105	13.8	307	40.3	14	1.8	5	0.7	762	100.0
Goldfields	990	89.8	56	5.1	38	3.5	16	1.5	3	0.3	1103	100.0
South West	1919	83.2	143	6.2	213	9.2	10	0.4	21	0.9	2306	100.0
Grt Southern	862	79.6	67	6.2	114	10.5	32	3.0	8	0.7	1083	100.0
Total	5959	78.9	574	7.6	855	11.3	120	1.6	48	0.6	7556	100.0
Non W.A.	-	-	18	34.6	19	36.5	7	13.5	8	15.4	52	100.0

Excludes births less than 500 grams birthweight.

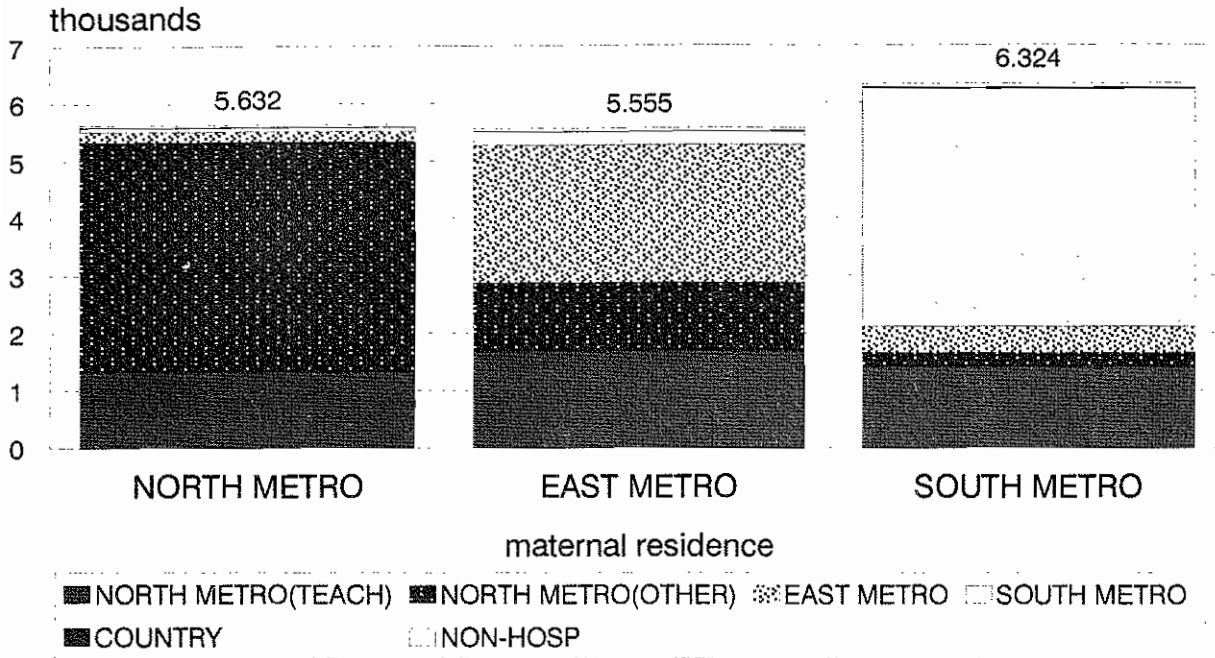
3.5 Place of Confinement

During 1996 there were 25119 women confined in Western Australia. Of these, 99.2% gave birth in metropolitan or country hospitals. Non-hospital births included 84 babies born before arrival at hospital (BBA) and 120 babies born at home as planned. Trend data for the past 10 Years are available in section 7 (Table 51).

Of the total confinements, 74.8% were in metropolitan hospitals. These included 20.0% occurring in a metropolitan teaching hospital, 26.6% in metropolitan Departmental (Government) hospitals and 28.2% in private metropolitan hospitals. The majority (88.7%) of multiple birth confinements in 1996 occurred in metropolitan hospitals, with 44.9% being delivered in a teaching hospital (Table 6).

FIGURE II

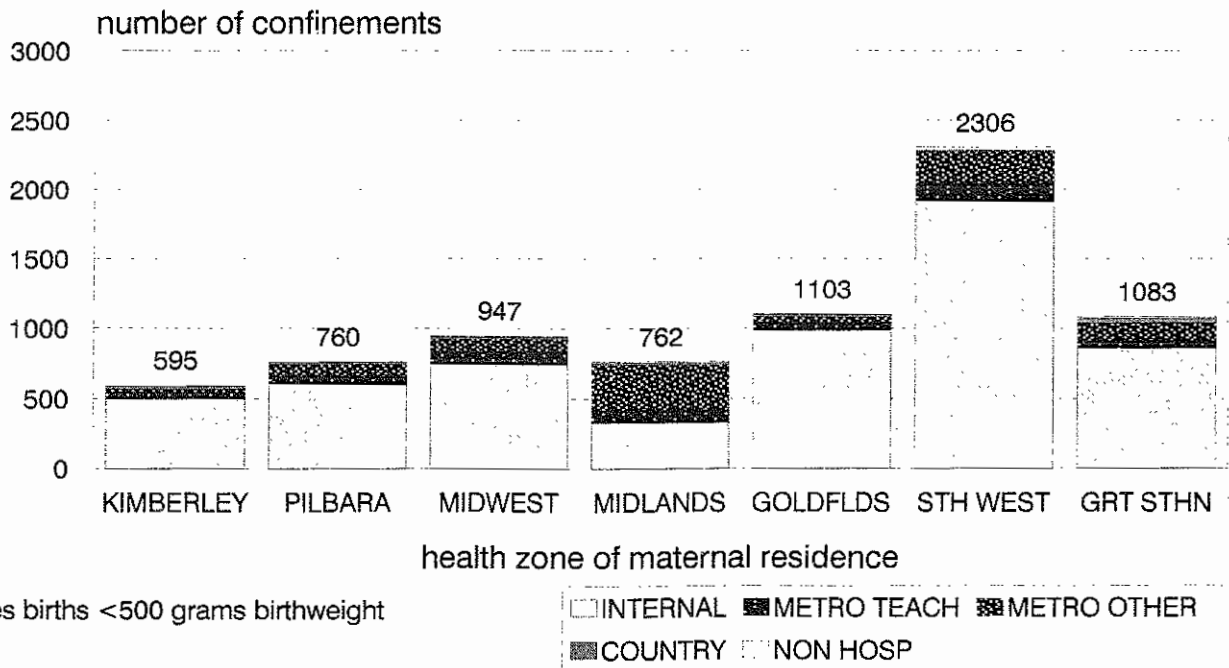
**HOSPITAL BIRTHS AND MATERNAL RESIDENCE
METROPOLITAN HEALTH ZONES
WESTERN AUSTRALIA, 1996**



Excludes births <500 grams birthweight.
SOURCE: MIDWIVES' NOTIFICATION SYSTEM

FIGURE III

**HOSPITAL BIRTHS AND MATERNAL RESIDENCE
IN COUNTRY HEALTH ZONES OF WESTERN AUSTRALIA, 1996**



Excludes births <500 grams birthweight

TABLE 6:

PLACE OF CONFINEMENT AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Place of Confinement	Plurality				Total	
	Singleton		Multiple		No.	%
	No.	%	No.	%		
<u>Metropolitan</u>						
Teaching ¹	4862	19.7	167	44.9	5029	20.0
Department	6621	26.8	54	14.5	6675	26.6
Private ²	6972	28.2	109	29.3	7081	28.2
<u>Country</u>						
Regional ³	2836	11.5	26	7.0	2862	11.4
Private	487	2.0	7	1.9	494	2.0
Other ⁴	2765	11.2	9	2.4	2774	11.0
<u>Non-Hospital</u>						
Homebirths	120	0.5	-	-	120	0.5
BBA ⁵	84	100.0	-	-	84	0.3
TOTAL	24747	100.0	372	100.0	25119	100.0

Excludes births less than 500 grams birthweight

1. Teaching Hospital - University Medical School (Teaching Hospitals Act 1955).
2. Private Hospitals with public beds.
3. Country Regional Hospital - Government Hospital with private and public beds.
4. Other country hospitals - includes Government and Board Hospitals.
5. BBA (born before arrival at hospital).

Homebirth numbers were reduced from 151 (0.6%) in 1990 and 145 (0.6%) in 1991, to 107 (0.4%) in 1992, 102 (0.4%) in 1993, 109 (0.4%) in 1994 to 96 (0.4%) in 1995 and rose again to 120 (0.5%) in 1996. Trend data on planned homebirths over the past decade are provided in section 7 (Table 51).

The Department received notification that an additional 21 women had planned a homebirth but because of complications were either referred or transferred during pregnancy (3 women) or labour (18 women). These women and their babies are included in hospital birth statistics.

Three other women who delivered at home, received medical attention in hospital for management of difficulties with the third stage of labour and/or for postpartum haemorrhage.

4. PREGNANCY PROFILE

4.1 Previous Pregnancies

More than a third (40.0%) of women confined in 1996 were confined for the first time. The range of previous confinements extended to eleven with a mean of 1.03. The percentage of caucasian women confined for the first time (40.6%) was higher than for Aboriginal women confined for the first time (27.5%). However among women having their fifth or more child, the percentage of Aboriginal women (9.0%) was far greater than for caucasian women (1.0%) (Table 7).

The highest number of recorded previous pregnancies was twenty.
(Mean = 1.6 previous pregnancies. Standard Deviation = 1.6)

TABLE 7:

PARITY AND RACE OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Parity	Race						Total	
	Caucasian		Aboriginal		Other		No.	%
	No.	%	No.	%	No.	%	No.	%
0	8797	40.6	391	27.5	850	42.5	10038	40.0
1-2	10986	50.6	596	41.9	972	48.6	12554	50.0
3-4	1690	7.8	308	21.6	144	7.2	2142	8.5
≥5	222	1.0	128	9.0	35	1.8	385	1.5
TOTAL	21695	100.0	1423	100.0	2001	100.0	25119	100.0

Excludes births less than 500 grams birthweight.

Of the 10038 nulliparous women, 1225 (12.2%) were identified as teenagers (19 years or less) and 87.8% were aged 20 to 34 years. Among the 462 women aged forty or more, 90 (19.5%) were having their first baby.

Teenage mothers were 80.8% nulliparous and 19.2% had a parity of 1-4. There was 1 teenager who had a parity of three or more. Among the 3362 women confined aged 35 years or more 703 (20.9%) were nulliparous, 1913 (56.9%) had a parity of 1-2, 587 (17.5%) a parity of 3-4 and 159 (4.7%) a parity of 5 or more (Table 8).

TABLE 8:

PARITY AND AGE OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Maternal Age	Maternal Age							
	≤19		20-34		≥35		Total	
	No.	%	No.	%	No.	%	No.	%
0	1225	80.8	8110	40.1	703	20.9	10038	40.0
1-2	291	19.2	10350	51.1	1913	56.9	12554	50.0
3-4	1	-	1554	7.7	587	17.5	2142	8.5
5+	-	-	226	1.1	159	4.7	385	1.5
TOTAL	1517	100.0	20240	100.0	3362	100.0	25119	100.0

Excludes births less than 500 grams birthweight.

Trends in births by socio-economic status can now be assessed for mothers living in the Perth metropolitan area of the state of Western Australia. Using Census data, postcodes have been allocated to four equal sized socio-economic status levels. This is a fairly crude scale, but nevertheless demonstrates differences.

The numbers of births in the quartiles vary from 3410 to 5540. Differences in maternal age and parity were investigated. Table 9 shows the percentages of women confined, living in the Perth metropolitan area of Western Australia who were at the extremes of the reproductive age range, i.e. 17 years and below or 35 years and above. The percentage of young women, 17 years and below, in the lowest socio-economic group (40.5%) was five times that for women of the same age in the highest socio-economic group (6.9%). This trend was reversed for older women, 35 years and above, where the percentage of women in the highest socio-economic group (25.0%) was far greater than that for women in the lowest socio-economic group (21.9%).

To investigate the trend in grand multiparity by socio-economic status, the proportion of women of parity ≥ 5 was calculated. Of the grand multiparas, 12.7% were in the highest socio-economic group and 30.2% were in the lowest (Table 9).

TABLE 9:

**SOCIO-ECONOMIC STATUS AND MATERNAL AGE AND PARITY OF WOMEN CONFINED
RESIDENT IN THE PERTH STATISTICAL DIVISION OF WESTERN AUSTRALIA, 1996**

Socio-Economic Status	Women Confined		Maternal Age						Parity	
	n	%	≤17 years		18-34 years		≥35 years		≥5 babies	
			n	% ²	n	% ²	n	% ²	n	% ²
I (Highest)	3410	19.7	18	0.1	2762	16.0	630	3.6	27	0.2
II	4042	23.3	45	0.3	3390	19.6	607	3.5	47	0.3
III	5540	32.0	91	0.5	4718	27.2	731	4.2	74	0.4
IV (Lowest)	4326	25.0	105	0.6	3668	21.2	553	3.2	64	0.4
TOTAL	17318	100.0	259	1.5	14538	84.0	2521	14.6	212	1.2

Excludes births less than 500 grams birthweight.

¹ Socio-economic status is in accord with the socio-economic indices for areas, a postcode indicator constructed by the Australian Bureau of Statistics using 1991 Census data. Postcodes were allocated to four equal-sized socio-economic status areas.

² Percentage of all women confined.

4.2 Age Specific Birth Rates

Age-specific birth rates in the Aboriginal and non-Aboriginal sub-populations and the total population are shown in Table 10. The population estimates used were derived from data from the 1996 census. Difficulties in estimation of Aboriginal populations are recognised where underenumeration may occur. Therefore the reader may wish to adjust the denominators in accord with the directive of Hicks.⁴

Overall, the age specific birth rate among Aboriginal women (103.5/1000) was more than double that of non-Aboriginal women (60.5/1000). Among the 15 to 19 year age group the birth rate of Aboriginal women (123.0/1000) was six times the rate for non-Aboriginal women (19.3/1000). For those women in the 20 to 34 year age group the rate for Aboriginal women (141.2/1000) was far greater than that for non-Aboriginal women (98.2/1000). The rates for Aboriginal women (16.0/1000) was lower than for non-Aboriginal women (24.3/1000) in the 35 to 44 year age group (Table 10, Figure IV).

Trend data on fertility rates among Aboriginal and non-Aboriginal women are provided in section 7, Table 51.

TABLE 10:

AGE SPECIFIC BIRTH RATES¹ OF ABORIGINAL AND NON-ABORIGINAL WOMEN IN WESTERN AUSTRALIA, 1996

Maternal Age	Aboriginal			Non-Aboriginal			Total		
	Births	Population	Birth Rate ¹	Births	Population	Birth Rate ¹	Births	Population	Birth Rate ¹
15-19	330	2684	123.0	1168	60405	19.3	1498	63089	23.7
20-24	487	2412	201.9	4205	64372	65.3	4692	66784	70.3
25-29	357	2457	145.3	8093	65963	122.7	8450	68420	123.5
30-34	185	2416	76.6	7220	68438	105.5	7405	70854	104.5
35-39	56	2097	26.7	2907	70334	41.3	2963	72431	40.9
40-44	4	1647	2.4	450	67660	6.7	454	69307	6.6
TOTAL	1419	13713	103.5	24043	397172	60.5	25462	410885	62.0

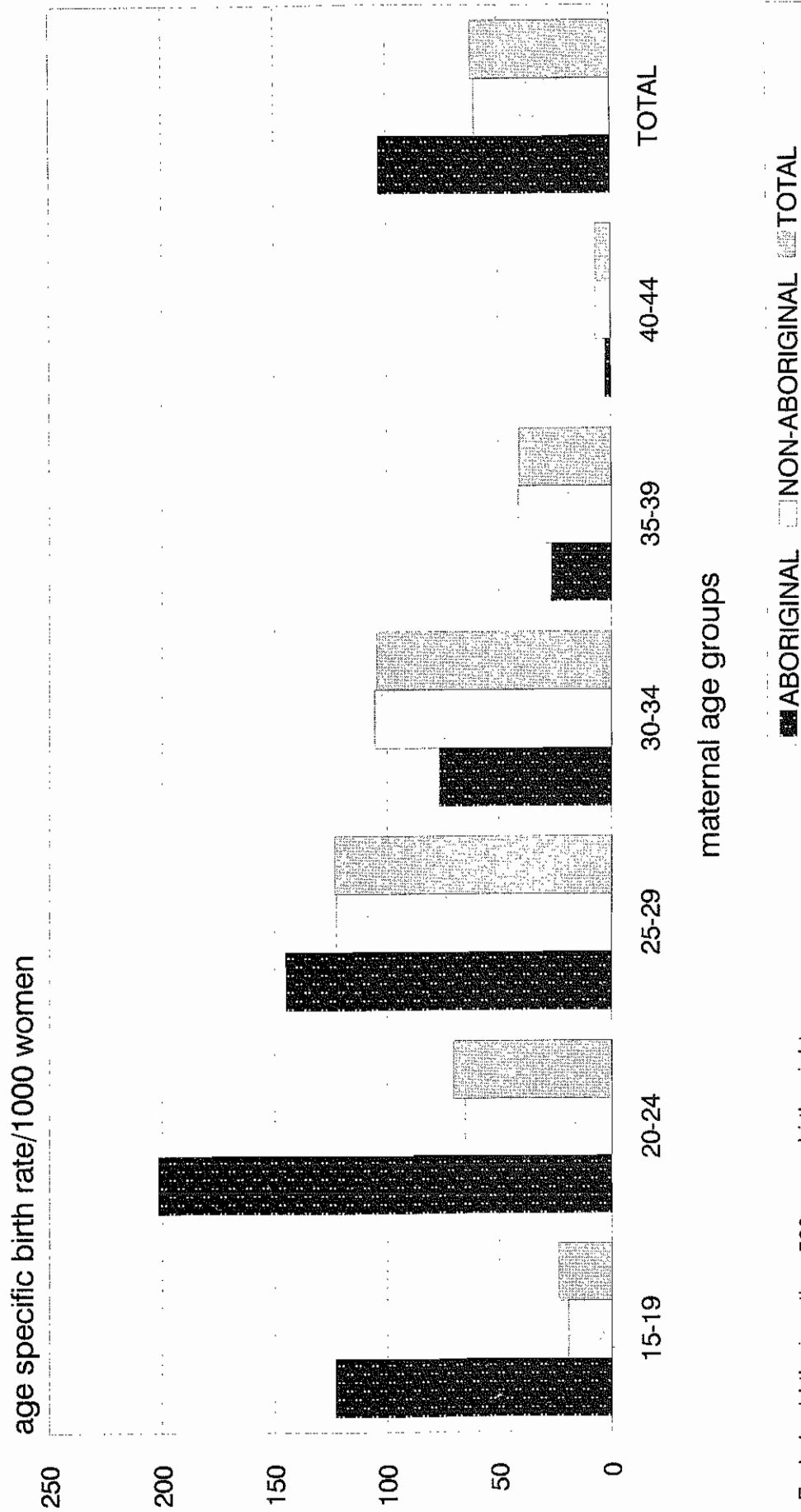
Excludes births less than 500 grams birthweight.

¹ Age specific birth rate: Total births/1000 women-years of women aged 15-44 years

SOURCE:

Estimated Resident Population By Age, Sex and Aboriginality / Health Information Centre, HDWA 1998
Midwives' Notification System.

FIGURE IV
AGE SPECIFIC BIRTH RATES OF ABORIGINAL AND NON-ABORIGINAL WOMEN
WESTERN AUSTRALIA, 1996



Excludes births less than 500 grams birthweight
 Age Specific Birth Rate: Total Births/ 1000 Women Years
 SOURCE: Midwives' Notification System and HDWA 1996

5. LABOUR AND DELIVERY

5.1 Onset of Labour

Over half (59.5%) of women confined during 1996 established labour spontaneously. Among women with multiple pregnancy 33.9% had a spontaneous onset of labour.

Induction of labour occurred for 27.8% of women, while 137 (36.8%) of women with multiple pregnancy underwent induction of labour (Table 13).

TABLE 13:

ONSET OF LABOUR AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Onset of Labour	Plurality				Total	
	Singleton		Multiple		No.	%
	No	%	No.	%		
Spontaneous	14827	59.9	126	33.9	14953	59.5
Induced	6857	27.7	137	36.8	6994	27.8
No Labour	3063	12.4	109	29.3	3172	12.6
TOTAL	24747	100.0	372	100.0	25119	100.0

Excludes births less than 500 grams birthweight.

There were 66 women reported as having had a failed induction of labour during 1996.

From 1981 to 1989 the number of women in Western Australia having an induction of labour remained between 25-27% of total confinements⁵. This percentage reduced to 24.0% in 1990 and 24.8% in 1991 before rising again to 26.7% in 1992, 27.5% in 1993, 27.4% in 1994, 27.7% in 1995 and 27.8% in 1996.

5.2 Augmentation of Labour

There were 5724 (22.8%) women whose labour was augmented by surgical and/or medical intervention following spontaneous onset of the labour.

Assessment of these cases showed that augmentation of labour for 3767 (15.0%) women was followed by a spontaneous vaginal delivery, 1436 (5.7%) women required an assisted vaginal delivery and 521 (2.0%) women an emergency caesarean section.

Of the 14953 women for whom onset of labour was spontaneous, 5724 (38.3%) had labour augmented and 9229 (61.7%) did not.

It is of interest to note that less than one third (7588, 30.2%) of women established labour following spontaneous onset, received no augmentation of labour and achieved a spontaneous vaginal delivery (Table 14).

TABLE 14:

ONSET AND AUGMENTATION OF LABOUR AND TYPE OF DELIVERY FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Labour (women confined)	Type of delivery								Total	
	Spontaneous Vaginal		Assisted Vaginal		Elective Caesarean		Emergency Caesarean		No.	%
	No.	%	No.	%	No.	%	No.	%		
Spontaneous onset no Augmentation	7588	30.2	953	3.8	-	-	688	3.6	9229	36.7
Spontaneous onset and Augmentation	3767	15.0	1436	5.7	-	-	521	2.0	5724	22.8
Induced onset	4704	18.7	1523	6.1	-	-	767	3.1	6994	27.8
No labour	-	-	-	-	2865	11.4	307	1.2	3172	12.6
TOTAL	16059	63.9	3912	15.6	2865	11.4	2283	9.1	25119	100.0

Excludes births less than 500 grams birthweight.

Women with multiple pregnancies are classified according to the features of the first twin/triplet.

5.3 Presentation

The presentation for the 24747 singleton confinements was identified as 23662 (95.6%) vertex, 969 (3.9%) breech, and 116 (0.5%) "other" presentations (Table 15).

Vertex presentations of singleton births were delivered vaginally in 82.8% of cases during 1996.

More than three quarters (85.8%) of total singleton births presenting by the breech were delivered by caesarean section (58.2% elective and 27.5% emergency caesarean section) (Table 15).

TABLE 15:

PRESENTATION AND TYPE OF DELIVERY FOR SINGLETON BIRTHS IN WESTERN AUSTRALIA, 1996

Type of Delivery	Presentation						Total	
	Vertex		Breech		Other		No.	%
	No.	%	No.	%	No.	%		
Normal	15907	67.2	15	1.6	17	14.7	15939	64.4
Vacuum	2386	10.1	-	-	4	3.5	2390	9.7
Forceps	1296	5.5	-	-	6	5.2	1302	5.3
Breech Manoeuvre	-	-	123	12.7	2	1.7	125	0.5
Elective Caesarean	2188	9.3	564	58.2	26	22.4	2778	11.2
Emergency Caesarean	1885	8.0	267	27.5	61	52.6	2213	8.9
TOTAL	23662	100.0	969	100.0	116	100.0	24747	100.0

Excludes births less than 500 grams birthweight.

5.4 Type of Delivery

Less than two thirds (64.4%) of the total women confined in 1996 had a spontaneous vaginal delivery. Vaginal deliveries were assisted for approximately one in six total confinements with 9.7% of women having a vacuum extraction and 5.3% a forcep delivery (Table 16, Figure V).

The type of delivery for each woman with multiple pregnancy was classified according to features of labour and delivery for the first twin/triplet. Ten of the 12 women with triplet pregnancies were delivered by caesarean section and there were ten women for whom the first twin was delivered vaginally and the second by emergency caesarean section during 1996.

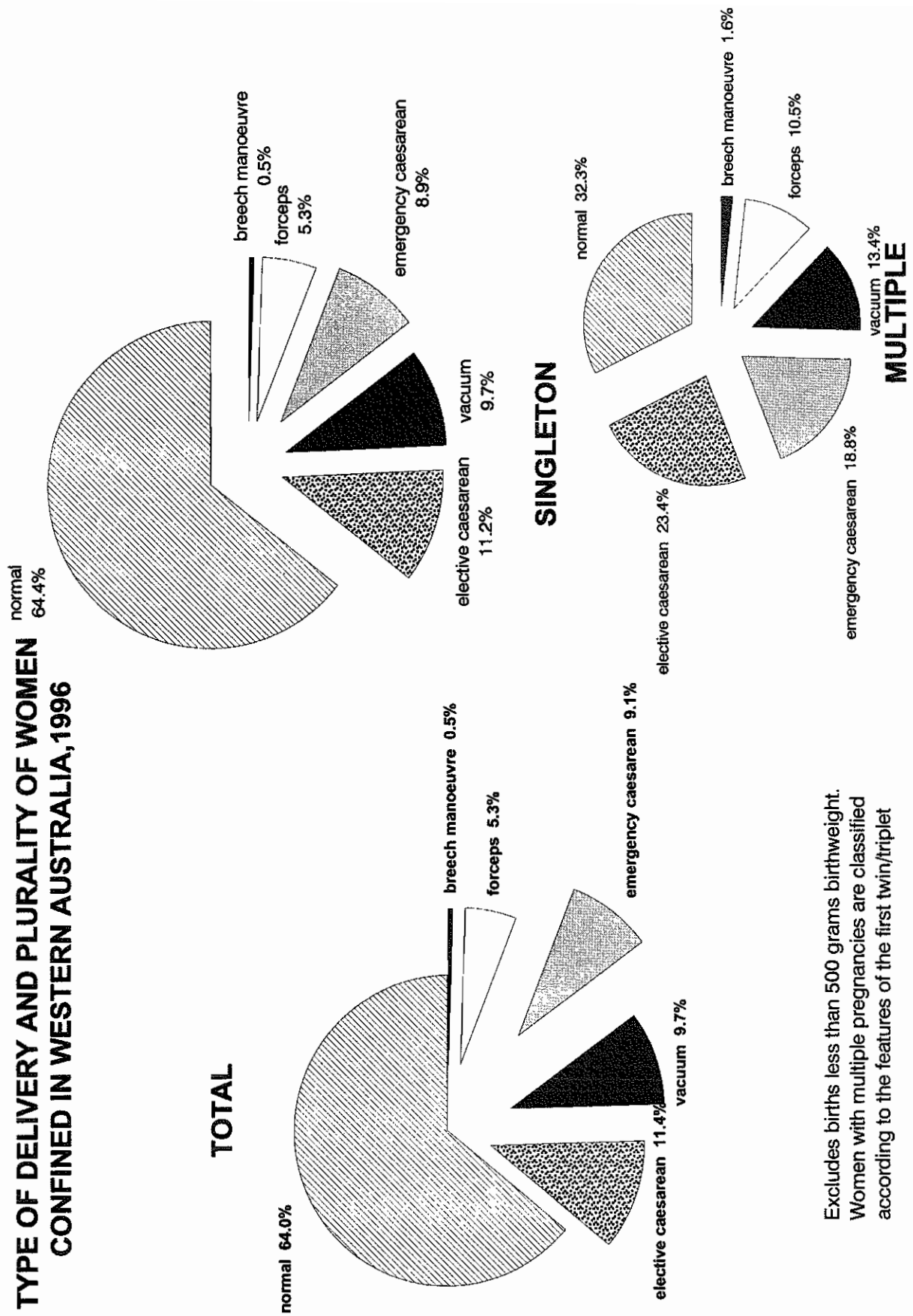
Among women with a twin pregnancy, 145 (40.5%) were delivered by caesarean section, 94 (26.3%) had assisted vaginal deliveries and 119 (33.2%) delivered spontaneously.

Of the 5148 women who were delivered by caesarean section during 1996, almost one third (31.6%) were recorded to have had a previous caesarean section delivery or other uterine surgery.

Among the 1798 women confined for whom previous caesarean section was recorded 1626 (90.4%) underwent repeat caesarean section, 55 (3.1%) had an assisted vaginal delivery and 117 (6.5%) delivered spontaneously. A previous caesarean section does not necessitate caesarean section for subsequent births, and would not always be recorded if followed by an assisted or spontaneous vaginal delivery. Therefore, the proportion of women with a history of caesarean section who deliver vaginally is considered to be under reported.

FIGURE V

**TYPE OF DELIVERY AND PLURALITY OF WOMEN
CONFINED IN WESTERN AUSTRALIA, 1996**



Excludes births less than 500 grams birthweight.
Women with multiple pregnancies are classified according to the features of the first twin/triplet

TABLE 16:

TYPE OF DELIVERY AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Type of Delivery	Plurality								Total	
	Singleton Pregnancy		Twin Pregnancy		Triplet Pregnancy		Quad Pregnancy		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal	15939	64.4	119	33.1	1	-	-	-	16059	63.9
Vacuum	2390	9.7	50	13.7	-	-	-	-	2440	9.7
Forceps	1302	5.3	38	10.9	1	-	-	-	1341	5.3
Breech Manoeuvre	125	0.5	6	1.7	-	-	-	-	131	0.5
Elective Caesarean	2778	11.2	81	40.5	5	50.0	1	50.0	2865	11.4
Emergency Caesarean	2213	8.9	64	17.9	5	50.0	1	50.0	2283	9.1
TOTAL	24747	100.0	358	100.0	12	100.0	2	100.0	25119	100.0

Excludes births less than 500 grams birthweight.

Women with multiple pregnancies are classified according to the features of the first twin/triplet.

The incidence of caesarean section in Western Australia⁶ gradually increased over the past decade from 15.7% in 1986 to 20.5% in 1996 (Table 51). The caesarean section rate for Australia overall was 19.3% in 1995⁷, and caesarean section rates for individual States and Territories are as follows: South Australia⁸ 23.1% in 1996, Northern Territory⁹ 21.1% in 1995, Victoria¹⁰ 19.7% in 1996, New South Wales¹¹ 17.6% in 1996, Queensland¹² 21.1% in 1996, Australian Capital Territory¹³ 20.9% in 1996, Tasmania⁷ 18.8% in 1995.

Consideration of the type of delivery of women confined and maternal parity shows that among nulliparous women, slightly more than half (51.5%) had a spontaneous vaginal delivery, 27.4% required an assisted vaginal delivery and 21.0% were delivered by caesarean section. Among women with a parity of 5 or more, 78.7% delivered spontaneously and 17.9% had caesarean sections (Table 17).

TABLE 17:

TYPE OF DELIVERY AND PARITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Type of Delivery	Parity								Total	
	0		1-2		3-4		≥5		No.	%
Spontaneous Vaginal	5174	51.5	8936	71.2	1646	76.8	303	78.7	16059	63.9
Assisted Vaginal	2754	27.4	1038	8.3	107	5.0	13	3.4	3912	15.6
Caesarean Elective	693	6.9	1879	15.0	254	11.9	39	10.1	2865	11.4
Caesarean Emergency	1417	14.1	701	5.6	135	6.3	30	7.8	2283	9.1
TOTAL	10038	100.0	12554	100.0	2142	100.0	385	100.0	25119	100.0

Excludes births less than 500 grams birthweight.

Women with multiple pregnancies are classified according to the features of the first twin/triplet.

The indications for caesarean section were assessed by examination of complications of labour and delivery. For the 5148 women confined by caesarean section 7530 complications of labour and delivery were recorded. The distribution of complications is shown in Table 19. All women had at least one complication recorded and 35.6% had more than one complication recorded (Table 18).

TABLE 18:

FREQUENCY OF COMPLICATIONS OF LABOUR AND DELIVERY FOR WOMEN CONFINED BY CAESAREAN SECTION IN WESTERN AUSTRALIA, 1996

Number of complications of labour and delivery	Women confined by caesarean section	
1	3315	64.4
2	1377	26.8
3	355	6.9
4	87	1.7
5	14	0.3
TOTAL	5148	100.0

Assessment of complications of labour and delivery for women confined by caesarean section showed previous caesarean section or other uterine surgery, (21.5%) and cephalopelvic disproportion, (14.9%) fetal distress (12.2%) and placental disorders and/or haemorrhage (10.0%) as the principal indications for caesarean section confinement (Table 19).

TABLE 19:

COMPLICATIONS OF LABOUR AND DELIVERY FOR WOMEN CONFINED BY CAESAREAN SECTION IN WESTERN AUSTRALIA, 1996

Complications of Labour and Delivery	Caesarean Section				Total	
	Elective		Emergency			
	No.	%	No.	%	No.	%
Umbilical Cord Complications	21	0.6	119	3.1	140	1.8
Cephalopelvic Disproportion	616	16.5	513	13.3	1129	14.9
Breech and other Malpresentations	633	17.0	278	7.2	911	12.0
Previous Caesarean Section or other uterine surgery	1390	37.3	236	6.1	1626	21.5
Fetal Distress	76	2.0	848	22.0	924	12.2
Multiple Pregnancies	55	1.5	32	0.8	87	1.1
Pregnancy Induced Disorders	194	5.2	202	5.2	396	5.2
Obstruction or delayed labour	-	-	143	3.7	143	1.9
Abnormal Forces of Labour	-	-	721	18.7	721	9.5
Placental Disorders/Haemorrhage	319	8.6	442	11.5	761	10.0
Medical/Physiological	35	0.9	20	0.5	55	0.7
Infection	60	1.6	183	4.8	243	3.2
Previous poor obstetric and / or reprod history	81	2.2	11	0.3	92	1.2
Other	243	6.5	102	2.6	345	4.6
TOTAL	3723	100.0	3850	100.0	7573	100.0

Note: The number of complications exceeds the number of women confined by caesarean section.

Of those women confined by caesarean section in Western Australia during 1996, the highest proportion were at metropolitan obstetric teaching and private hospitals. Overall, elective caesarean sections comprised 11.2% and emergency caesarean section 8.9% of women confined (Table 20).

TABLE 20:

PLACE OF CONFINEMENT AND CAESAREAN SECTION FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Place of Birth	Caesarean Section						Total		
	Elective			Emergency					
	No.	women confined	%	No.	women confined	%	No.	women confined	%
Metropolitan									
Teaching	463	5029	9.2	651	5029	12.9	1114	5029	22.2
Departmental	752	6675	11.3	528	6675	7.9	1280	6675	19.2
Private	1153	7081	16.3	687	7081	9.7	1840	7081	26.0
Country									
Regional	210	2862	7.3	243	2862	8.5	453	2862	15.8
Private	57	494	11.5	35	494	7.1	92	494	18.6
Other	230	2774	8.3	139	2774	5.0	369	2774	13.3
Non Hospital	-	204	-	-	204	-	-	204	-
TOTAL	2865	25119	11.4	2283	25119	9.1	5148	25119	20.5

Excludes births less than 500 grams birthweight.

Caesarean section confinements increased with maternal age. This trend was found in nearly all categories of hospitals.

5.5 Anaesthesia/analgesia

There were 4311 (17.2%) women confined who received no pharmacological anaesthesia/analgesia during labour and delivery. Of these, 96.5% had a spontaneous vaginal delivery.

An epidural was administered to 10073 (40.1%) of women confined.

Lumbar epidural nerve blocks can be used for analgesia in labour and for anaesthesia during caesarean delivery, manual removal of a retained placenta or for perineal repair. The timing of an epidural is not recorded by the Midwives' Notification System data collection. Therefore this report cannot always determine the sequence of events. For example, if a woman has an epidural and a ten hour labour followed by a caesarean section, it is not recorded whether the epidural was administered during the labour for analgesia or late in the labour specifically to provide anaesthesia for the caesarean section.

In 1996, 2283 women had an emergency caesarean section and of these 1860 (81.5%) women had an epidural anaesthetic alone, and 86 (3.8%) had both an epidural and a general anaesthetic. Of the women delivering by elective caesarean section, 2548 (88.9%) had an epidural anaesthetic alone.

Epidurals were administered to 2552 women whose labour resulted in an assisted vaginal delivery and to 2986 women whose labour progressed to a spontaneous vaginal delivery. A total of 824 (3.3%) women received a general anaesthetic at some time during labour and delivery.

The recording of anaesthesia/analgesia during labour and delivery includes those procedures required for the third stage of labour. This explains in part the use of general anaesthesia for women with assisted or spontaneous vaginal deliveries (Table 21).

The category of anaesthesia/analgesia recorded as 'other' includes narcotic sedation IM or IV, inhalants and caudal or pudendal nerve blocks (Table 21).

TABLE 21:

ANAESTHESIA/ANALGESIA AND TYPE OF DELIVERY FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Type of Anaesthesia/ Analgesia	Type of Delivery								Total	
	Emergency Caesarean		Elective Caesarean		Assisted Vaginal		Spontaneous Vaginal		No.	%
	No.	%	No.	%	No.	%	No.	%		
None	-	-	-	-	149	0.6	4162	16.6	4311	17.2
Epidural	1860	7.4	2548	10.1	2546	10.1	2981	11.9	9935	39.6
General	337	1.3	276	1.1	18	0.1	55	0.2	686	2.7
Epidural and General	86	0.3	41	0.2	6	-	5	-	138	0.6
Other	-	-	-	-	1193	4.8	8856	35.3	10049	40.0
TOTAL	2283	9.1	2865	11.4	3912	15.6	16059	63.9	25119	100.0

Excludes births less than 500 grams birthweight.

Women with multiple pregnancies are classified according to the features of the first twin/triplet.

5.6 Hours of Established Labour

The recorded length of labour varied amongst those women who had a spontaneous onset and those whose labour was induced. Almost half (48.2%) of the women who had an induction of labour experienced between five and twelve hours of labour and more than half (53.0%) of the women with a spontaneous onset had between 5 and 12 hours of labour. There were 115 women (0.5%) of the total whose labour was recorded as more than 24 hours duration (Table 22).

TABLE 22:

HOURS OF ESTABLISHED LABOUR AND ONSET OF LABOUR OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Hours of Labour	Onset of Labour			
	Spontaneous		Induction	
	No.	%	No.	%
<1	254	1.7	199	2.9
1-4	5062	33.9	3025	43.3
5-12	7930	53.0	3374	48.2
13-18	1321	8.8	329	4.7
19-24	276	1.9	49	0.7
>24	97	0.7	18	0.3
TOTAL	14940	100.0	6994	100.0

Excludes births less than 500 grams birthweight, 3167 (12.3%) women who did not experience labour, and 13 women for whom hours of established labour was not known.

Examination of type of delivery and hours of established labour showed that less than half (45.0%) of women confined had a labour lasting between 5 and 12 hours and of these 70.5% resulted in spontaneous delivery. Twelve percent of women did not establish in labour being confined by either elective or emergency caesarean section (Table 23).

5.7 Complications of Labour and Delivery

There were no complications of labour or delivery recorded for one third (44.4%) of the women confined in 1996. However, for women with multiple pregnancies only 25.8% of women were reported to have had no complications.

Among those women identified as having had a complication, fetal distress was recorded for 13.1% of singleton pregnancies and 8.0% of multiple pregnancies. Cephalopelvic disproportion was identified for 4.2% of all women confined (Table 24).

Other complications included 291 (1.2%) women with hypertension and 173 (0.7%) women with severe pre-eclampsia.

The second stage of labour was reported to be prolonged for 707 women (3.2% of women with established labour or 2.8% of total women confined). There were 38 additional women reported to have had prolonged labour with unspecified stage (0.2% of women with established labour or 0.2% of total women confined).

Uterine inertia was reported for 689 women (3.1% of women with established labour) and deep transverse arrest or persistent occipito posterior position for 354 (1.6% of women with established labour). Shoulder dystocia was recorded for 306 women (1.5% of women who delivered vaginally) and problems with cord compression or entanglement for 577 (2.9% of women who delivered vaginally).

TABLE 23:

TYPE OF DELIVERY AND HOURS OF ESTABLISHED LABOUR FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Type of Delivery	No Labour		<1		1-4		5-12		13-18		19-24		>24		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Normal	-	-	-	-	7158	88.5	7973	70.5	748	45.3	120	36.9	48	41.7	16047	63.9
Vacuum	-	-	-	-	370	4.6	1560	13.8	403	24.4	83	25.5	24	20.9	2440	9.7
Forceps	-	-	-	-	169	2.1	893	7.9	224	13.6	42	12.9	13	11.3	1341	5.3
Breech Manoeuvre	-	-	-	-	68	0.8	56	0.5	4	0.2	1	0.3	1	0.3	130	0.5
Elective Caesarean	2865	90.5	-	-	-	-	-	-	-	-	-	-	-	-	2865	11.4
Emergency Caesarean	302	9.5	453	100.0	326	4.0	823	7.3	271	16.4	79	24.3	29	25.2	2283	9.1
TOTAL	3167	100.0	453	100.0	8091	100.0	11305	100.0	1650	100.0	325	100.0	115	100.0	25106	100.0

Excludes births less than 500 grams birthweight.
Excludes 13 women for whom the length of labour was unknown.

These data suggest significant morbidity in child bearing women. Furthermore, the Validation Study of the Midwives' Notification System³ data indicated that complications of labour and delivery tend to be under-reported.

Attempts to improve the completeness of this information continue with the follow-up system for missing or incomplete information and with the provision of the Guidelines¹ and ongoing education and feedback to midwives.

TABLE 24:

SELECTED COMPLICATIONS OF LABOUR AND DELIVERY AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

	Plurality				Total	
	Singleton		Multiple		No.	% ³
	No.	% ¹	No.	% ²	No.	% ³
Complications of Labour and Delivery <i>(NB a woman may have >1 complication)</i>						
Precipitate Delivery	989	4.0	1	0.3	990	4.0
Fetal Distress	3233	13.1	31	8.3	3264	13.0
Prolapsed Cord	53	0.2	2	0.5	55	0.2
Cord Tightly Around Neck	1847	7.5	8	2.2	1855	7.4
Cephalopelvic Disproportion	1039	4.2	6	1.6	1045	4.2
Post Partum Haemorrhage	1696	6.9	76	20.4	1772	7.1
Other	8379	33.9	237	63.7	8616	34.3
No Complications of Labour and Delivery	11048	44.7	96	25.8	11144	44.4

Excludes births less than 500 grams birthweight.

¹ Percentage of women with a singleton pregnancy.

² Percentage of women with a multiple pregnancy.

³ Percentage of total women.

5.8 Repair of Perineum and/or Vagina

There were 12116 (48.2%) of all women confined or 6980 (35.0%) of women delivering vaginally who did not require any form of perineal or vaginal repair following delivery. Among women who did, 5126 (25.7%) had an episiotomy repaired, 6412 (32.1%) a first or second degree tear and for 347 (1.7%) a third or fourth degree tear needed repair. A further 1119 (5.6%) women were reported to have had repair of other vaginal and/or labial trauma (Table 25).

TABLE 25

TYPE OF DELIVERY AND REPAIR OF PERINEUM AND/OR VAGINA OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1996

Type of Delivery	Repair of Perineum and/or Vagina												Total	
	None		Episiotomy		1° or 2° Tear		3° or 4° Tear		Other				No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Normal	6582	54.4	2654	51.8	5626	87.7	175	50.4	1022	90.9	16059	63.9		
Vacuum	298	2.5	1330	25.9	644	10.0	94	27.1	74	6.6	2440	9.7		
Forceps	45	0.4	1064	20.8	134	2.1	78	22.5	20	1.8	1341	5.3		
Breech Manoeuvre	55	0.5	66	1.3	8	0.1	-	-	2	0.2	131	0.5		
Elective Caesarean	2865	23.6	-	-	-	-	3	-	-	-	2865	11.4		
Emergency Caesarean	2271	18.7	12	0.2	-	-	-	-	-	-	2283	9.1		
Total	12116	100.0	5126	100.0	6412	100.0	347	100.0	1119	100.0	25119	100.0		

Excludes births less than 500 grams birthweight.

6. BABY CHARACTERISTICS

6.1 Births

A Notification of Case Attended Form 2 (Appendix A) was received for 25502 births of 500 grams birthweight or more in 1996.

Singleton births numbered 24747 (97.0%) and multiple births 755 (3.0%). The 755 multiple births comprised 712 twins, (including four twin babies whose siblings' birthweight was <500 grams), 36 triplet babies, and 7 quadruplets (one quadruplet from a set was less than 500gms birthweight) (Tree Diagram 1).

The rates for high order multiple births gradually increased until 1989 and then declined. For example, the rate of triplet births increased from 18 (0.08%) babies in 1984 to 54 (0.21%) in 1989. Since then the number has stabilised and varies from 24 (0.9%) in 1995 to 37 (0.15%) in 1993, there were 36 (0.14%) triplet births in 1996. Much of the variation in the multiple birth rates has been due to infertility treatments. Further information on trends in multiple births over the past 10 years is provided in section 7 (Table 51).

6.2 Livebirths

The number of livebirths in Western Australia increased gradually over the ten year period from 1981-1990⁵. In 1991 there was a 4.0% decrease in the actual number from the 1990 figure followed by a 1.4% increase in the 1991 actual number for 1992. The actual number remained the same in 1993 and rose by 0.3% in 1994, 0.1% in 1995 and 0.5% in 1996. (Table 51, Figure VIII).

6.3 Crude Birth Rate

The crude birth rate was 14.4/1000 population in 1996. This calculation is based on livebirth numbers from the Midwives' Notification System and population data from the Australian Bureau of Statistics, Cat.No 3101.0 June quarter 1996 (Table 51, Figure IX).

6.4 Sex

There were 13149 (51.6%) male births and 12351 (48.4%) female births during 1996. (A male:female ratio of 1.06)

The assessment of condition at birth showed that 52.9% of stillbirths and 55.6% of livebirths were male.

6.5 Condition at Birth

Of the total 25502 births, 25366 were liveborn and 136 (5.3/1000) were stillborn (Table 26).

There were significant racial differences in stillbirth rates (Table 26). Trend data for stillbirth rates and maternal race are provided in section 7 (Table 51).

Among babies born to women recorded as Caucasian the stillbirth rate (5.2/1000) was lower than the rate for babies of Aboriginal mothers (9.0/1000). For babies of women of 'other' races the stillbirth rate was 4.5/1000.

TABLE 26:

CONDITION AT BIRTH AND MATERNAL RACE OF BIRTHS IN WESTERN AUSTRALIA, 1996

Race	Condition at Birth				Total Births		Stillbirth Rate/1000 Total Births
	Livebirth		Stillbirth		No.	%	
	No.	%	No.	%			
Caucasian	21930	86.5	114	83.8	22044	86.4	5.2
Aboriginal	1424	5.6	13	9.6	1437	5.6	9.0
Other	2012	7.9	9	6.6	2021	7.9	4.5
TOTAL	25366	100.0	136	100.0	25502	100.0	5.3

Excludes births less than 500 grams birthweight.

The majority of stillbirths (83.1%) were delivered in metropolitan hospitals and almost half of these (49.3%) in a metropolitan obstetric teaching hospital. This reflects the referral for delivery to a tertiary centre of mothers with high risk pregnancies or with fetal death in utero (Table 27).

TABLE 27:

PLACE OF BIRTH AND CONDITION AT BIRTH IN WESTERN AUSTRALIA, 1996

Place of Birth	Condition at Birth				Stillbirth Rate/1000 Total Births	Total	
	Livebirth		Stillbirth			No.	%
	No.	%	No.	%			
Metropolitan							
¹ Teaching Department	5138	20.3	67	49.3	12.9	5205	20.4
Private	6708	26.4	20	14.7	3.0	6728	26.4
	7167	28.3	26	19.1	3.6	7193	28.2
Country							
² Regional Private	2874	11.3	14	10.3	4.8	2888	11.3
	500	2.0	1	0.7	2.0	501	2.0
³ Other	2775	10.9	8	5.9	2.9	2783	10.9
Non-Hospital							
⁴ BBA Homebirths	84	0.3	-	-	-	84	0.3
	120	0.5	-	-	-	120	0.5
TOTAL	25366	100.0	136	100.0	5.3	25502	100.0

Excludes births less than 500 grams birthweight.

¹ Teaching Hospital - University Medical School (Teaching Hospital Act 1955).

² Country Regional Hospital - Government Hospital with private and public beds.

³ Other Country Hospitals - includes Government District and Board Hospitals.

⁴ BBA (born before arrival at hospital).

6.6 Apgar Score at One Minute and Five Minutes

More than two thirds of livebirths (74.0%) had a recorded Apgar Score at one minute of 8-10, while 643 (2.5%) livebirths had an Apgar Score of three or less at one minute of life (Table 28).

TABLE 28:

APGAR SCORE AT ONE MINUTE AND TIME TO SPONTANEOUS RESPIRATION OF LIVEBIRTHS IN WESTERN AUSTRALIA, 1996

Time to Spontaneous Respiration	Apgar Score at 1 Minute								Total	
	0		1-3		4-7		8-10		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
≤1	-	-	21	3.3	3410	57.5	18248	97.3	21679	85.6
2-3	-	-	120	18.8	1838	31.0	450	2.4	2408	9.5
4-6	-	-	161	25.3	329	5.5	26	0.1	516	2.0
7-10	-	-	36	5.7	37	0.6	2	-	75	0.3
>10	-	-	3	0.5	3	0.1	1	-	7	-
Intubation ¹	7	100.0	295	46.3	319	5.4	31	0.2	652	2.6
TOTAL	7	100.0	636	100.0	5936	100.0	18758	100.0	25337	100.0

Excludes births less than 500 grams birthweight.

Excludes 29 liveborn babies for whom Apgar Score at 1 minute and/or T.S.R. was unknown.

¹ These babies were intubated at birth and time to spontaneous respiration was not recorded.

The majority of livebirths, (96.6%) had a recorded Apgar Score at five minutes of 8-10, and 861 (3.4%) livebirths had an Apgar Score of seven or less at five minutes of life (Table 29).

TABLE 29:

APGAR SCORE AT FIVE MINUTES AND TIME TO SPONTANEOUS RESPIRATION OF LIVEBIRTHS IN WESTERN AUSTRALIA, 1996

Time to Spontaneous Respiration	Apgar Score at 5 minutes								Total	
	0		1-3		4-7		8-10		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
≤1	-	-	7	13.2	131	16.2	21542	88.0	21681	85.6
2-3	-	-	-	-	189	23.4	2219	9.1	2408	9.5
4-6	-	-	-	-	190	23.5	326	1.3	516	2.0
7-10	-	-	4	7.5	61	7.6	10	-	75	0.3
>10	-	-	1	1.9	4	0.5	2	-	7	-
Intubation ¹	1	100.0	41	77.4	232	28.8	377	1.5	652	2.6
TOTAL	1	100.0	53	100.0	807	100.0	24476	100.0	25339	100.0

Excludes births less than 500 grams birthweight.

Excludes 27 liveborn babies for whom Apgar Score at 5 minutes and/or T.S.R. was unknown.

¹ These babies were intubated at birth and time to spontaneous respiration was not recorded.

6.7 Time to Spontaneous Respiration

Eighty five percent of all livebirths were recorded as having established spontaneous respiration within the first minute of life. Eleven percent of livebirths required between two and six minutes to establish respirations and 82 babies (0.3%) needed seven minutes or more. There were 652 (2.6%) livebirths who were intubated following delivery and for these the time to establish spontaneous respiration is unknown (Table 29).

6.8 Resuscitation

Almost one third (31.9%) of the 25366 liveborn babies in 1996 received some form of resuscitation at birth. Those babies who received no resuscitation numbered 17267 (68.1%). Resuscitation procedures such as intubation or bag and mask were used for 2699 (10.7%) of births and another 4670 (18.4%) babies received oxygen only.

When resuscitation and Apgar Scores at 5 minutes were examined it was found that 75.9% of the babies with an Apgar Score of 1-3 and 28.7% of those with an Apgar Score of 4-7 were intubated (Table 30).

TABLE 30:

RESUSCITATION METHODS AND FIVE MINUTE APGAR SCORE OF LIVEBIRTHS IN WESTERN AUSTRALIA, 1996

Resuscitation	Apgar Score at 5 Minutes								Total	
	0		1-3		4-7		8-10		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
None	1	33.3	6	11.1	22	2.7	17238	70.4	17267	68.1
Oxygen Only	-	-	-	-	131	16.2	4539	18.5	4670	18.4
Intubation	2	66.6	41	75.9	232	28.7	377	1.5	652	2.6
Bag and Mask	-	-	7	13.0	387	48.0	1653	6.8	2047	8.1
Other	-	--	-	-	35	4.3	671	2.7	706	2.8
TOTAL	3	100.0	54	100.0	807	100.0	24478	100.0	25342	100.0

Excludes births less than 500 grams birthweight.

Excludes 24 babies for whom Apgar Score at 5 minutes was unknown.

6.9 Birthweight

Over two thirds (66.8) of all babies born weighed between 3000 and 3999 grams at birth and the average birthweight was 3340 grams. The percentage of low birthweight babies (less than 2500 grams) was 6.5% and very low birthweight (less than 1500 grams) was 1.2% of the total births. Information on low birthweight trends for the past 10 years is provided in section 7 (Table 51).

Low birthweight among Aboriginal births was 13.2%, more than twice that of caucasian births of whom only 6.1% were low birthweight (Table 31).

TABLE 31:

BIRTHWEIGHT DISTRIBUTION AND MATERNAL RACE OF BIRTHS IN WESTERN AUSTRALIA, 1996

Birthweight (Grams)	Maternal Race						Total	
	Caucasian		Aboriginal		Other		No.	%
	No.	%	No.	%	No.	%	No.	%
500 - 999	115	0.5	17	1.2	15	0.7	147	0.6
1000 - 1499	141	0.6	14	1.0	4	0.2	159	0.6
1500 - 1999	275	1.3	29	2.0	23	1.1	327	1.3
2000 - 2499	808	3.7	130	9.1	87	4.3	1025	4.0
<2500	1339	6.1	190	13.2	129	6.4	1658	6.5
2500 - 2999	3366	15.3	348	24.2	446	22.1	4160	16.3
3000 - 3499	7977	36.2	521	36.3	836	41.4	9334	36.6
3500 - 3999	6917	31.4	294	20.5	478	23.7	7689	30.2
4000 - 4499	2114	9.6	77	5.4	114	5.6	2305	9.0
≥4500	331	1.5	7	0.5	18	0.9	356	1.4
TOTAL	22044	100.0	1437	100.0	2021	100.0	25502	100.0

Excludes births less than 500 grams birthweight.

Mean = 3340 grams. Standard Deviation = 586 grams.

Consideration of condition at birth showed that livebirths represented 99.5% and stillbirths 0.5% of total births.

Among the 1658 low birthweight babies (less than 2500 grams birthweight), 1568 (94.6%) were liveborn and 90 (5.4%) were stillborn. This meant that while 66.2% of stillbirths were of low birthweight only 6.2% of livebirths were in the low birthweight category (Table 32).

Singleton births showed similar percentages to total births. Among low birthweight babies there were 1187 livebirths and 76 stillbirths. For stillbirths 62.3% were low birthweight and among livebirths 4.8% were in this category (Table 33).

For multiple births, there were 381 liveborn and 14 stillborn in the low birthweight group. All stillborn multiple births were of low birthweight (Table 34).

When categories of low birthweight were examined from 1987 to 1996 it was apparent that during this time births less than 1000 grams represented 0.3% to 0.7% of the total births. For those babies whose birthweight was less than 1500 grams the percentage varied from 0.9% to 1.3% of the total births. Those babies who weighed less than 2500 grams accounted for between 6.0% and 6.5% of the total births, the exception being an increase in 1989 to 6.6%, largely due to the increased number of multiple births during that year (section 7, Table 51).

TABLE 32:

BIRTHWEIGHT DISTRIBUTION AND CONDITION AT BIRTH OF TOTAL BIRTHS IN WESTERN AUSTRALIA, 1996

Birthweight (Grams)	Condition at Birth				Total	
	Livebirths		Stillbirths		No.	%
	No.	%	No.	%		
500 - 999	106	0.4	41	30.2	147	0.6
1000 - 1499	143	0.6	16	11.8	159	0.6
1500 - 1999	310	1.2	17	12.5	327	1.3
2000 - 2499	1009	4.0	16	11.8	1025	4.0
<2500	1568	6.2	90	66.2	1658	6.5
2500 - 2999	4151	16.4	9	6.6	4160	16.3
3000 - 3499	9318	36.7	16	11.8	9334	36.6
3500 - 3999	7673	30.3	16	11.8	7689	30.2
4000 - 4499	2302	9.1	3	2.2	2305	9.0
≥4500	354	1.4	2	1.5	356	1.4
TOTAL	25366	100.0	136	100.0	25502	100.0

Excludes births less than 500 grams birthweight

TABLE 33:

SINGLETON BIRTHS IN WESTERN AUSTRALIA, 1996

Birthweight (Grams)	Condition at Birth				Total	
	Livebirths		Stillbirths		No.	%
	No.	%	No.	%		
500 - 999	70	0.3	35	28.7	105	0.4
1000 - 1499	109	0.4	13	10.7	122	0.5
1500 - 1999	211	0.9	12	9.8	223	0.9
2000 - 2499	1797	3.4	16	13.1	813	3.3
<2500	1187	4.8	76	62.3	1263	5.1
2500 - 2999	3889	15.8	9	7.4	3898	15.8
3000 - 3499	9230	37.5	16	13.1	9246	37.4
3500 - 3999	7664	31.1	16	13.1	7680	31.0
4000 - 4499	2301	9.3	3	2.5	2304	9.3
≥4500	354	1.4	2	1.6	356	1.4
TOTAL	24625	100.0	122	100.0	25502	100.0

Excludes births less than 500 grams birthweight

TABLE 34:

MULTIPLE BIRTHS IN WESTERN AUSTRALIA, 1996

Birthweight (Grams)	Condition at Birth				Total	
	Livebirths		Stillbirths		No.	%
	No.	%	No.	%		
500 - 999	36	4.9	6	42.9	42	5.6
1000 - 1499	34	4.6	3	21.4	37	4.9
1500 - 1999	99	13.4	5	35.7	104	13.8
2000 - 2499	212	28.6	-	-	212	28.1
<2500	381	51.4	14	100.0	395	52.3
2500 - 2999	262	35.4	-	6.6	262	34.7
3000 - 3499	88	11.9	-	11.8	88	11.7
3500 - 3999	9	1.2	-	11.8	9	1.2
4000 - 4499	1	0.1	-	2.2	1	0.1
≥4500	-	-	-	1.5	-	-
TOTAL	741	100.0	14	100.0	755	100.0

Excludes births less than 500 grams birthweight

Trend data on low birthweight for babies of Aboriginal and non-Aboriginal women from 1987 to 1996 are provided in section 7. These indicate that although the percentages have been reasonably stable, Aboriginal low birthweight is on average more than twice that for babies of non-Aboriginal women (Table 51, Figure VII).

6.10 Gestation

Preterm birth (less than 37 weeks gestation) occurred for 1826 (7.2%) of the total births in 1996 (Table 35). When examined for singleton births only, 1475 (6.0) babies were preterm (Table 36). Of the 755 multiple births, almost half (351, 46.5%) were preterm (Table 37).

Gestational age was estimated by clinical assessment of each newborn infant by the attending midwife.

TABLE 35:

GESTATION AND BIRTHWEIGHT OF TOTAL BIRTHS IN WESTERN AUSTRALIA, 1996

Birthweight (Grams)	Gestation Weeks										Total	
	20 - 27		28 - 32		33 - 36		37 - 42		≥43		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
500 - 999	114	89.8	29	10.4	3	0.2	1	-	-	-	147	0.6
1000 - 1499	12	9.4	123	43.9	21	1.5	3	-	-	-	159	0.6
1500 - 1999	1	0.8	103	36.8	184	13.0	39	0.2	-	-	327	1.3
2000 - 2499	-	-	20	7.1	501	35.3	504	2.1	-	-	1025	4.0
<2500	127	100.0	275	98.2	709	50.0	547	2.3	-	-	1658	6.5
2500 - 2999	-	-	2	0.7	519	36.6	3639	15.4	-	-	4160	16.3
3000 - 3499	-	-	2	0.7	159	11.2	9172	38.8	1	25.0	9334	36.6
3500 - 3999	-	-	1	0.4	23	1.6	7664	32.4	1	25.0	7689	30.2
4000 - 4499	-	-	-	-	8	0.6	2295	9.7	2	50.0	2305	9.0
≥4500	-	-	-	-	1	0.1	355	1.5	-	-	356	1.4
TOTAL	127	100.0	280	100.0	1419	100.0	23672	100.0	4	100.0	25502	100.0

Excludes births < 500 grams birthweight.

TABLE 36:

GESTATION AND BIRTHWEIGHT OF SINGLETON BIRTHS IN WESTERN AUSTRALIA, 1996

Birthweight (Grams)	Gestation Weeks										Total	
	20 - 27		28 - 32		33 - 36		37 - 42		≥43		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
500 - 999	79	87.8	22	10.0	3	0.3	1	-	-	-	105	0.4
1000 - 1499	10	11.1	95	43.0	15	1.3	2	-	-	-	122	0.5
1500 - 1999	1	1.1	80	36.2	109	9.4	33	0.1	-	-	223	0.9
2000 - 2499	-	-	19	8.6	389	33.4	405	1.7	-	-	813	3.3
<2500	90	100.0	216	97.7	516	44.3	441	1.9	-	-	1263	5.1
2500 - 2999	-	-	2	0.9	461	39.6	3435	14.8	-	-	3898	15.8
3000 - 3499	-	-	2	0.9	155	13.3	908	39.1	1	25.0	9246	37.4
3500 - 3999	-	-	1	0.5	23	2.0	7655	32.9	1	25.0	7680	31.0
4000 - 4499	-	-	-	-	8	0.7	2294	9.9	2	50.0	2304	9.3
≥4500	-	-	-	-	1	0.1	355	1.5	-	-	356	1.4
Total	90	100.0	221	100.0	1164	100.0	23268	100.0	4	100.0	24747	100.0

Excludes births < 500 grams birthweight.

TABLE 37:

GESTATION AND BIRTHWEIGHT OF MULTIPLE BIRTHS IN WESTERN AUSTRALIA, 1996

Birthweight (Grams)	Gestation Weeks										Total	
	20 - 27		28 - 32		33 - 36		37 - 42		≥43		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
500 - 999	35	94.6	7	11.9	-	-	-	-	-	-	42	5.6
1000 - 1499	2	5.4	28	47.5	6	2.4	1	0.3	-	-	37	4.9
1500 - 1999	-	-	23	39.0	75	29.4	6	1.5	-	-	104	13.8
2000 - 2499	-	-	1	1.7	112	43.9	99	24.5	-	-	212	28.1
<2500	37	100.0	59	100.0	193	75.7	106	26.2	-	-	395	52.3
2500 - 2999	-	-	-	-	58	22.8	204	50.5	-	-	262	34.7
3000 - 3499	-	-	-	-	4	1.6	84	20.8	-	-	88	11.7
3500 - 3999	-	-	-	-	-	-	9	2.2	-	-	9	1.2
4000 - 4499	-	-	-	-	-	-	1	0.2	-	-	1	0.1
≥4500	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	37	100.0	59	100.0	255	100.0	404	100.0	-	-	755	100.0

Excludes births < 500 grams birthweight.

6.11 Vitamin K - Administration of first dose

The most frequent mode of administration of Vitamin K to the newborn during 1996 was by intramuscular injection or intra arterial/intravenous infusion (97.3%). A further 1.7% of babies received an oral first dose of Vitamin K while 0.9% babies were recorded as not having been given Vitamin K during the first hours of life.

There has been a significant change in mode of administration of Vitamin K since the recording of this item commenced in July 1993. At this time only 3.1% of babies received Vitamin K parenterally and the majority (88.6%) had a first oral dose shortly after birth. This trend has reversed through all four quartiles of 1996 with 97.3% receiving Vitamin K parenterally and 1.7% having an oral first dose. (Table 38).

TABLE 38:

ADMINISTRATION OF VITAMIN K FIRST DOSE IN WESTERN AUSTRALIA, 1996

Month of Birth	Mode of Administration								Total Livebirths	
	Oral		IMI/IV/IA		Not Given		Unknown		No.	%
	No.	%	No.	%	No.	%	No.	%		
Jan-March	123	2.0	6081	96.9	69	1.1	4	0.1	6277	100.0
April-June	128	2.0	6257	97.2	52	0.8	3	-	6440	100.0
July-Sept	109	1.7	6316	97.3	65	1.0	1	-	6491	100.0
Oct-Dec	81	1.3	6024	97.8	53	0.9	-	-	6158	100.0
Total	441	1.7	24678	97.3	239	0.9	8	-	25366	100.0

* Excludes births less than 500 grams birthweight

6.12 Birth Defects

Data on selected birth defects included in this report are made available by the Western Australian Birth Defects Registry¹⁴ (Table 39).

Recording of a birth defect on the Notification of Case Attended (Midwives') Form 2, provides an initial data source for the Birth Defects Registry. Reports and further details on birth defects in Western Australia are available upon request to the Registry.

TABLE 39:

BIRTHS IDENTIFIED WITH BIRTH DEFECTS IN WESTERN AUSTRALIA, 1993-1996

Diagnostic Category (and British Paediatric Association Code)	1992		1993		1994		1995		1996	
	No.	Rate ¹	No.	Rate ¹	No.	Rate ¹	No.	Rate ¹	No.	Rate ¹
Nervous System Defects (74000-74299)	105	4.1	104	4.1	112	4.4	102	4.0	81	3.2
Cardiovascular Defects (74500-74799)	295	11.6	303	11.9	282	11.1	272	10.7	283	11.1
Respiratory System Defects (74800-74899)	15	0.6	27	1.1	29	1.1	33	1.3	41	1.6
Gastro-Intestinal Defects (74900-75199)	163	6.4	163	6.4	169	6.6	156	6.1	124	4.8
Uro-Genital Defects (75200-75399)	436	17.2	400	15.8	393	15.4	328	12.9	268	10.5
Musculo-Skeletal Defects (75400-75699)	386	15.2	377	14.9	373	14.7	401	15.8	461	18.0
Chromosome Defects (75800-75899)	87	3.4	101	4.0	91	3.6	106	4.2	101	3.9

¹ Rate per 1000 total births.

SOURCE: Western Australian Birth Defects Registry.

6.13 Special Care

Although there are difficulties relating to the definition of special care units in Western Australia, data from the Midwives' Notification System indicating special care have been included to identify the need of services for newborn babies. It is not possible from the current data to differentiate those babies who received neonatal intensive care. In an attempt to resolve this difficulty, data on Special Care provided in this report relates only to babies admitted to Level 2 or Level 3 Special Care nurseries.

Among the 25366 livebirths, a total of 1337 (5.3%) babies were reported to have received special care for one day or more. Of these, 1088 (81.4%) were singleton births and 249 (18.6%) were multiple births. The rates for these babies were 44.2/1000 singleton livebirths and 336.0/1000 multiple livebirths.

Fourteen percent of babies admitted to special care nurseries stayed more than 28 days and 63 (4.7%) babies stayed longer than 60 days. Multiple birth babies stayed longer in special care units, with 63.5% staying 8 days or more. Babies whose length of stay in Special Care Nurseries was less than one day are not recorded (Table 40).

TABLE 40:

PLURALITY AND LENGTH OF STAY IN SPECIAL CARE OF LIVEBIRTHS IN WESTERN AUSTRALIA, 1996

Length ¹ of Stay (Days)	Plurality				Total	
	Singleton		Multiple		No.	%
	No.	%	No.	%	No.	%
1	267	24.5	28	11.2	295	22.1
2	123	11.3	18	7.2	141	10.5
3	87	8.0	9	3.6	96	7.2
4	65	6.0	9	3.6	74	5.5
5	59	5.4	11	4.4	70	5.2
6	51	4.7	7	2.8	58	4.3
7	53	3.0	9	3.6	42	3.1
8-14	136	12.5	34	13.7	170	12.7
15-20	80	7.4	31	12.4	111	8.3
21-28	51	4.7	35	14.1	86	6.4
29-60	94	8.6	37	14.9	131	9.8
61-90	27	2.5	9	3.6	36	2.7
91-180	15	1.4	12	4.8	27	2.0
>180	-	-	-	-	-	-
TOTAL	1088	100.0	249	100.0	1337	100.0

Excludes births less than 500 grams birthweight.

¹Excludes babies with <24 hour length of stay in Special Care Nurseries.

6.14 Neonatal Transfers

Among the 25366 livebirths, 949 (3.7%) babies were transferred to another hospital after birth. The overall length of hospital stay following a baby's transfer from the hospital of birth is not recorded on the Midwives' Notification System.

These data include emergency inter-hospital transfers to special care units in tertiary hospitals following birth 374 (39.4%) and those babies who were transferred to another hospital prior to being discharged home.

6.15 Length of Stay

The majority of liveborn babies (20215, 79.7%) stayed in their hospital of birth from two to seven days and another 2475 (9.8%) stayed between 8 and 28 days. A further 237 (0.9%) babies stayed longer than 28 days (Table 41).

The length of stay of those babies who were neither transferred nor died in the hospital of birth is shown on Table 42. Among these surviving liveborn babies, 2315 (9.5%) stayed 8 to 28 days and 183 (0.8%) stayed for longer than 28 days.

TABLE 41:

LENGTH OF STAY IN HOSPITAL OF BIRTH AND BIRTHWEIGHT DISTRIBUTION OF LIVEBIRTHS IN WESTERN AUSTRALIA, 1996

Birthweight (Grams)	Length of Stay (Days)												Total	
	≤1		2-7		8-14		15-20		21-28		≥28		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
500 - 999	22	0.9	8	-	1	0.1	2	1.1	2	1.6	71	-	106	0.4
1000 - 1499	13	0.5	3	-	9	0.4	6	3.2	18	14.8	94	39.7	143	0.6
1500 - 1999	20	0.8	44	0.2	77	3.6	60	32.4	61	50.0	48	20.3	310	1.2
2000 - 2499	73	3.0	595	2.9	247	11.4	60	32.4	26	21.3	8	3.4	1009	4.0
<2500	128	5.2	650	3.2	334	15.4	128	69.2	107	87.7	221	93.2	1568	6.2
2500 - 2999	429	17.6	3229	16.0	452	20.9	31	16.8	6	4.9	4	1.7	4151	16.4
3000 - 3499	917	37.6	7754	38.4	626	28.8	14	7.6	3	2.5	4	1.7	9318	36.7
3500 - 3999	728	29.9	6397	31.6	534	24.6	5	2.7	3	2.5	6	2.5	7673	30.3
4000 - 4499	212	8.7	1884	9.3	196	9.0	5	2.7	3	2.5	2	0.8	2302	9.1
≥4500	25	1.0	301	1.5	26	1.2	2	1.1	-	-	-	-	354	1.4
TOTAL	2439	100.0	20215	100.0	2168	100.0	185	100.0	122	100.0	237	100.0	25366	100.0

Excludes births less than 500 grams birthweight
Includes homebirths in midwives' care

TABLE 42:

LENGTH OF STAY IN HOSPITAL OF BIRTH AND BIRTHWEIGHT DISTRIBUTION OF SURVIVING LIVEBIRTHS IN WESTERN AUSTRALIA, 1996

Birthweight (Grams)	Length of Stay (Days)											Total		
	≤1		2-7		8-14		15-20		21-28		≥28		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
500 - 999	-	-	-	-	-	-	-	-	-	-	51	27.9	52	0.2
1000 - 1499	-	-	-	-	-	-	-	-	8	8.8	67	36.6	76	0.3
1500 - 1999	-	-	28	45	45	2.2	39	26.4	46	50.6	43	23.5	199	0.8
2000 - 2499	30	1.5	533	217	217	10.5	52	35.1	23	25.3	8	4.4	863	3.5
<2500	30	1.5	561	262	262	12.6	91	61.5	77	84.6	169	92.3	1190	4.9
2500 - 2999	334	16.9	3177	442	442	21.3	31	21.0	5	5.5	3	1.6	3992	16.4
3000 - 3499	791	40.0	7673	623	623	30.0	14	9.5	3	3.3	4	2.2	9109	37.4
3500 - 3999	626	31.6	6323	531	531	25.6	5	3.4	3	3.3	5	2.7	7493	30.8
4000 - 4499	180	9.1	1863	192	192	9.3	5	3.4	3	3.3	2	1.1	2245	9.2
≥4500	19	1.0	296	26	26	1.3	2	1.4	-	-	-	-	343	1.4
TOTAL	1980	100.0	19893	100.0	2076	100.0	148	100.0	91	100.0	183	100.0	24371	100.0

Excludes births less than 500 grams birthweight
 Excludes inter-hospital transfers (n=949) and deaths in hospital of birth (n=46).
 Includes homebirths in midwives' care

6.16 Perinatal Mortality

There were 136 stillbirths and 73 neonatal deaths of babies born during 1996. The perinatal mortality rate for Western Australia was 8.2/1000 total births.

Perinatal mortality calculations in recent reports are based on the year of birth whereas prior to 1984 they were based on the year of death. Trend data for perinatal mortality over the last 10 years are provided in section 7 (Table 51, Figure X).

Tables 43 and 44 give perinatal mortality rates using World Health Organisation definitions.

The perinatal mortality rate in 1996 for babies of Aboriginal women (15.3/1000) was more than twice that for babies born to non-Aboriginal women (7.8/1000) (Table 45 and Table 51, Figure XI).

TABLE 43:

WESTERN AUSTRALIAN PERINATAL MORTALITY USING BIRTHWEIGHT CRITERIA, 1996

Birthweight	Stillbirth Rate/1000 Total Births	Neonatal Death Rate/1000 Livebirths	Perinatal Death Rate/1000 Total Births
≥400 grams*	6.5	3.4	9.9
≥500 grams*	5.3	2.9	8.2

* International Definition of World Health Organisation

TABLE 44:

WESTERN AUSTRALIAN PERINATAL MORTALITY USING GESTATION CRITERIA, 1996

Gestation	Stillbirth Rate/1000 Total Births	Neonatal Death Rate/1000 Livebirths	Perinatal Death Rate/1000 Total Births
≥20 weeks*	7.9	3.7	11.5
≥22 weeks*	6.6	3.1	9.7

*International Definition of World Health Organisation

SOURCE: MIDWIVES' NOTIFICATION SYSTEM
HOSPITAL MORBIDITY SYSTEM
COMMUNITY AND CHILD HEALTH SYSTEM
REGISTRAR GENERAL'S OFFICE

TABLE 45:

STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY RATES BY MATERNAL RACE IN WESTERN AUSTRALIA, 1996

Type of Death	Maternal Race			Total
	Caucasian	Aboriginal	Other	
Stillbirth/1000 total births	5.2	9.1	4.5	5.3
Neonatal/1000 livebirths	2.8	6.3	1.0	2.9
Perinatal/1000 total births	8.0	15.3	5.4	8.2

Excludes births less than 500 grams birthweight

Data from 1987 to 1996 on stillbirth, neonatal and perinatal mortality rates in Western Australia shows there has been an overall decline during this decade. Aboriginal rates have declined but remain approximately double the non-Aboriginal figures (Table 51).

Less than one third (33.0%) of perinatal deaths had a birthweight of less than 1000 grams. Overall 66.2% of stillbirths and 57.5% of neonatal deaths weighed less than 2500 grams at birth (Table 46).

TABLE 46:

BIRTHWEIGHT DISTRIBUTION OF STILLBIRTHS, NEONATAL AND PERINATAL DEATHS IN WESTERN AUSTRALIA, 1996

Birthweight (grams)	Stillbirths		Neonatal Deaths		Perinatal Deaths	
	No.	%	No.	%	No.	%
500 - 999	41	30.2	28	38.4	69	33.0
1000 - 1499	16	11.8	6	8.2	22	10.5
1500 - 1999	17	12.5	2	2.7	19	9.1
2000 - 2499	16	11.8	6	8.2	22	10.5
<2500	90	66.2	42	57.5	132	63.2
2500 - 2999	9	6.6	9	12.3	18	8.6
3000 - 3499	16	11.8	12	16.4	28	13.4
3500 - 3999	3	2.2	8	11.0	11	5.3
≥4000	2	1.5	2	2.7	4	1.9
Total	136	100.0	73	100.0	209	100.0

Excludes births less than 500 grams birthweight.

Amongst the 755 multiple births, there were 22 perinatal deaths. Of these, 14 were stillborn and 8 were neonatal deaths (Table 47).

The stillbirth rate for multiple births (18.5/1000) was higher than the rate for singleton births (4.9/1000).

The neonatal mortality rate for multiple births (10.8/1000) was four times the rate for singleton births (2.6/1000) (Table 47).

TABLE 47:

PLURALITY OF STILLBIRTHS, NEONATAL AND PERINATAL DEATHS AMONGST BIRTHS IN WESTERN AUSTRALIA, 1996

Plurality	Stillbirths		Neonatal Deaths		Perinatal Deaths	
	No.	Rate ¹	No.	Rate ²	No.	Rate ¹
Singleton	122	4.9	65	2.6	187	7.6
Multiple	14	18.5	8	10.8	22	29.1
TOTAL	136	5.3	73	2.9	209	8.2

Excludes births less than 500 grams birthweight.

¹ Stillbirth/Perinatal mortality rates:

- singleton births/1000 singleton births
- multiple births/1000 multiple births

² Neonatal mortality rates:

- singleton births/1000 singleton livebirths
- multiple births/1000 multiple livebirths

When stillbirths were examined by time of death, 98 (72.1%) occurred antepartum, 29 (21.3%) were intrapartum deaths and timing of stillbirth was unknown in 9 (6.6%) of cases.

More than one third (38.4%) of the neonatal deaths occurred within the first day of life (Table 48).

The cause of death of stillborn babies are in many cases unknown (20.6%). Extremely low birthweight (less than 1000 grams birthweight) contributed in 27.2% of cases and 7.4% resulted from birth defects incompatible with life.

The principal causes of death of neonates are reported to be low birthweight 39.7% and lethal birth defects 38.4% (Table 49).

TABLE 48:

AGE AT DEATH FOR NEONATAL DEATHS IN WESTERN AUSTRALIA, 1996

Age at Neonatal Death	No.	% of Neonatal Deaths
< Day 1	28	38.4
Day 1	11	15.1
Day 2	3	4.1
Day 3	6	8.2
Day 4	7	9.6
Day 5	-	-
Day 6	2	2.7
Day 7	-	-
Day 8-14	6	8.2
Day 15-21	6	8.2
Day 22-28	4	5.5
TOTAL	73	100.0

Excludes births less than 500 grams birthweight.

TABLE 49:

CAUSES OF STILLBIRTHS AND NEONATAL MORTALITY IN WESTERN AUSTRALIA, 1996

Causes of Death	Stillbirths ¹		Neonatal Deaths ²	
	No.	%	No.	%
Lethal Birth Defects	10	7.4	28	38.4
Extremely low birthweight (<1000 grams)	37	27.2	23	31.5
Low birthweight (1000-2499 grams)	27	19.9	6	8.2
Asphyxia	-	-	3	4.1
Maternal- Obstetric	4	2.9	-	-
Maternal - Medical	2	1.5	-	-
Maternal - Hypertension	-	-	-	-
Placenta & Cord	25	18.4	-	-
Hydrops fetalis	-	-	-	-
Infection	-	-	6	8.2
S.I.D.S.	-	-	4	5.5
Other	3	2.2	1	1.4
Unknown	28	20.6	2	2.7
TOTAL	136	100.0	73	100.0

Excludes births less than 500 grams birthweight.

- 1 Any non-malformed stillbirth of birthweight less than 1000 grams was included in the extremely low birthweight category.
- 2 Any non-malformed neonatal death of birthweight less than 2500 grams was included in the low birthweight category.

It is known that autopsies were requested for 51.5% of stillbirths and 49.3% of neonatal deaths. In the case of 29 (13.9%) perinatal deaths it is unknown whether an autopsy was requested (Table 50).

TABLE 50:

AUTOPSY REQUESTS FOR STILLBIRTHS AND NEONATAL DEATHS IN WESTERN AUSTRALIA, 1996

	Stillbirths		Neonatal Deaths		Perinatal Deaths	
	No.	%	No.	%	No.	%
Yes	70	51.5	36	49.3	106	50.7
No	54	39.7	20	27.4	74	35.4
Unknown	12	8.8	17	23.3	29	13.9
TOTAL	136	100.0	73	100.0	209	100.0

Excludes births less than 500 grams birthweight.

7. BIRTH TRENDS 1987 - 1996

The collection of perinatal data in Western Australia over the past decade has enabled production of trend data which is of considerable value for health planners and researchers.

7.1 Maternal Age

The majority of women bearing children are aged 20-34 years. Over the past 10 years, this percentage showed a steady decline from 86.2% in 1987 to 80.6% in 1996 (Table 51).

A corresponding increase is evident among women aged 35 years or more with the percentage rising from 7.5% in 1987 to 13.4% in 1996 (Table 51).

7.2 Primiparous Women

Women having their first baby represented 40.0% of all women confined in 1996. This percentage has increased slightly over the past 10 years with the lowest percentage (38.6%) recorded in 1988 and the highest percentage (40.5%) in 1995 (Table 51).

7.3 Conjugal State of Women

The majority of women are reported to be in a married or defacto relationship at time of confinement. This percentage has remained relatively stable ranging between 87.7% in 1987 and 89.7% in 1992. The percentage of women recorded as single fell slightly from 10.6% in 1987 to 10.1% in 1996. A few women each year identify as widowed/divorced or separated. The percentage for this group has reduced from 1.7% in 1987 to 0.9% over the past ten years (Table 51).

7.4 Age Specific Birth Rates

The birth rate for women aged between 15-44 years has reduced from 66.8/1000 in 1987 to 62.0/1000 in 1996.

Evaluation of different age groups show that among women aged between 20-34 years, the group with highest birth rate, the rate decreased from 110.0/1000 in 1987 to 99.7/1000 in 1996. Another group showing a less significant reduction in birth rate were those women aged 15-19 years, where the rate increased from 23.4/1000 in 1987 to 26.1/1000 in 1994 before falling to 23.7/1000 in 1996.

Examination of differences in race for fertility rates show that over a ten year period, the fertility rate among non-Aboriginal women declined from 64.9/1000 in 1987 to 60.5/1000 in 1996. The rate for women identified as Aboriginal, although much higher, also reduced over the same ten year period from 136.6/1000 in 1987 to 103.5/1000 in 1996 (Table 51).

7.5 Type of Delivery

The percentage of spontaneous vaginal deliveries changed very little over the past ten years from 63.3% in 1987 to 63.9% in 1996. A more pronounced change is the reduction in assisted vaginal deliveries from 19.8% in 1987 to 15.6% in 1996, and the corresponding rise in the percentage of caesarean sections from 8.7% elective and 8.2% emergency in 1987 to 11.4% elective and 9.1% emergency in 1996 (Table 51).

7.6 Place of Confinement

The majority of confinements take place at hospitals within the metropolitan area. Over the past decade, the percentage of these births rose gradually from 73.5% in 1987 to 74.8% in 1996.

Non-hospital births, either planned or unplanned, remain few in number with the percentage of 0.9% in 1986 rising gradually to 1.0% in 1988 and declining again to 0.8% in 1996 (Table 51).

7.7 Planned Homebirths

The percentage showed little change, ranging between 0.4% and 0.7% per year over the past decade (Table 51).

7.8 Crude Birth Rate

The crude birth rate for Western Australia shows a consistent downward trend from 15.4/1000 in 1987 to 14.4/1000 in 1996. This decline reflects a similar reduction in the National Crude Birth Rate (Table 51, Figure IX).

7.9 Plurality of Births

Multiple birth percentages rose over the ten year period from 2.5% in 1987 to 3.0% in 1996. In 1989 an increased number of high order multiple births, due to the influence of reproductive technology practice at that time, provided a relatively higher multiple birth rate (2.9%). Increased plurality of births also impacted on percentages of low birthweight babies and perinatal mortality rates (Table 51).

7.10 Low Birthweight

The percentage of low birthweight babies showed little change between 1987 and 1995, being about 6.2%. However, in 1989 and 1996 the percentages of 6.6% and 6.5% respectively were influenced by the high percentage of multiple birth babies.

The differences between racial groups was influential on the low birthweight percentages. Among babies of women identified as non-Aboriginal the percentage of low birthweight remained stable with 5.9% in 1987 and 6.1% in 1996 and was in accord with the overall trend. The percentage of low birthweight babies of Aboriginal mothers remains approximately twice that of babies born to non-Aboriginal women.

The low birthweight percentage among babies of Aboriginal mothers showed less consistency and remained far greater (10.5% in 1987 to peak at 14.4% in 1991 before reducing to 13.2% in 1996) than for other groups (Table 51, Figure VII).

TABLE 51:

BIRTH TRENDS IN WESTERN AUSTRALIA - 1987 TO 1996

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
WOMEN CONFINED										
Maternal Age (%)										
12-17 years	2.0	2.2	2.2	2.0	2.1	2.1	2.0	2.1	2.0	2.0
12-19 years	6.2	6.6	6.3	6.5	6.6	6.3	6.0	6.3	6.1	6.0
20-34 years	86.2	85.0	85.0	84.1	83.5	83.1	82.8	81.9	81.3	80.6
35+ years	7.5	8.4	8.7	9.4	9.9	10.6	11.2	11.8	12.6	13.4
Primiparous Women (%)	38.9	38.6	39.5	39.0	39.7	38.7	38.7	40.0	40.5	40.0
Conjugal State of Women (%)										
Single	10.6	10.5	10.0	10.0	10.0	9.5	10.0	10.5	9.8	10.1
Married/Defacto	87.7	88.3	89.1	88.9	89.2	89.7	89.2	88.5	89.3	88.0
Other	1.7	1.2	0.9	1.1	0.8	0.8	0.8	1.0	0.9	0.9
Age Specific Birth Rate/1000 Women - Years										
Women Aged: 15-19 years	23.4	24.9	24.1	25.3	25.5	25.3	24.1	26.1	24.9	23.7
20-34 years	110.0	110.1	108.2	106.8	100.3	104.1	103.8	101.8	101.4	99.7
35-44 years	16.8	18.4	18.5	19.5	18.9	20.3	21.5	21.8	23.7	24.1
Aboriginal Women	136.6	149.7	138.4	144.3	132.7	128.8	125.7	122.2	120.9	103.5
Non-Aboriginal Women	64.9	65.0	64.0	63.4	60.0	62.2	62.1	61.4	61.6	60.5
Total	66.8	67.2	66.0	65.6	62.0	64.0	63.9	63.2	63.3	62.0
Type of Delivery (%)										
Spontaneous Vaginal	63.3	65.1	64.1	64.0	64.7	64.2	63.5	63.5	64.5	63.9
Assisted Vaginal	19.8	17.9	17.8	17.2	16.9	16.5	15.5	15.6	15.2	15.6
Caesarean Elective	8.7	8.9	9.4	9.7	9.6	10.3	11.1	10.9	11.0	11.4
Caesarean Emergency	8.2	8.1	8.7	9.1	8.9	9.0	9.9	10.0	9.3	9.1
Place of Confinement (%)										
Metropolitan Hospital	73.5	73.6	73.9	73.2	73.5	74.0	74.5	74.4	74.4	74.8
Country Hospital	25.6	25.4	25.1	25.8	25.6	25.3	24.8	24.8	24.8	24.4
Non Hospital	0.9	1.0	1.0	1.0	1.0	0.7	0.7	0.8	0.8	0.8
Planned Homebirths (%)	0.6	0.7	0.7	0.6	0.6	0.4	0.4	0.4	0.4	0.5

BIRTH TRENDS IN WESTERN AUSTRALIA - 1987 TO 1996(Continued)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
BIRTHS										
Livebirths (Number)	24005	24961	25344	25826	24801	25143	25143	25210	25241	25366
Crude Birth Rate/1000 Persons-Years	15.4	16.3	15.7	15.8	15.2	15.1	15.0	14.8	14.6	14.4
Plurality (%)										
Single births	97.5	97.3	97.1	97.6	97.4	97.3	97.3	97.3	97.3	97.0
Multiple births	2.5	2.7	2.9	2.4	2.6	2.7	2.7	2.7	2.7	3.0
Low Birthweight (%)										
Aboriginal	10.5	13.1	10.8	10.8	14.4	11.3	12.4	13.6	11.7	13.2
Non-Aboriginal	5.9	5.7	6.3	5.7	5.7	6.0	5.9	5.7	6.0	6.1
Total	6.2	6.1	6.6	6.0	6.2	6.3	6.2	6.2	6.3	6.5
Very Low Birthweight (%)										
Aboriginal	1.9	2.4	2.2	1.5	2.8	1.8	3.5	2.6	2.3	2.2
Non-Aboriginal	1.1	1.1	1.2	0.9	1.0	1.1	0.9	1.1	1.0	1.1
Total	1.1	1.2	1.3	0.9	1.1	1.1	1.1	1.2	1.1	1.2
MORTALITY										
Maternal/1000 livebirths	0.08	0.04	0.04	0.12	0.04	0.04	0.04	0.08	N/A	
Perinatal/1000 births										
Aboriginal	14.9	20.1	19.4	13.6	16.2	21.7	13.2	16.6	17.2	15.3
Non-Aboriginal	9.5	8.1	9.6	7.5	7.6	7.6	7.0	7.3	6.8	7.8
Total	9.8	8.8	10.2	7.9	8.1	8.4	7.3	7.9	7.4	8.2
Stillbirths/1000 births										
Aboriginal	9.7	8.3	11.7	7.7	11.5	11.9	8.3	13.1	8.9	9.1
Non-Aboriginal	5.3	4.4	5.0	4.3	5.0	4.1	4.7	4.7	4.8	5.1
Total	5.6	4.7	5.4	4.5	5.4	4.6	4.9	5.2	5.0	5.3
Neonatal/1000 livebirths										
Aboriginal	5.3	11.9	7.7	5.9	4.8	9.9	4.9	3.5	8.3	6.3
Non-Aboriginal	4.2	3.7	4.6	3.2	2.6	3.5	2.3	2.6	2.0	2.7
Total	4.3	4.2	4.8	3.4	2.7	3.8	2.5	2.7	2.3	2.9

Excludes births less than 500 grams birthweight.

SOURCES:

MIDWIVES' NOTIFICATION SYSTEM

Population Denominators: AUSTRALIAN BUREAU OF STATISTICS Catalogue No.3101.0

Maternal Mortality Rates: Annual Report of the Maternal Mortality Committee

7.11 Maternal Mortality

The maternal mortality rate in Western Australia is extremely low, with only 13 maternal deaths recorded during the past decade, giving an average rate of 0.06 per 1000 livebirths (Table 51).

7.12 Perinatal Mortality

There has been a most favourable reduction in the rates of perinatal deaths over the past decade. These reduced from 9.8/1000 in 1987 to 8.2/1000 in 1996. Neonatal mortality rates also declined from 4.3/1000 in 1987 to 2.9/1000 in 1996 (Table 51, Figure X).

FIGURE VI
CAESAREAN SECTIONS
WESTERN AUSTRALIA, 1980-1996

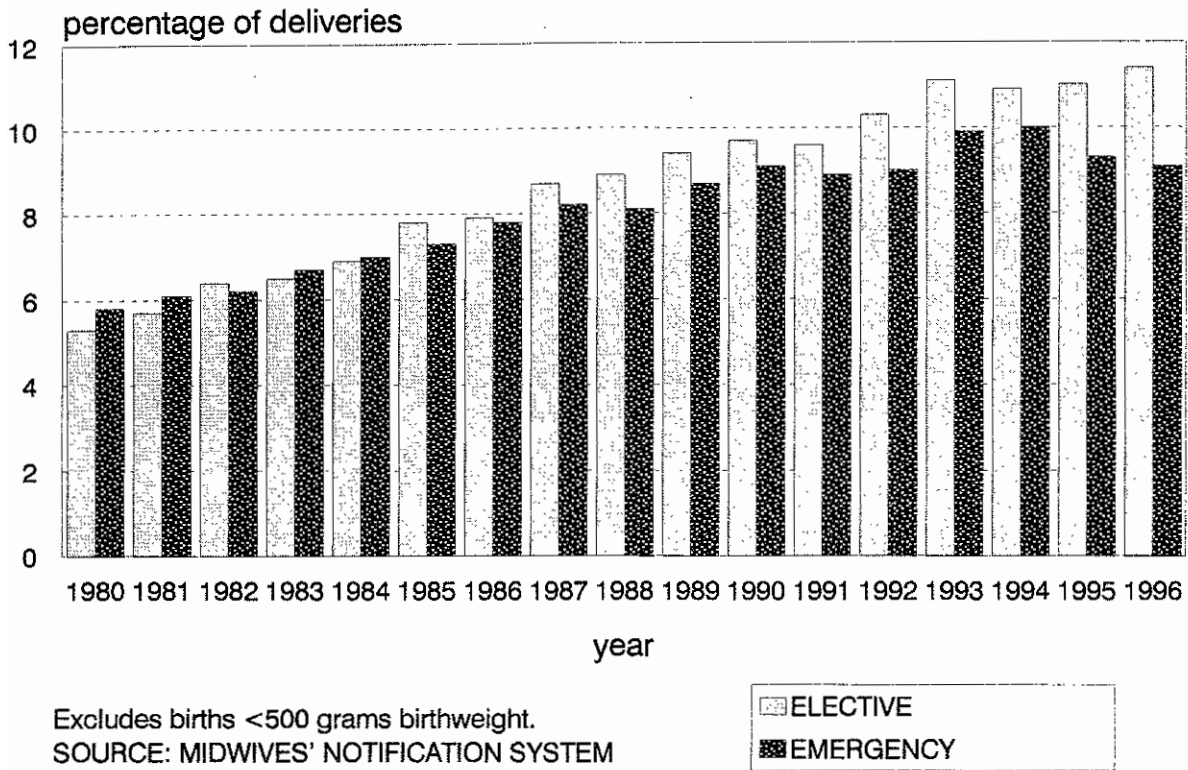


FIGURE VII
LOW BIRTHWEIGHT AND MATERNAL RACE
WESTERN AUSTRALIA, 1980-1996

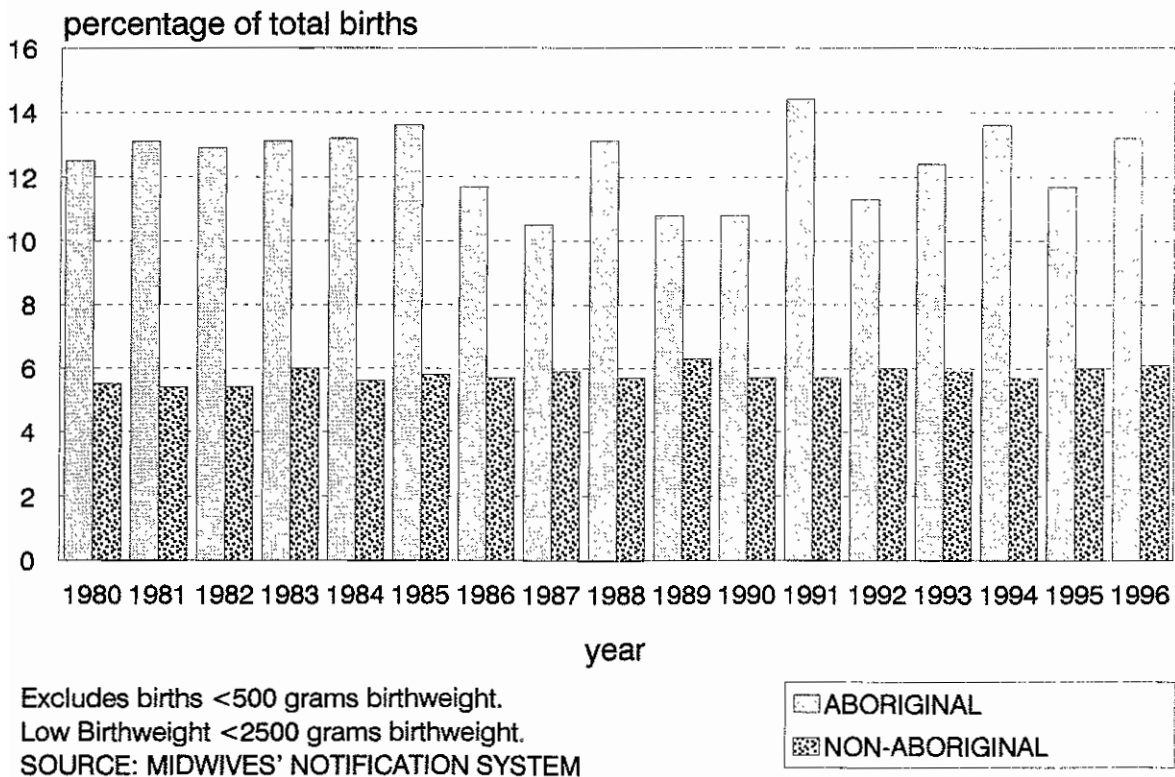
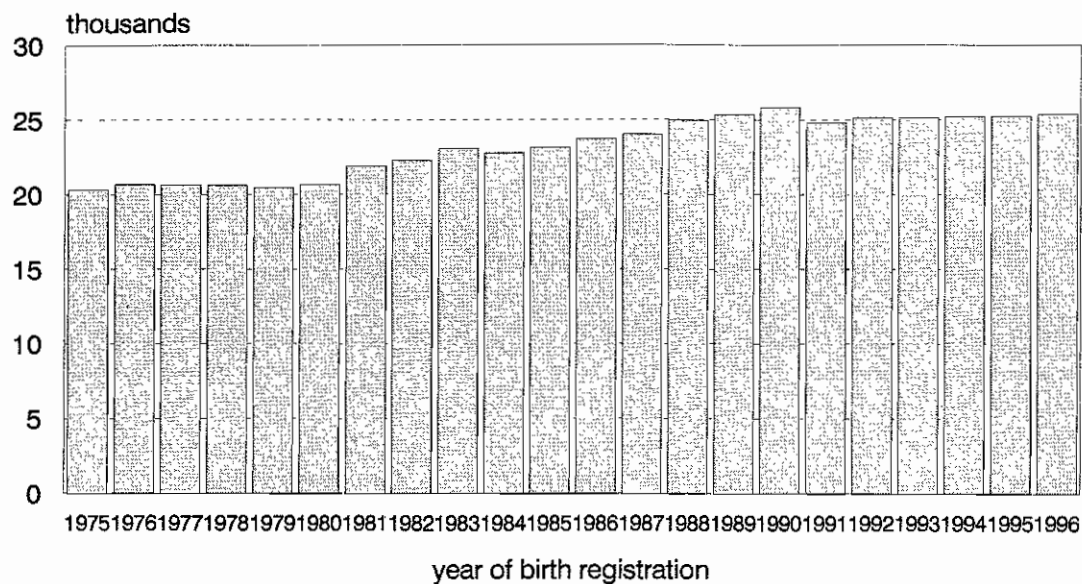
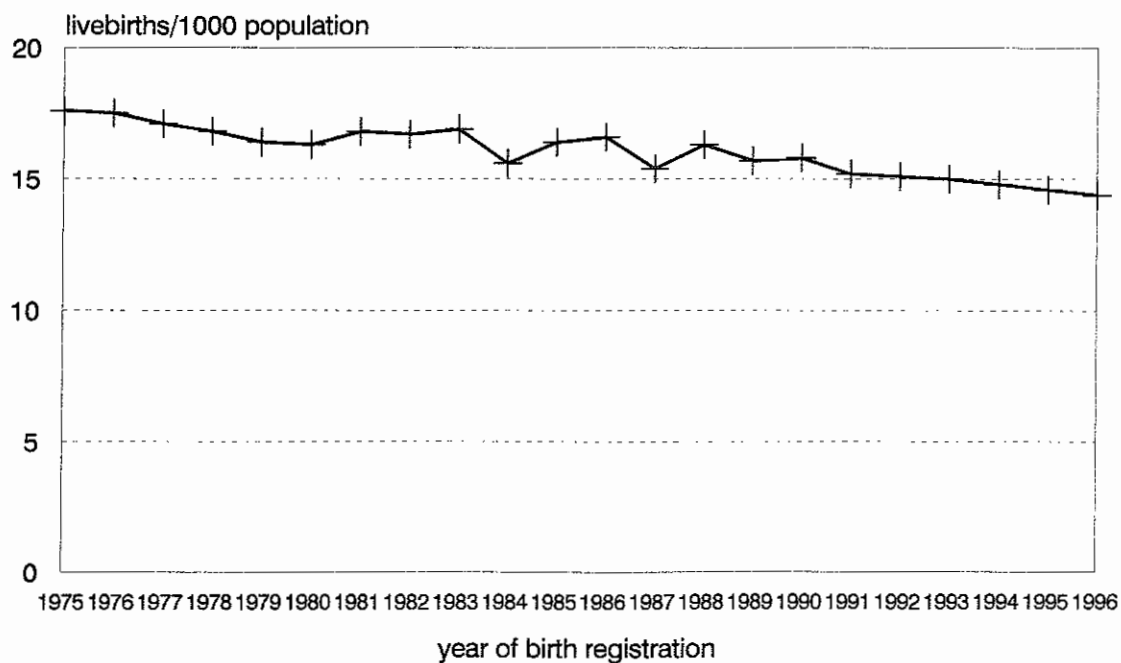


FIGURE VIII
LIVEBIRTHS IN WESTERN AUSTRALIA
1975-1996



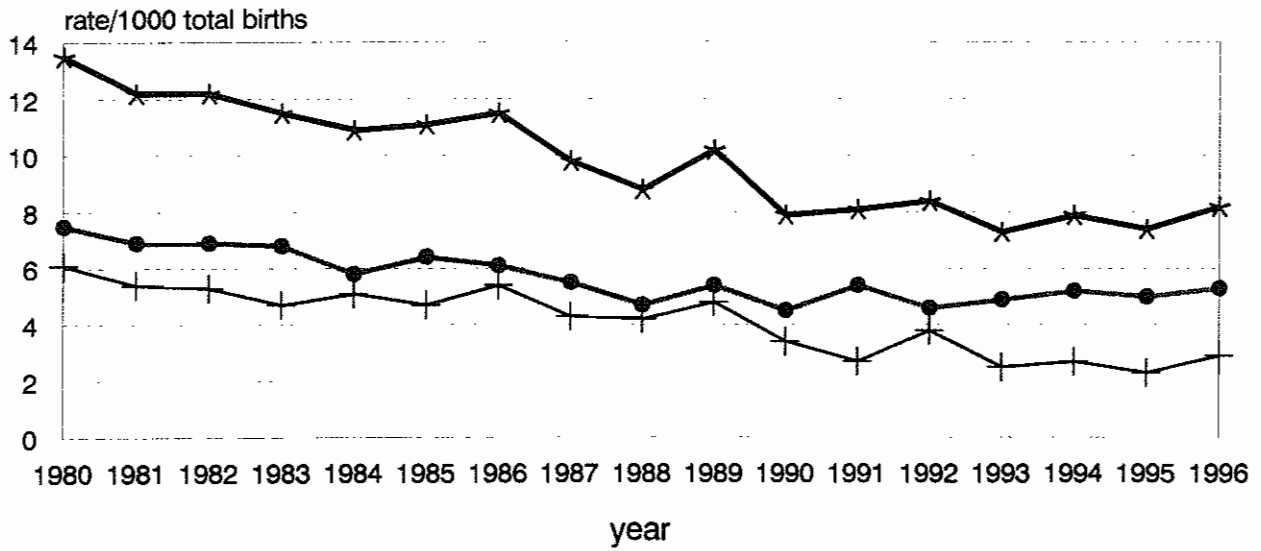
Numbers based on State of residence
 SOURCE: 1975-1983 Australian Bureau of Statistics
 1984-1996 Midwives' Notification System.

FIGURE IX
CRUDE BIRTH RATE IN WESTERN AUSTRALIA
1975-1996



crude birth rate: livebirths per 1000 total population
 SOURCE: 1975-1983 Australian Bureau of Statistics
 1984-1996 Midwives' Notification System.

FIGURE X
PERINATAL MORTALITY RATES
WESTERN AUSTRALIA 1980-1996



Excludes births less than 500 grams birthweight.
 Stillbirths and Perinatal Deaths/1000 Total Births.
 Neonatal Deaths/1000 Livebirths.
 Perinatal Deaths/1000 Births.

Note: 1980-1983 data based on year of death.
 1984-1996 data based on year of birth.

SOURCE: Midwives' Notification System, Registrar General's Office.

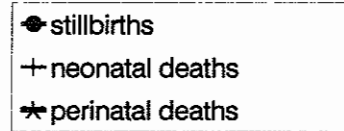
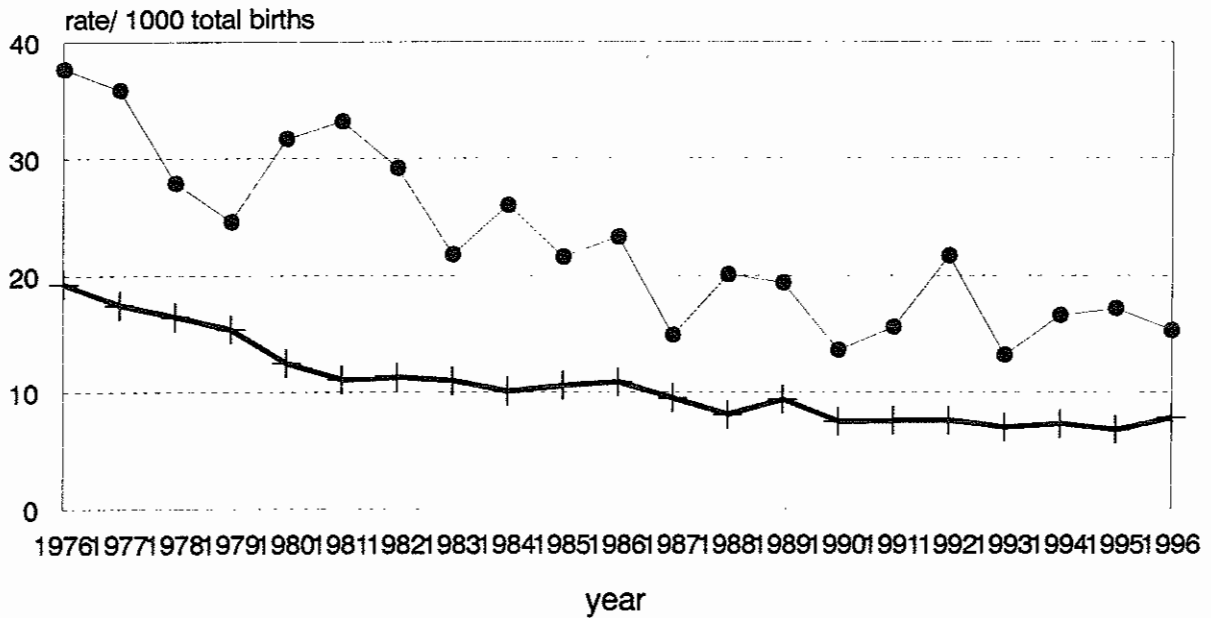


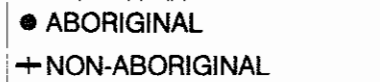
FIGURE XI
PERINATAL MORTALITY BY MATERNAL RACE
IN WESTERN AUSTRALIA 1976-1996



Excludes births less than 500 grams birthweight.
 Perinatal Deaths/1000 Total Births.

Note: 1980-1983 data based on year of death.
 1984-1996 data based on year of birth.

SOURCE: Midwives' Notification System, Registrar General's Office



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APPENDIX 'A'

DEFINITIONS

<u>Apgar Score</u>	A numerical scoring system applied after birth to evaluate the condition of the baby. It is based on the heart rate, respiration, muscle tone, reflexes and colour. Low scores indicate poor condition.
<u>Birth Defects</u>	Any defect present at birth, probably of developmental origin.
<u>Birthweight</u>	The first weight, measured to the nearest five grams, of the newborn which is usually obtained within the first hour of birth.
<u>Low Birthweight</u>	A birthweight of less than 2500 grams.
<u>Very Low Birthweight</u>	A birthweight of less than 1500 grams.
<u>Caesarean Section</u>	<p>A delivery of the fetus through an incision in the abdominal wall.</p> <p><u>Elective Caesarean Section</u> - Is a planned procedure prior to onset of labour and before spontaneous rupture of membranes or without any induction procedure.</p> <p><u>Emergency Caesarean Section</u> - Is an unplanned procedure, performed because of a complication. May be performed before the onset of labour or during labour.</p>
<u>Crude Birth Rate</u>	The number of livebirths per 1000 person-years of total population.
<u>Fertility Rate</u>	The total births (livebirths and stillbirths) per 1000 women-years to women aged between 15-44 years.
<u>Length of Stay</u>	The total number of patient days in hospital at time of discharge. A stay of less than 1 day (patient admission/birth and discharge on the same day) is counted as one day, in the total days of care. For patients admitted and discharged on different days, the number of days is computed by subtracting the date of admission from the day of separation. For planned homebirths it is routinely coded as 10 days from date of birth.

<u>Livebirth</u>	The complete expulsion or extraction from its mother of a product of conception, irrespective of duration of pregnancy, which after separation shows signs of life.
<u>Mortality Rates</u>	<p><u>Maternal Mortality</u> - the number of maternal deaths per 1000 livebirths in a year.</p> <p><u>Stillbirth</u> - the number of stillbirths per 1000 total births in a year.</p> <p><u>Neonatal Mortality</u> - the number of neonatal deaths per 1000 livebirths in a year.</p> <p><u>Perinatal Mortality</u> - the number of stillbirths and neonatal deaths per 1000 total births in a year.</p>
<u>Neonatal Death</u>	The death of a liveborn infant within 28 days of birth.
<u>Parity</u>	The total number of livebirths and stillbirths of the mother prior to the parturition under consideration.
	<u>Nulliparous</u> - never having completed a pregnancy beyond 20 weeks gestation.
<u>Perinatal Death</u>	A stillbirth or neonatal death.
<u>Plurality</u>	The number of fetuses or babies resulting from the pregnancy. On this basis pregnancy may be classified as singleton or multiple.
<u>Race</u>	Refers to mother's racial group
	<u>Caucasian</u> - includes all persons of caucasoid (European) heritage.
	<u>Aboriginal</u> - includes persons of Australian Aboriginal heritage (Australoid) or of mixed Aboriginal caucasian heritage or of mixed Aboriginal and other heritage.
	<u>Other</u> - includes Asian, Indian, Polynesian, etc.
<u>Stillbirth</u>	The complete expulsion or extraction from its mother of a product of conception of at least 20 weeks gestation or 400 grams birthweight, which after separation did not show any sign of life.

APPENDIX 'B'

MR 15

Health Act (Midwifery Nurses) Regulations Form 2 NOTIFICATION OF CASE ATTENDED

PARTICULARS RELATING TO MOTHER

Hospital

PRINT
IN
BLOCK
LETTERS

SURNAME	UNIT RECORD No.
FORENAMES	BIRTH DATE
ADDRESS OF USUAL RESIDENCE	POSTCODE
MAIDEN NAME	TELEPHONE NUMBER

Current Conjugal State:

1. *single*

2. *married (incl. de facto)*
or other
(please specify)

Race:

1. *Caucasian*

2. *Aboriginal (full or part)*

3. *Other*
(please specify)

Height (cms)

PREGNANCY

PREVIOUS PREGNANCIES (excluding this pregnancy)

Total Number of:

Previous Pregnancies

Previous children
now living

born alive, now dead

stillborn

THIS PREGNANCY

Date of LMP

This date: 1. certain 2. not certain

Expected due date

Complications of Pregnancy:

threatened abortion (under 20 weeks) A

urinary tract infection B

pregnancy induced hypertension C

APH -placenta praevia D

-abruptio E

-other F

prem. rupture of membranes G

other H

.....

.....

Medical Conditions:

.....

.....

Procedures/Treatments:

fertility drug treatment
(incl drugs used for IVF/GIFT etc) A

cervical suture B

CVS/placental biopsy C

amniocentesis D

ultrasound E

CTG - antepartum/intrapartum F

LABOUR AND DELIVERY

Onset of Labour:

A. spontaneous B. induced

D. no labour

Augmentation of Labour:

1. no 2. yes

Presentation:

1. vertex 2. breech

3. other
(please specify)

Type of Delivery:

normal A

vacuum -successful B

-failed C

forceps -successful D

-failed E

breech manoeuvre F

*caesarean -elective G

-emergency H

Anaesthesia/Analgesia:

none Z

general A

epidural/spinal B

other C
(please specify)

Hours of established labour:

Complications of Labour, Delivery:
*Include reason for caesarean

precipitate delivery A

fetal distress B

prolapsed cord C

cord tight around neck D

cephalopelvic disproportion E

PPH (≥500mls) F

other G

.....

.....

Repair Perineum and/or Vagina:

1. none 2. episiotomy

3. 1° or 2° tear 4. 3° or 4° tear

5. other
(please specify)

BABY

Separate Form for each Baby

Adoption Yes () No ()

Birth Date:

Time (24 hour clock)

Plurality:

1. single birth 2. first twin

3. second twin 4. multiple birth
(specify baby number ____ of ____)

Sex:

1. male 2. female

Condition:

1. liveborn 2. stillborn

Birthweight (grams)

Length (cms)

Head circumference (cms)

Time to establish unassisted regular breathing (mins)

Resuscitation:

0. none 3. intubation

5. bag & mask 8. oxygen only

other
(please specify)

Apgar Score 1 min

5 min

Estimated Gestation (weeks)

Vitamin K - first dose given

1. oral 2. IM/IV/IAI 3. nil

Birth Defects

.....

Birth Trauma (eg. cephalhaematoma)

.....

BABY'S SEPARATION DETAILS

Date of Discharge
Transfer or Death

Type of Separation:

1. discharged home 2. died

3. transferred to

Special Care (wholedays only)

COMPLETE SECTION ON SEPARATION
Attach to Mother and Baby's Inpatient Summaries (HA22).
Forward to Epidemiology and Health Statistics Section,
Health Dept of Western Australia P.O. Box 8172,
Stirling Street, PERTH 6849 after discharge of mother
and/or baby whichever is later, Guidelines for completion
of this form available from above address.

MIDWIFE

Name

Signature.....

Reg. No. Date

HEALTH DEPARTMENT COPY