



# **Perinatal Statistics in Western Australia, 1999**

## **Seventeenth Annual Report of the Western Australian Midwives' Notification System**

June 2001



Department of Health

Statistical Series/62  
ISSN 0816-2999

## **Perinatal Statistics in Western Australia, 1999**

Seventeenth Annual Report of the  
Western Australian Midwives' Notification System

June 2001

Maternal and Child Health Studies Unit  
Health Statistics  
Health Information Centre

Health Department of Western Australia

## **ACKNOWLEDGMENTS**

The authors wish to thank the midwives of Western Australia for continuing to provide the high quality of information on the 'Notification of Case Attended' forms for all births which occurred during 1999.

Sincere thanks are also extended to:

- Maternal and Child Health Studies Unit clerical staff who processed and coded the information;
- Dr Carol Bower of the Birth Defects Register for providing the information on birth defects;
- The Registrar General's Office for providing additional information on births and perinatal deaths in Western Australia;
- The Western Australian Branch of the Australian Bureau of Statistics for providing population figures.

## **FURTHER INFORMATION**

Enquiries or comments on this publication and/or requests for additional information should be addressed to –

Coordinator, Maternal & Child Health  
Health Statistics Branch  
Health Information Centre  
Health Department of Western Australia  
189 Royal Street  
EAST PERTH WA 6004

Telephone: (08) 9222 4262  
Facsimile: (08) 9222 4236  
Email: [vivien.gee@health.wa.gov.au](mailto:vivien.gee@health.wa.gov.au)

## **CITATION**

The citation below should be used in reference to this publication.

Gee V and O'Neill MT. (2001). Perinatal Statistics in Western Australia, 1999. Seventeenth Annual Report of the Western Australian Midwives' Notification System. Health Department of Western Australia. Perth, Western Australia.

# TABLE OF CONTENTS

	PAGE
1. SUMMARY.....	1
2. INTRODUCTION.....	3
3. MATERNAL DEMOGRAPHIC INFORMATION - 1999	
3.1 Age.....	6
3.2 Aboriginality.....	7
3.3 Country of Birth.....	7
3.4 Conjugal State.....	8
3.5 Health Zone.....	8
3.6 Place of Confinement.....	10
4. PREGNANCY PROFILE - 1999	
4.1 Previous Pregnancies.....	12
4.2 Age-Specific Birth Rates.....	13
4.3 Complications of Pregnancy.....	15
4.4 Medical Conditions.....	15
4.5 Procedures and Treatments.....	15
5. LABOUR AND DELIVERY - 1999	
5.1 Onset of Labour.....	16
5.2 Augmentation of Labour.....	16
5.3 Induction of Labour.....	17
5.4 Analgesia.....	17
5.5 Anaesthesia.....	18
5.6 Presentation.....	19
5.7 Type of Delivery.....	20
5.8 Hours of Established Labour.....	22
5.9 Complications of Labour and Delivery.....	23
5.10 Accoucheur.....	23
5.11 Repair of Perineum and/or Vagina.....	23
6. BABY CHARACTERISTICS - 1999	
6.1 Births.....	24
6.2 Livebirths.....	24
6.3 Crude Birth Rate.....	24
6.4 Gender.....	24
6.5 Condition at Birth.....	25
6.6 Plurality of Birth.....	25
6.7 Apgar Score One Minute and Five Minutes.....	26
6.8 Time to Spontaneous Respiration.....	26
6.9 Resuscitation.....	26
6.10 Birthweight.....	26
6.11 Gestational age.....	27
6.12 Birth Defects.....	27

6.13	Special Care .....	27
6.14	Neonatal Transfers .....	28
6.15	Length of Stay .....	28
6.16	Perinatal Mortality .....	28
TABLES .....		31
REFERENCES .....		67
APPENDICES		
A.	DEFINITIONS .....	68
B.	NOTIFICATION OF CASE ATTENDED FORM 2.....	70

## TREE DIAGRAMS

1.	Pregnancies and births in Western Australia, 1999 .....	4
2.	Plurality of births and perinatal deaths in Western Australia, 1999 .....	5

## FIGURES

	PAGE	
<u>Maternal Demographic Information</u>		
1.	Age of women confined in Western Australia, 1999 .....	6
2.	Trends in maternal age in Western Australia, 1985-1999 .....	6
3.	Age distribution by Aboriginality of women confined in Western Australia, 1999....	7
4.	Country of birth of women confined in Western Australia, 1999 .....	7
5.	Health zone of residence of women confined in Western Australia, 1999.....	8
6.	Place of confinement for women resident in metropolitan health zones in Western Australia, 1999 .....	9
7.	Place of confinement for women resident in country health zones in Western Australia, 1999 .....	10
8.	Place of confinement for singleton births in Western Australia, 1999.....	11
9.	Place of confinement for multiple births in Western Australia, 1999.....	11

## **TABLES**

PAGE

### **Maternal Demographic Information**

1.	Age and Aboriginality of women confined in Western Australia, 1999 .....	31
2.	Age of women confined in Western Australia, 1985-1999 .....	31
3.	Country of birth and age of women confined in Western Australia, 1999 .....	32
4.	Conjugal state and plurality of women confined in Western Australia, 1999 .....	32
5.	Health zone of residence and Aboriginality of women confined in Western Australia, 1999 .....	33
6.	Place of confinement for women resident in metropolitan health zones in Western Australia, 1999 .....	33
7.	Place of confinement for women resident in country health zones in Western Australia, 1999 .....	34
8.	Place of confinement and intended place of confinement for women confined in Western Australia, 1999 .....	34
9.	Place of confinement and plurality of women confined, Western Australia, 1999 ...	35
10.	Place of confinement of women confined in Western Australia, 1985-1999 .....	35

### **Pregnancy Profile**

11.	Parity and Aboriginality of women confined in Western Australia, 1999 .....	36
12.	Parity and age of women confined in Western Australia, 1999 .....	36
13.	Parity of women confined in Western Australia, 1985-1999 .....	36
14.	Socioeconomic status and age of women confined in Western Australia, 1999 .....	37
15.	Age-specific birth rates and Aboriginality for women confined in Western Australia, 1999 .....	37
16.	Age-specific birth rates by age and Aboriginality status of mother in Western Australia, 1985-1999 .....	38
17.	Selected complications of pregnancy and plurality of women confined in Western Australia, 1999 .....	38
18.	Pre-existing medical conditions for women confined in Western Australia, 1999 .....	39

## Pregnancy Profile

10. Parity and Aboriginality of women confined in Western Australia, 1999..... 12
11. Average parity for women confined in Western Australia, 1985-1999 ..... 13
12. Age-specific birth rates by 5-year age groups and Aboriginality  
in Western Australia, 1999 ..... 14
13. Age-specific birth rates by Aboriginality  
in Western Australia, 1985-1999 ..... 14

## Labour and Delivery

14. Onset of labour for singleton births in Western Australia, 1985-1999 ..... 16
15. Onset and augmentation of labour by type of delivery  
in Western Australia, 1999 ..... 17
16. Type of delivery by anaesthesia for women confined  
in Western Australia, 1999 ..... 18
17. Type of anaesthesia/analgesia for women delivered by caesarean section  
in Western Australia, 1986-1999 ..... 19
18. Presentation by type of delivery for singleton births  
in Western Australia, 1999 ..... 19
19. Plurality by type of delivery in Western Australia, 1999 ..... 20
20. Type of delivery in Western Australia, 1985-1999..... 22
21. Hours of established labour for spontaneous and induced onset  
in Western Australia, 1999 ..... 22

## Baby Characteristics

22. Livebirths and crude birth rates in Western Australia, 1985-1999 ..... 24
23. Multiple births in Western Australia, 1985-1999 ..... 25
24. Low birthweight and very low birthweight by Aboriginality  
in Western Australia, 1985-1999 ..... 27
25. Stillbirth rate, neonatal and perinatal mortality rates  
in Western Australia, 1985-1999 ..... 29
26. Perinatal mortality by Aboriginality in Western Australia, 1985-1999..... 29

## **Labour and Delivery**

19.	Onset of labour and plurality of women confined in Western Australia, 1999.....	39
20.	Onset and augmentation of labour and type of delivery for women confined in Western Australia, 1999 .....	40
21.	Augmentation of labour and hours of established for women with spontaneous onset confined in Western Australia, 1999 .....	40
22.	Type of induction and delivery for women who were induced in Western Australia, 1999 .....	41
23.	Onset of labour for singleton births of women confined in Western Australia, 1999 .....	41
24.	Analgesia and type of delivery for women confined in Western Australia, 1999.....	42
25.	Anaesthesia and type of delivery for women confined in Western Australia, 1999...	42
26.	Epidural and general anaesthesia/analgesia for women confined by caesarean section in Western Australia, 1985-1999 .....	43
27.	Presentation and type of delivery for singleton births in Western Australia, 1999 .....	43
28.	Type of delivery and plurality of women confined in Western Australia, 1999 .....	44
29.	Type of delivery and parity of women confined in Western Australia, 1999.....	44
30.	Type of delivery and type of previous delivery of women confined in Western Australia, 1999 .....	44
31.	Place of confinement and type of delivery for women confined in Western Australia, 1999 .....	45
32.	Type of delivery for women confined in Western Australia, 1985-1999 .....	45
33.	Frequency of complications of labour and delivery for women confined by caesarean section in Western Australia, 1999.....	46
34.	Complications of labour and delivery for women confined by caesarean section in Western Australia, 1999.....	46
35.	Hours of established labour and onset of labour for women confined in Western Australia, 1999 .....	47



36.	Type of delivery and hours of established labour for women confined in Western Australia, 1999 .....	47
37.	Selected complications of labour and delivery and plurality for women confined in Western Australia, 1999 .....	48
38.	Type of delivery and accoucheur of women confined in Western Australia, 1999 ...	48
39.	Type of delivery and repair of perineum and/or vaginal for women confined in Western Australia, 1999 .....	49

### **Baby Characteristics**

40.	Condition at birth and crude birth rate in Western Australia, 1985-1999.....	49
41.	Condition at birth and gender of births in Western Australia, 1999 .....	50
42.	Condition at birth and Aboriginality of mother for births in Western Australia, 1999 .....	50
43.	Condition at birth and place of birth for births in Western Australia, 1999 .....	50
44.	Plurality of all births in Western Australia, 1985-1999 .....	51
45.	Apgar score at one minute and time to spontaneous respiration of livebirths in Western Australia, 1999 .....	51
46.	Apgar score at five minutes and time to spontaneous respiration of livebirths in Western Australia, 1999 .....	52
47.	Apgar score at five minutes and resuscitation methods of livebirths in Western Australia, 1999 .....	52
48.	Birthweight and resuscitation methods of livebirths in Western Australia, 1999 .....	53
49.	Birthweight distribution and Aboriginality of mother for births in Western Australia, 1999 .....	53
50.	Low birthweight and very low birthweight by Aboriginality of mother for births in Western Australia, 1985-1999 .....	54
51.	Birthweight distribution and condition at birth for total births in Western Australia, 1999 .....	54
52.	Birthweight distribution and condition at birth for singleton births in Western Australia, 1999 .....	55

53.	Birthweight distribution and condition at birth for multiple births in Western Australia, 1999 .....	55
54.	Birthweight distribution and gestation for total births in Western Australia, 1999 .....	56
55.	Birthweight distribution and gestation for singleton births in Western Australia, 1999 .....	56
56.	Birthweight distribution and gestation for multiple births in Western Australia, 1999 .....	57
57.	Births identified with birth defects in Western Australia, 1995-1999.....	57
58.	Length of stay in special care for livebirths and plurality in Western Australia, 1999 .....	58
59.	Length of stay in hospital of birth and birthweight distribution of livebirths in Western Australia, 1999 .....	59
60.	Length of stay in hospital of birth and birthweight distribution of surviving livebirths in Western Australia, 1999.....	60
61.	Length of stay in hospital of birth and gestational age of livebirths in Western Australia, 1999 .....	61
62.	Length of stay in hospital of birth and gestational age of surviving livebirths in Western Australia, 1999.....	61
63.	Perinatal mortality in Western Australia using birthweight criteria, 1999.....	62
64.	Perinatal mortality in Western Australia using gestational age criteria, 1999 .....	62
65.	Stillbirth, neonatal and perinatal mortality rates by maternal ethnic origin in Western Australia, 1999 .....	62
66.	Stillbirth rate by Aboriginality of mother in Western Australia, 1985-1999.....	63
67.	Neonatal mortality by Aboriginality of mother in Western Australia, 1985-1999.....	63
68.	Perinatal mortality by Aboriginality of mother in Western Australia, 1985-1999.....	64
69.	Birthweight distribution of stillbirths, neonatal and perinatal deaths in Western Australia, 1999 .....	64
70.	Plurality of stillbirths, neonatal and perinatal deaths in Western Australia, 1999 .....	65
71.	Age at death for neonatal deaths in Western Australia, 1999 .....	65

72.	Causes of stillbirths and neonatal deaths in Western Australia, 1999 .....	66
73.	Autopsy requests for stillbirths, neonatal and perinatal deaths in Western Australia, 1999 .....	66

## 1. SUMMARY

The Midwives' Notification System compiles information on all births in Western Australia. Information on women resident in this State confined outside Western Australia during 1999 is not included in this report. This report presents an overview of data on births in 1999 in terms of maternal demography, procedures and infant outcomes. It also describes trends over the fifteen year period from 1985 to 1999.

### Maternal demographic information

- In 1999, 25,378 women gave birth in Western Australia.
- Teenage mothers represented 5.9% (n=1,509) and mothers aged 35 years or more 15.3% (n=3,890) of women confined. While the proportion of teenage mothers has remained stable the group of older mothers has increased significantly over the previous 15 years.
- Aboriginal mothers represented 6.3% (n=1,599) of women confined and have birth rates on average twice as high as non-Aboriginal women.
- The country of birth was recorded as Australia for 73.0% of women confined.
- The majority of women gave birth in hospital. In 1999, 99.2% of mothers delivered in hospital and 126 (0.5%) women were confined at home as planned.
- The metropolitan area was reported to be the usual place of residence for 72.2% of women although 76.6% of confinements occurred in metropolitan hospitals. This indicates the movement of women from the country to deliver in the metropolitan area. Women from country regions close to the metropolitan area were more likely to travel to Perth metropolitan area for delivery than women in distant country regions.

### Pregnancy profile

- Singleton pregnancies represented 98.5% of the total 25,378 women who gave birth in 1999. The 375 (1.5%) women with a multiple pregnancy gave birth to 759 twin or triplet babies. One pregnancy in every 68 was a multiple pregnancy. There was one quadruplet and one quintuplet pregnancy recorded in 1999. There has been no significant difference in these proportions over the previous fifteen year period.
- First time mothers represented 40.4% of women confined and trend data indicates that there has been no significant increase in this proportion over the previous fifteen year period.  
Among women aged 35 years or more 859 (22.1%) gave birth for the first time.
- The Age Specific Birth Rate of women aged 15-19 years decreased over the past fifteen years from 24.6 births per 1000 women in 1985 to 22.8 births per 1000 women in 1999. The birth rate for women aged 35-44 years increased from 16.1 births per 1000 women in 1985 to 27.0 births per 1000 women in 1999.
- Complications of pregnancy were recorded for 35.2% of women. The more common complications were threatened abortion in early pregnancy (5.5%), urinary tract infection (3.9%) and pre-eclampsia (6.0%).
- A significant proportion of pregnant women have pre-existing medical conditions. In 1999, the most common of these conditions was asthma, affecting 9.9% of mothers. Anaemia was recorded for 3.8%, epilepsy for 0.5% and thyroid disorders for 0.9% of mothers.

## Labour and delivery

- Labour was spontaneous in onset for 55.9% of women and induced for 29.2%. A further 14.4% of mothers had babies delivered by caesarean section and did not experience labour. Trend data indicates that, in accord with the increased rate of elective caesarean section, there was a significant increase over the fifteen year period in the proportion of women who did not experience labour.
- The rate of caesarean section in 1999 was 23.4%. This figure has risen from 15.1% in 1985, and represents one of the most striking features of modern obstetrics. Of the women recorded as having had a previous caesarean section 76.3% (n=2309) were again delivered by caesarean section.
- Less than a third (26.5%) of women established labour spontaneously, proceeded through labour without augmentation and achieved a spontaneous vaginal delivery although almost twice the number (55.9%) had a spontaneous onset of labour. Thus, less than a third of births occurred without intervention to the processes of labour or delivery.
- The increased use of epidural analgesia and anaesthesia is another feature of modern obstetrics. In 1999, 48.8% (n=12,381) of mothers received an epidural at some stage during labour and delivery. Among women delivering by elective caesarean section, 94.7% had an epidural and/or spinal anaesthetic and this statistic has almost doubled over the previous fifteen year period. The number of women receiving a general anaesthetic during delivery was 593 (2.3%). It should be noted that some hospitals conducting booked deliveries do not offer an epidural service.

## Baby characteristics

- In 1999, 25,771 babies were born in Western Australia.
- The crude birth rate steadily declined from 16.3 per 1000 in 1985 to 13.8 per 1000 in 1999.
- Birthweight is one of the most important factors affecting the survival of a baby. In 1999, two thirds of babies (66.8%) weighed 3000-3999g at birth, and the average birthweight was 3343 grams. The percentage of low birthweight (<2500g) babies was 6.7%, and this proportion has remained static over the previous fifteen year period.
- Perinatal mortality among the babies born in 1999 indicated that there were 179 fetal deaths and 75 neonatal deaths, providing a perinatal mortality rate of 9.9 perinatal deaths per 1000 total births. The perinatal mortality rate has declined significantly over the previous fifteen year period, from 14.2 per 1000 in 1985.
- Indigenous status and low birthweight influence birth outcome. Babies of Aboriginal mothers do not fare as well as babies of non-Aboriginal women. In 1999 the percentage of low birthweight babies to mothers identified as Aboriginal (14.2%) was more than twice that of babies born to non-Aboriginal women (6.2%).
- Mortality rates for babies of Aboriginal mothers were more than double those for babies of non-Aboriginal women. The perinatal mortality rate in 1999 for babies of Aboriginal mothers was 25.8 per 1000 compared with a rate of 8.8 per 1000 for babies of non-Aboriginal women. There has been a positive reduction in the perinatal mortality rate for babies of Aboriginal women over the previous fifteen years from 27.8 per 1000 in 1985 to 25.8 per 1000 in 1999.

## 2. INTRODUCTION

This is the Seventeenth 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 1999 calendar year. Pregnancies which resulted in a final product of conception at 20 weeks or more gestation and/or a birthweight equal to or greater than 400 grams have been included. These criteria are in accord with national reporting methods.

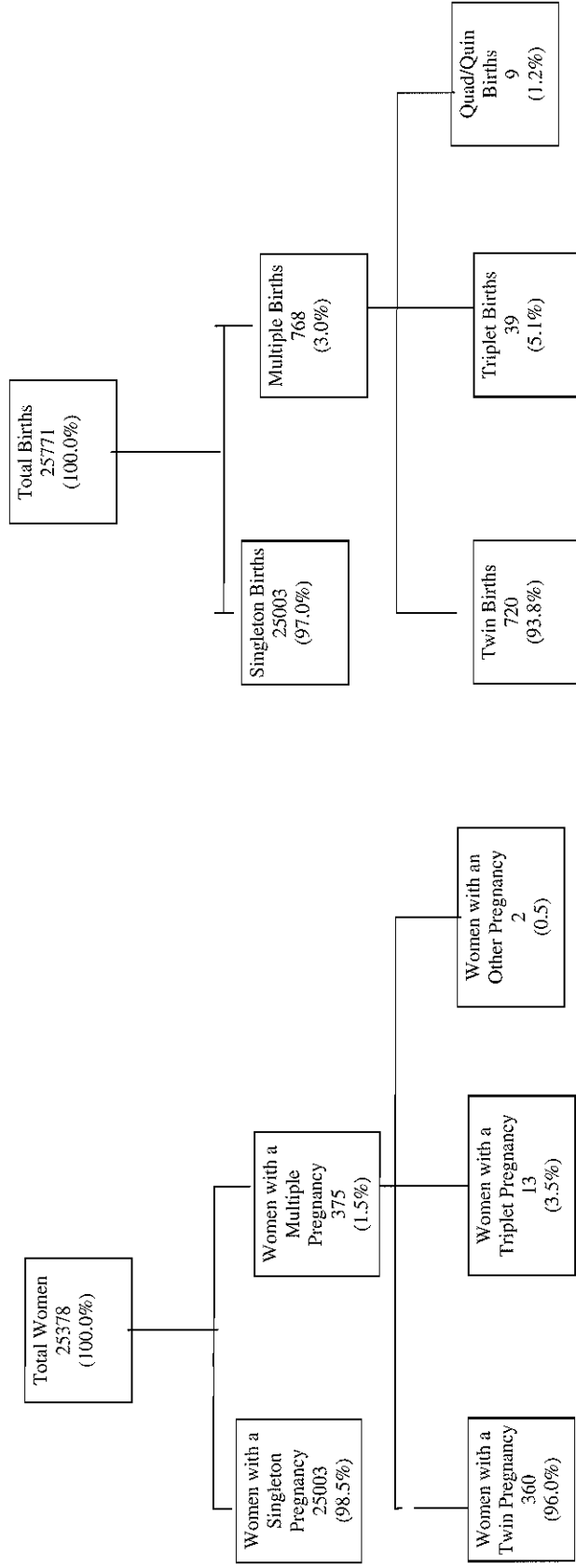
Notification of Case Attended (Midwives') Form 2 are received by the Maternal and Child Health Studies Unit where the information is checked for completeness and, if necessary, followed up for additional details. The information is then transcribed into a coded format, using the World Health Organisation - International Classification of Diseases, 9th Revision Clinical Modification<sup>2</sup> (ICD-9-CM) to code morbidity. Once this coding is complete, the data are entered to create the computer database. A validation study of the 1992 data was published in July 1994.<sup>3</sup>

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 linked to the birth cohort.

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

**TREE DIAGRAM 1**

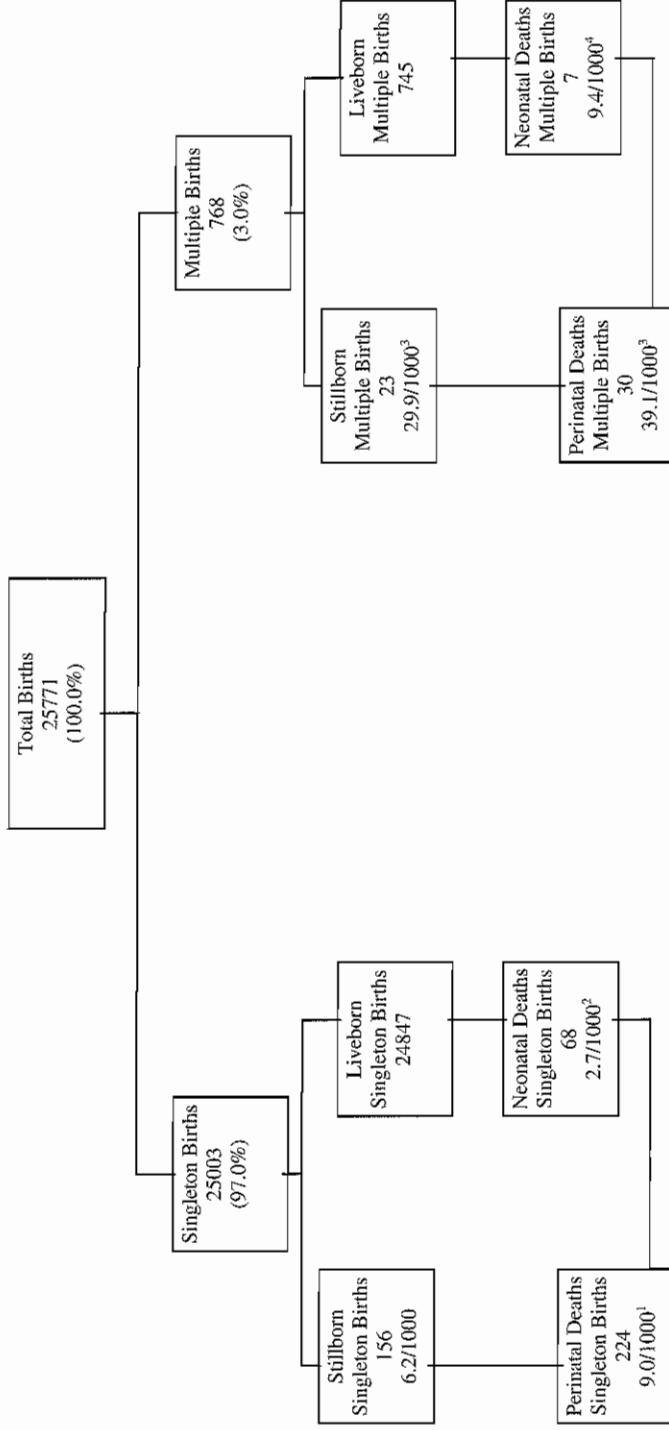
**PREGNANCIES AND BIRTHS IN WESTERN AUSTRALIA, 1999**



**SOURCE: MIDWIVES' NOTIFICATION SYSTEM**

**TREE DIAGRAM 2**

**PLURALITY OF BIRTHS AND PERINATAL DEATHS IN WESTERN AUSTRALIA, 1999**



<sup>1</sup>/1000 total singleton births  
<sup>2</sup>/1000 total multiple births  
<sup>3</sup>/1000 singleton livebirths  
<sup>4</sup>/1000 multiple livebirths

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

HOSPITAL MORBIDITY SYSTEM  
COMMUNITY AND CHILD HEALTH SERVICES

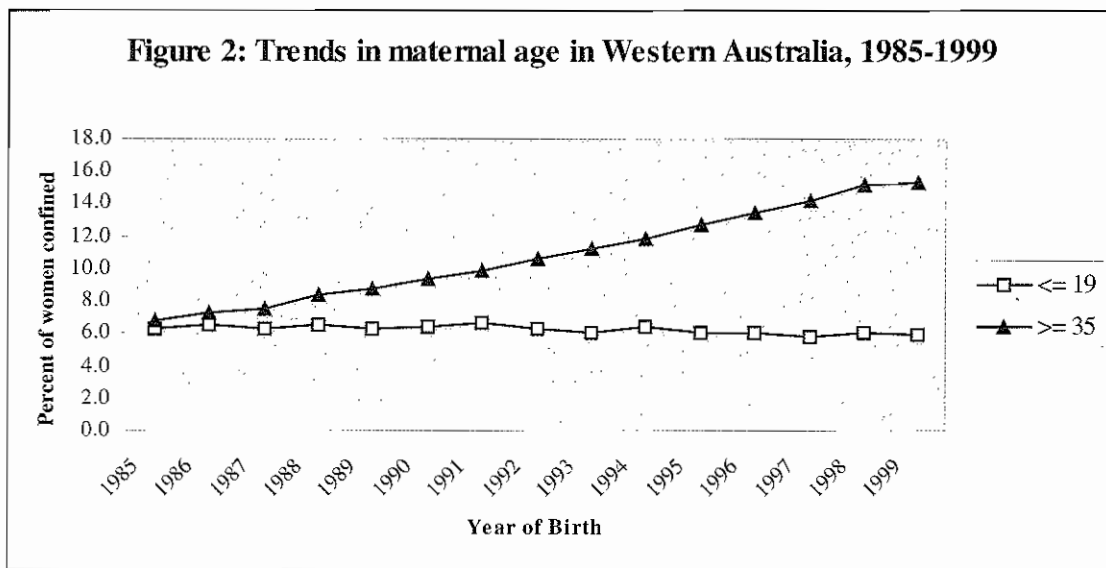
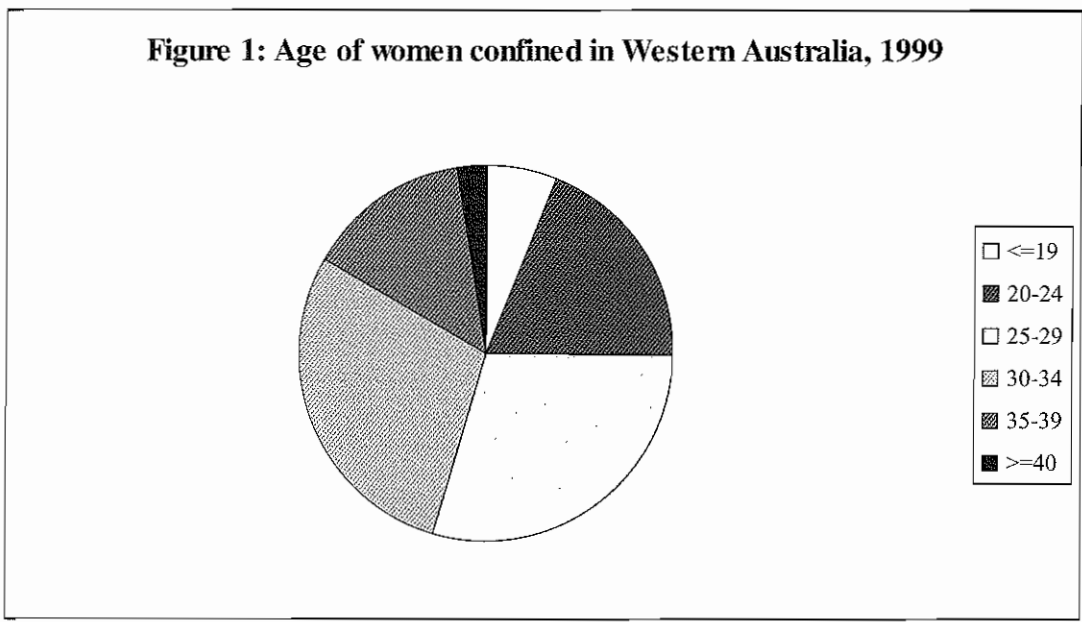


### 3. MATERNAL DEMOGRAPHIC INFORMATION - 1999

#### 3.1 Age

There were 25,378 women confined in Western Australia during 1999. The range of maternal age for these women was 12 to 49 years with a mean age of 28.7 years. Women aged between 20 and 34 years represented 78.7% of all women confined. Young women aged 19 years or less represented 5.9% and the 35 years and older age group represented 15.3% of total women confined. There were 3,890 women in the 35 years and older age group, 859 (22.1%) of whom were experiencing their first confinement (Table 1, Figure 1).

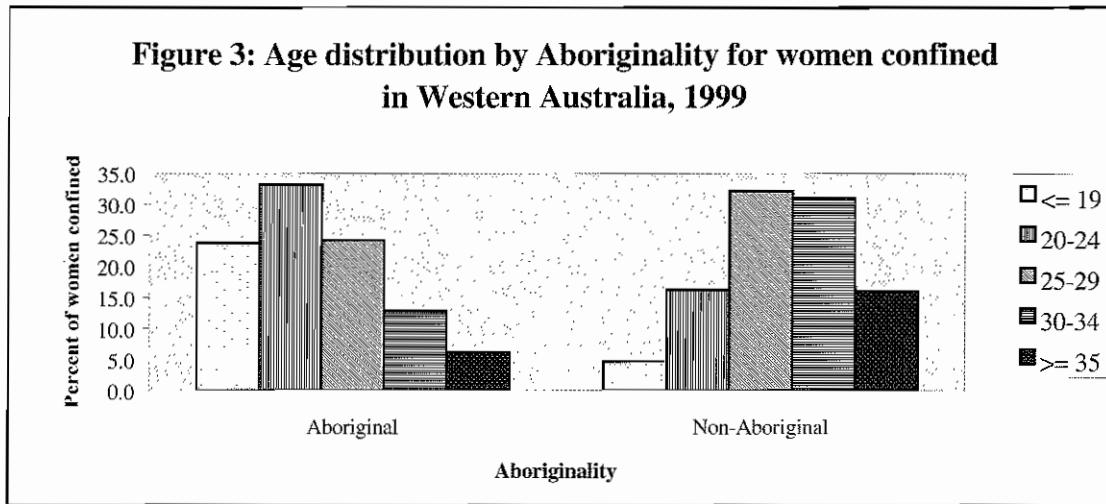
Trend data for maternal age indicated that among teenage women the proportion remained stable while among women 35 years and older there was a steady increase (6.8% in 1985 to 15.3% in 1999) through time (Table 2, Figure 2).



### 3.2 Aboriginality

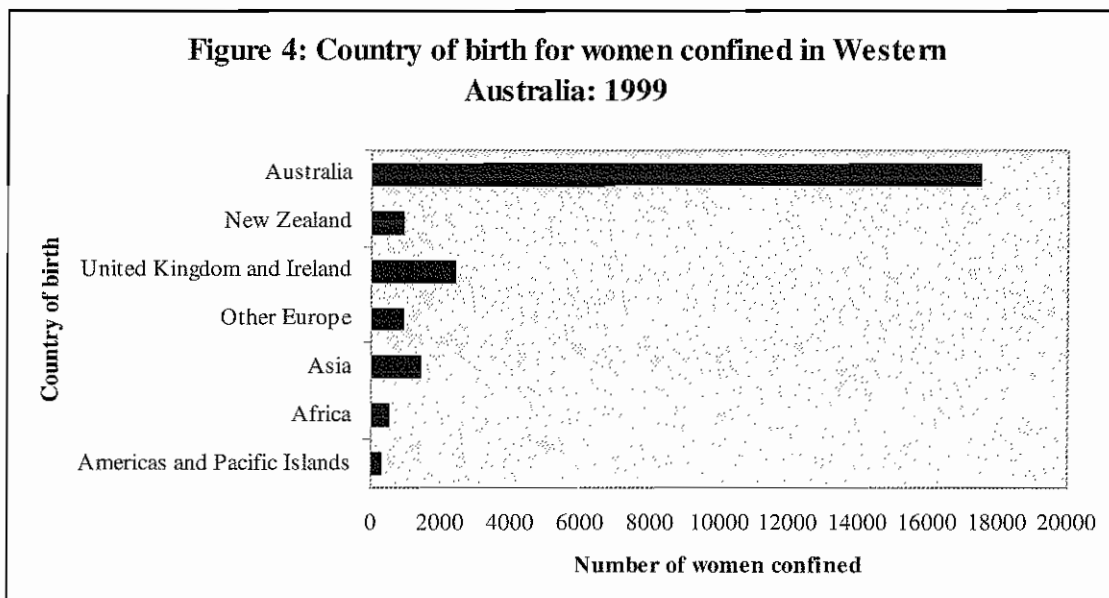
The recording of Aboriginality of childbearing women identified that the majority (93.7%) of women confined were reported as being non-Aboriginal. The remaining six per cent of women were reported as being Aboriginal.

Among women who were reported as being Aboriginal it is usual for childbearing to occur at a younger age as demonstrated by 23.8% of births to teenagers and 6.2% to women 35 years or more. Corresponding data for non-Aboriginal women showed proportions of 4.7% for teenagers and 16.0% for women aged 35 years or more (Table 1, Figure 3).



### 3.3 Country of Birth

The country of birth was recorded for 23,907 women who gave birth in Western Australia during 1999. Women born in Australia represented 73.0%, 10.0% were born in the United Kingdom and Ireland and 3.7% in New Zealand. Of the remainder, 5.9% were born in Asia, 3.8% in other European countries, 2.3% in Africa and 1.3% in the Americas and Pacific Islands (Table 3, Figure 4).



### 3.4 Conjugal State

The majority of women (90.1%) in Western Australia during 1999 were reported to be in a married or de facto relationship at time of confinement. Ten per cent were reported to be socially unsupported, being either single, widowed, separated or divorced. Single women represented the largest unsupported group (8.5%). For women with multiple pregnancy 7.2% were unsupported (Table 4).

### 3.5 Health Zone

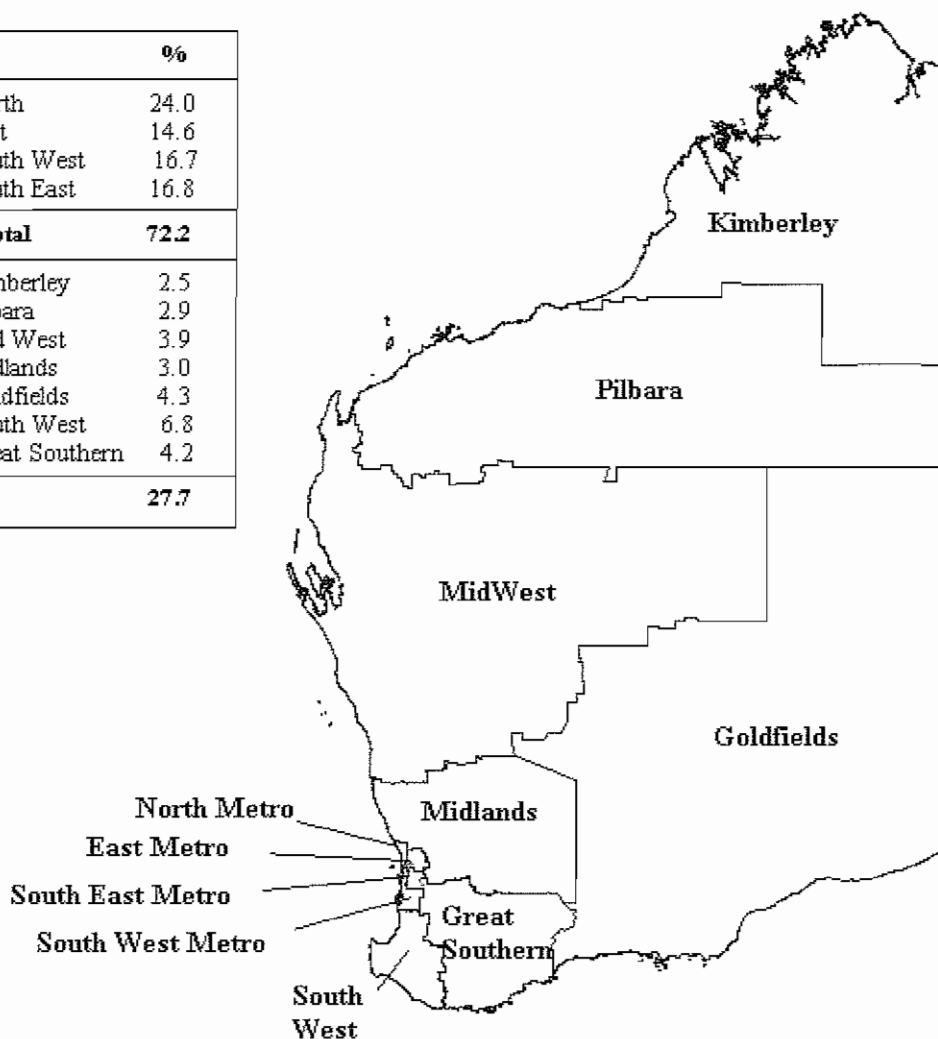
Almost three quarters (72.2%) of women confined in 1999 gave their residential address as being within the four Metropolitan Health Zones. There were 27.7% of women confined whose usual place of residence was within the seven Country Health Zones and 24 women (0.1%) were not residents of Western Australia.

Among Aboriginal women confined, 33.8% were Metropolitan residents and 66.2% were residents of country Health Zones (Table 5, Figure 4).

Information on Western Australian women confined in other States and outside Australia during 1999 is not included in this report.

**Figure 5: Health zone of residence of women confined in Western Australia, 1999**

HEALTH ZONE		%
Metro:	North	24.0
	East	14.6
	South West	16.7
	South East	16.8
<b>Metropolitan Total</b>		<b>72.2</b>
Country:	Kimberley	2.5
	Pilbara	2.9
	Mid West	3.9
	Midlands	3.0
	Goldfields	4.3
	South West	6.8
	Great Southern	4.2
<b>Country Total</b>		<b>27.7</b>



Excludes those 24 (0.1%) women resident outside Western Australia.

## Metropolitan Health Zones

There were 25,378 women confined in Western Australia during 1999, of whom 19,438 (76.6%) gave birth in hospitals within the metropolitan area. These included 18,322 (72.2%) women resident in the metropolitan area, a further 7,032 (27.7%) women with a country residential address and 24 (0.1%) women resident outside Western Australia (Table 6, Table 7, Figure 6).

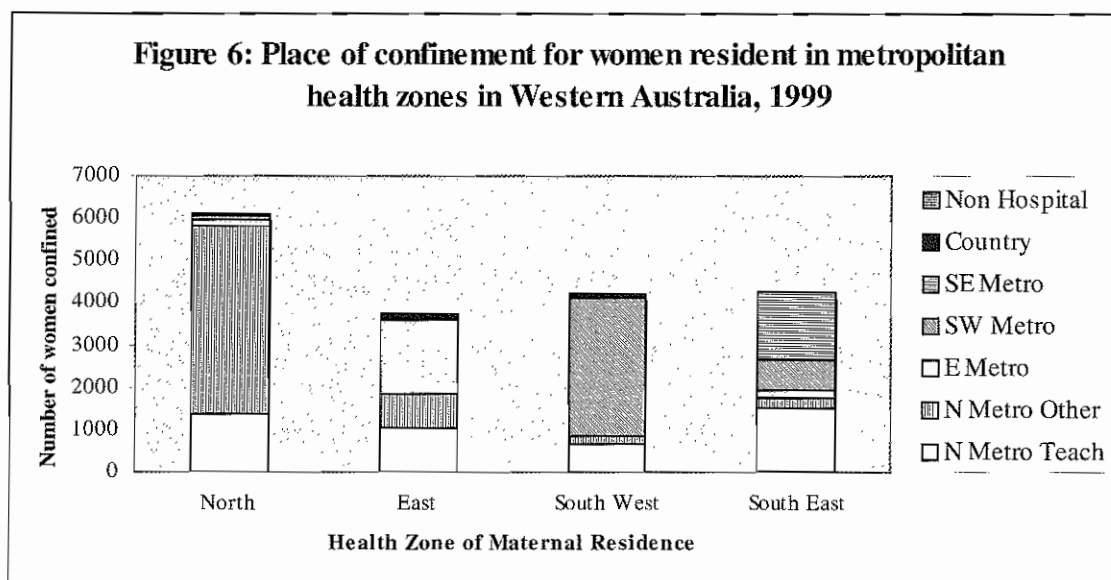
Consideration of the maternal usual place of residence within Health Zone in relation to place of confinement, showed that most women were confined at hospitals within the region of their residence. The referral rate of women to metropolitan teaching hospitals influenced the numbers within the South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

Of women resident in the North Metropolitan Health Zone 95.2% were confined at hospitals within the area. Of these 22.4% were confined at a metropolitan teaching hospital and 72.8% at other hospitals in the area.

Among the women resident in the East Metropolitan Health Zone, 46.7% were confined at hospitals within the Zone, 27.5% at a metropolitan teaching hospital.

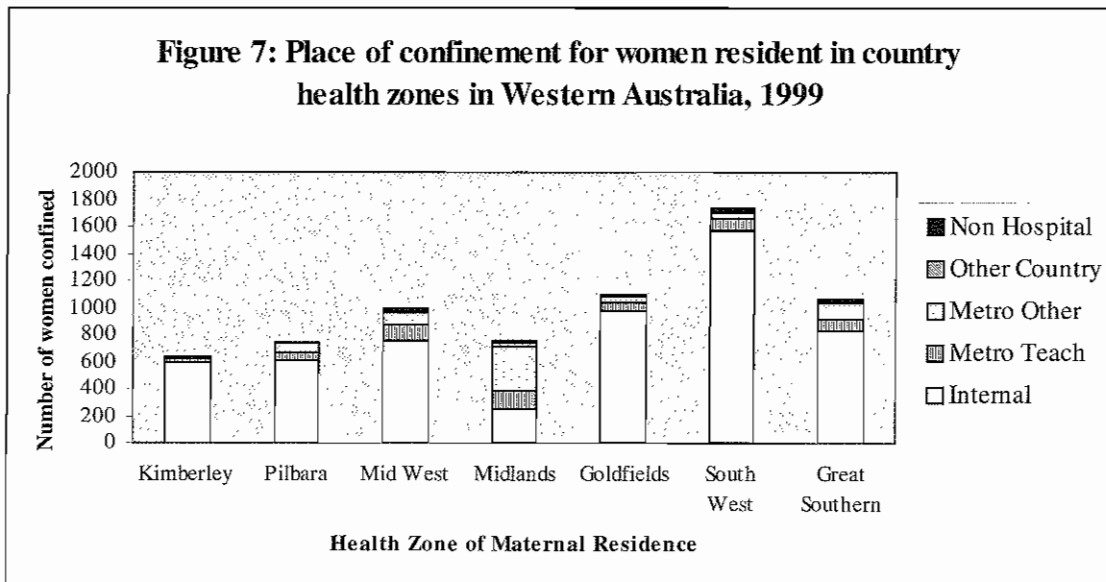
For women residing in the South West Metropolitan Health Zone, 76.7% were confined in hospitals within the area with a further 15.6% confined at a metropolitan teaching hospital.

In the South East Metropolitan Health Zone, less than half (37.3%) of women were confined in the Zone, 35.3% in a metropolitan teaching hospital and a further 16.2% in the South West Metropolitan Health Zone (Table 5).



## Country Health Zones

Almost one quarter, 5,744 (22.6%) of women confined in Western Australian hospitals during 1999 were confined in country hospitals (Table 6, Table 7, Figure 7). There were a further 1,293 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 the Perth metropolitan area for delivery than women in distant country health zones.



### 3.6 Place of Confinement

During 1999 there were 25,378 women confined in Western Australia. Of these, 99.2% gave birth in metropolitan or country hospitals. Non-hospital births included 70 babies born before arrival at hospital (BBA) and 126 babies born at home as planned (Table 9).

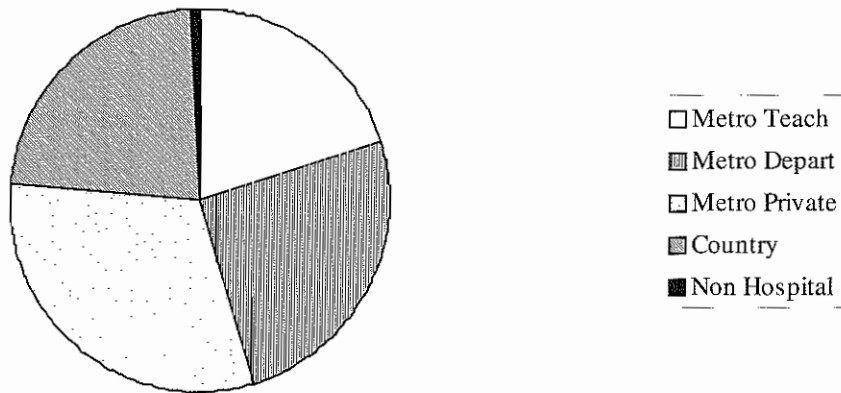
Of the total confinements, 76.6% were in metropolitan hospitals. These included 20.3% occurring in a metropolitan teaching hospital, 25.1% in metropolitan Departmental (Government) hospitals and 31.2% in private metropolitan hospitals.

Trend data indicate that while the proportion of births at teaching hospitals remains relatively stable there has been an increase in births at private hospitals over the past four years. This may in part be explained by the care provided to public patients within some private hospitals (Table 10).

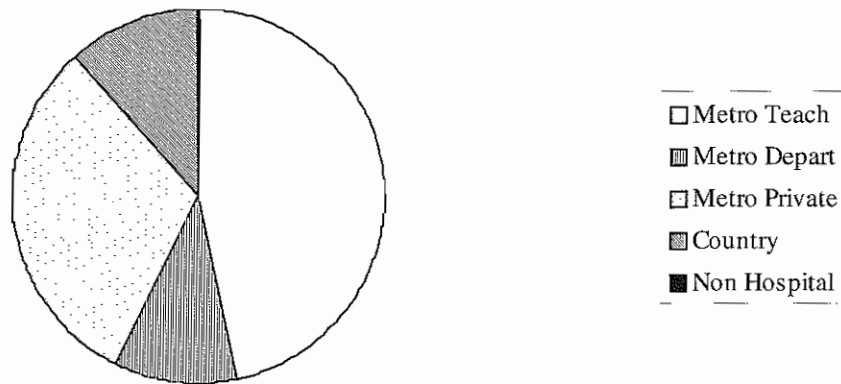
Plurality of pregnancy influenced the place of confinement. Women with a singleton pregnancy were confined in teaching hospitals 19.9%, metropolitan government hospitals 25.3% and metropolitan private hospitals 31.2% (Table 9, Figure 8).

The majority (88.3%) of multiple birth confinements in 1999 occurred in metropolitan hospitals, with 46.7% being delivered in a teaching hospital, 10.79% in metropolitan government hospitals, 30.9% at private hospitals in the metropolitan area and 11.5% in country hospitals (Table 9, Figure 8).

**Figure 8: Place of confinement for singleton births in Western Australia, 1999**



**Figure 9: Place of confinement for multiple births in Western Australia, 1999**



Homebirth as a planned birth option was experienced by 126 women (0.5% of total women confined). These confinements include births managed by midwives in private practice and midwives employed in either community or hospital based programs. The trend for homebirth has remained relatively stable representing between 0.4% and 0.7% of women confined annually over the past fifteen years (Table 10). The Department received notification that an additional 31 women had planned a homebirth but because of complications were either referred to hospital care or transferred during pregnancy (4 women) or labour (27 women). These women and their babies are included in hospital birth statistics.

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

## 4. PREGNANCY PROFILE - 1999

### 4.1 Previous Pregnancies

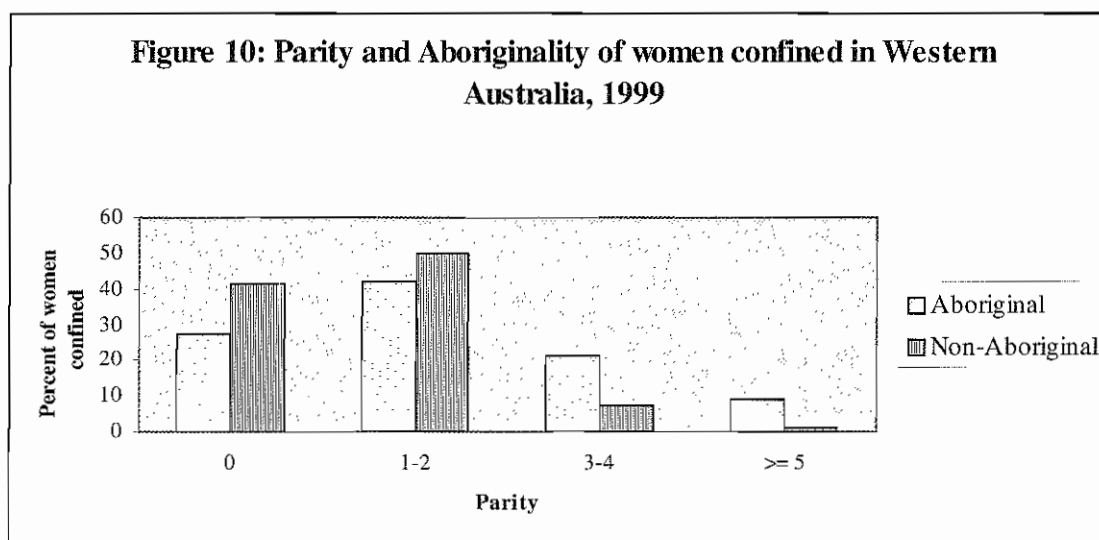
More than a third (40.4%) of women confined in 1999 were confined for the first time. The range of previous confinements extended to 11 with a mean of 1.02. The percentage of non-Aboriginal women confined for the first time (41.3%) was higher than for Aboriginal women confined for the first time (27.3%). However among women having their fifth or more child, the percentage of Aboriginal women (9.1%) was far greater than for non-Aboriginal women (1.1%) (Table 11, Figure 10).

The highest number of recorded previous pregnancies was twenty. (Mean = 1.5 previous pregnancies Standard Deviation = 1.6)

Of the 10,252 nulliparous women, 1,242 (12.1%) were identified as teenagers (19 years or less) and 8,151 (79.5%) were aged 20 to 34 years. Among the 3,890 women aged thirty five years or more, 859 (22.1%) were having their first baby (Table 12).

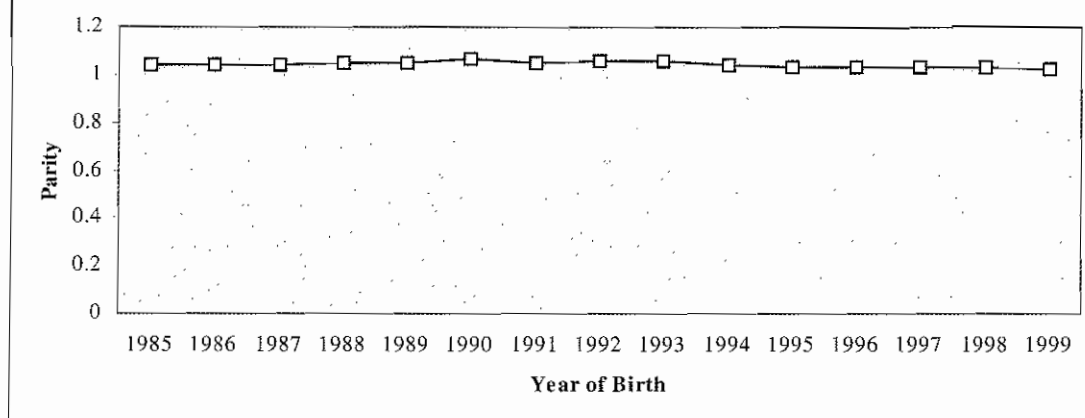
Multiparous women of either one or two previous births comprised 2.1% teenage women, 80.2% women of 20-34 years of age and 17.7% of women aged 35 or more years. Women whose parity was three or more previous births included five teenage women (0.2%), 68.5% women aged 20-34 years and 31.6% women aged 35 years or more (Table 12).

There has been a gradual increase in the proportion of women having their first confinement which is consistent with reduced family sizes and an increase in the population of women of childbearing age (Table 13).



The average parity remained constant during the fifteen year period from 1985 to 1999 (Table 13, Figure 11).

**Figure 11: Average parity for women confined in Western Australia, 1985-1999**



Trends in births by socioeconomic 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 similarly sized groups of socioeconomic status. This is a fairly crude scale, but nevertheless demonstrates differences.

The numbers of births in the quartiles vary from 3,367 to 5,232. Differences in maternal age and parity were investigated. Information is provided on 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 socioeconomic group (54.1%) was 18 times that for women of the same age in the highest socioeconomic group (3.1%). This trend was reversed for older women, 35 years and above, where the percentage of women in the highest socioeconomic group (27.8%) was greater than that for women in the lowest socioeconomic group (21.7%).

To investigate the trend in grand multiparity by socio-economic status, the proportion of women of parity  $\geq 5$  was calculated. Of the grand multiparas, 8.9% were in the highest socioeconomic group and 48.6% were in the lowest (Table 14).

## 4.2 Age-Specific Birth Rates

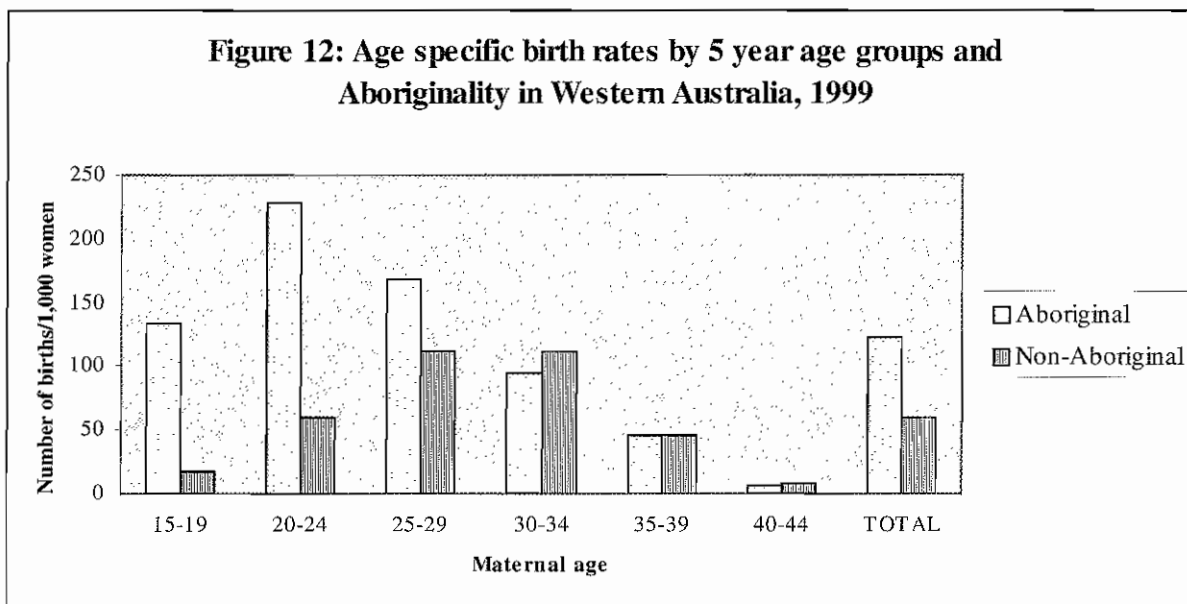
Age-specific birth rates in the Aboriginal and non-Aboriginal sub-populations and the total population are shown in Table 15. The population estimates used were derived from data from the 1996 census. Difficulties in estimation of Aboriginal populations are recognised where under enumeration may occur. Therefore the reader may wish to adjust the denominators in accord with the directive of Hicks.<sup>4</sup>

Overall, the age-specific birth rate among Aboriginal women (122.0 per 1000) was double that of non-Aboriginal women (59.2 per 1000). Among the 15 to 19 year age group the birth rate of Aboriginal women (134.4 per 1000) was 7 times the rate for non-Aboriginal women (17.9 per 1000). For those women in the 20 to 34 year age group the rate for Aboriginal women (164.5 per 1000) was far greater than that for non-Aboriginal women (94.9 per 1000). The rate for Aboriginal women (28.0 per 1000) was higher than for non-Aboriginal women (26.9 per 1000) in the 35 to 44 year age group (Table 15, Figure 12).

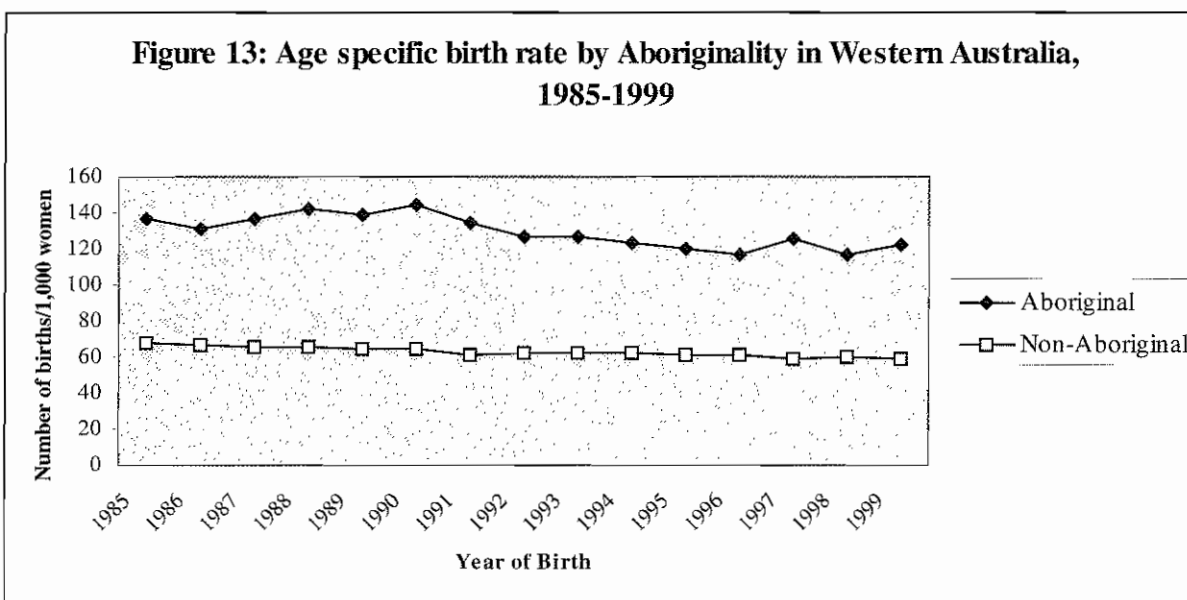


Examination of differences in age-specific birth rates and Aboriginality through time shows that there has been a gradual reduction in the rates for both Aboriginal and non-Aboriginal women in the age groups of 15-19 years and 20-34 years. This trend is more pronounced among Aboriginal teenage women where the rate reduced from 172.7 per 1000 in 1985 to 134.4 per 1000 in 1999. However, among non-Aboriginal women aged 35-45 years the trend for later childbearing has increased the rate from 16.1 per 1000 in 1985 to 26.9 per 1000 in 1999 (Table 16, Figure 13).

**Figure 12: Age specific birth rates by 5 year age groups and Aboriginality in Western Australia, 1999**



**Figure 13: Age specific birth rate by Aboriginality in Western Australia, 1985-1999**



### **4.3 Complications of Pregnancy**

Over half (64.8%) of all women confined during 1999 were recorded as having no complications of pregnancy (Table 17).

Pre-eclampsia was reported in 1,520 (6.0%) women. Of the women with multiple pregnancy, the proportion with pre-eclampsia was twice that for women with singleton pregnancies (Table 17). Among 'other' complications there were 347 (1.4%) women recorded as having unspecified hypertension, 248 (1.0%) with anaemia of pregnancy, 263 (1.0%) with a viral or bacterial genito-urinary tract infection, 146 (0.6%) with retarded fetal growth, and 402 (1.6%) with hyperemesis gravidarum.

Although in the past, it was thought that 'other' complications of pregnancy may be under-reported by midwives, the Validation Study<sup>3</sup> of 1992 data undertaken in 1994 showed that they were well reported, being 89% accurate.

### **4.4 Medical Conditions**

There were 9,212 reported instances of pre-existing medical complications recorded among the 25,378 women confined during 1999. Of these, 2,505 (9.9% of women confined) were reported as asthmatic, 131 (0.5%) as epileptic, 83 (0.3%) as having pre-existing diabetes and 230 (0.9%) with a known thyroid disorder (Table 18).

### **4.5 Procedures and Treatments**

Assessment of procedures and treatments recorded during 1999 showed that 39,660 recordings were made among the 25,378 women confined. The majority of these recordings were for ultrasound examination (24,559 or 96.8% of women confined), antepartum cardiotocographs (6,726 or 26.5% of women confined) or intrapartum cardiotocographs (6,584 or 25.9% of women confined). Other reported procedures/treatments were 1,152 (4.5%) amniocentesis, 430 (1.7%) fertility treatments, 100 (0.4%) women for whom a cervical suture was inserted and 109 (0.4%) women confined who underwent CVS/placental biopsy procedures.

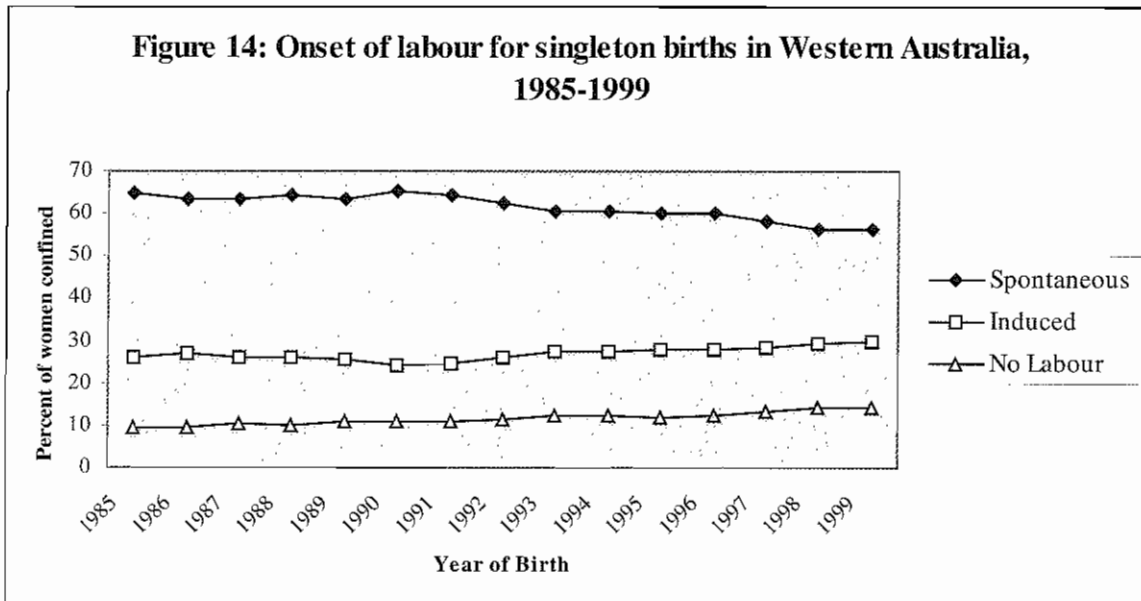
## 5. LABOUR AND DELIVERY - 1999

### 5.1 Onset of Labour

Over half (55.9%) of women confined during 1999 established labour spontaneously. Among women with multiple pregnancy 36.0% had a spontaneous onset of labour.

Induction of labour occurred for 29.8% of all women confined, while 112 (29.9%) of women with multiple pregnancy underwent induction of labour (Table 19).

An increasing trend in induction of labour for singleton births was evidenced over the past fifteen years, increasing from 28.5% in 1985 to 29.8% in 1999. A corresponding decrease in the proportion of women having a spontaneous onset of labour (64.9% in 1985 to 56.2% in 1999) was also shown. In addition, and as a consequence of a rising elective caesarean section rate the proportion of women giving birth without experiencing labour rose from 9.3% in 1985 to 14.1% in 1999 (Table 23, Figure 14).



### 5.2 Augmentation of Labour

There were 5875 (23.1%) women whose labour was augmented by surgical and/or medical intervention following spontaneous onset of the labour.

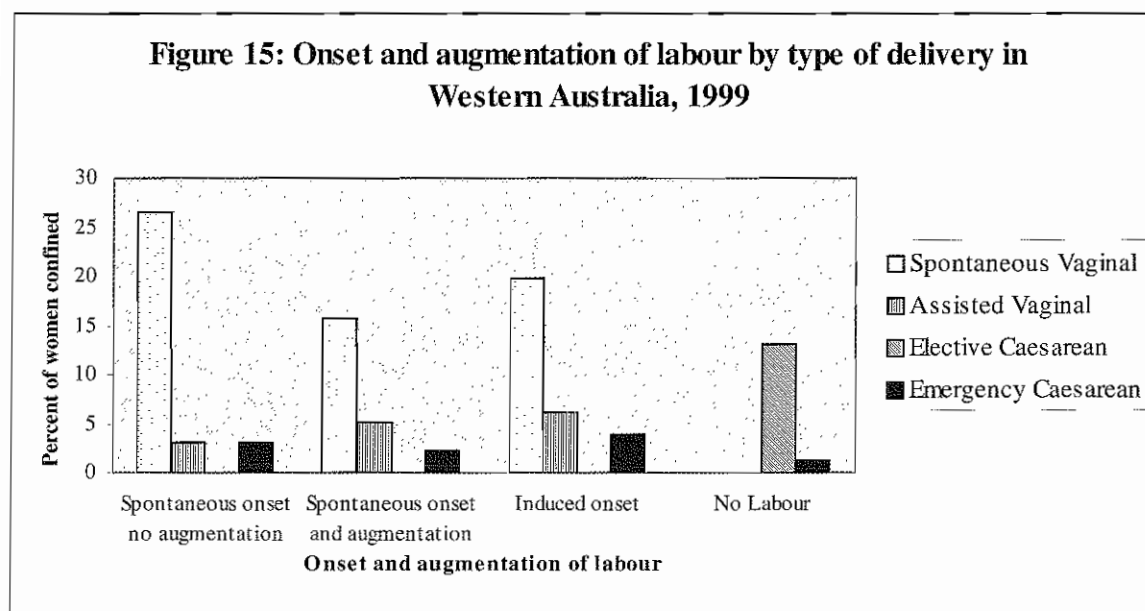
Assessment of these cases showed that augmentation of labour for 4,005 (15.8%) women was followed by a spontaneous vaginal delivery, 1,318 (5.2%) women required an assisted vaginal delivery and 552 (2.2%) women an emergency caesarean section.

Of the 14,178 women for whom onset of labour was spontaneous, 5,875 (41.4%) had labour augmented and 8,303 (58.6%) did not.

It is of interest to note that less than one third (6,730, 26.5%) of women established labour following spontaneous onset, received no augmentation of labour and achieved a spontaneous vaginal delivery (Table 20, Figure 15).

Among women with spontaneous onset of labour the type of augmentation of labour included artificial rupture of membranes 22.7%, oxytocin infusion 10.9%, a combination of artificial rupture of membranes and oxytocin infusion 7.6%. Comparison of hours of established labour between women whose labour was spontaneous in onset showed that 62.0% of women whose labour was 12 hours or less did not have intervention. Among women with labour of 13 hrs or more 29.4% laboured without augmentation (Table 21).

**Figure 15: Onset and augmentation of labour by type of delivery in Western Australia, 1999**



### 5.3 Induction of Labour

Among the 7,554 women for whom labour was induced in 1999 the most preferred method/types were artificial rupture of membranes and oxytocin infusion 43.5%, prostaglandins, artificial rupture of membranes and oxytocin infusion 15.1% and artificial rupture of membranes alone 9.9%. The type of delivery for women with induced labour was proportionately spontaneous vaginal 66.7%, assisted vaginal 20.6% and emergency caesarean section 12.7% (Table 22).

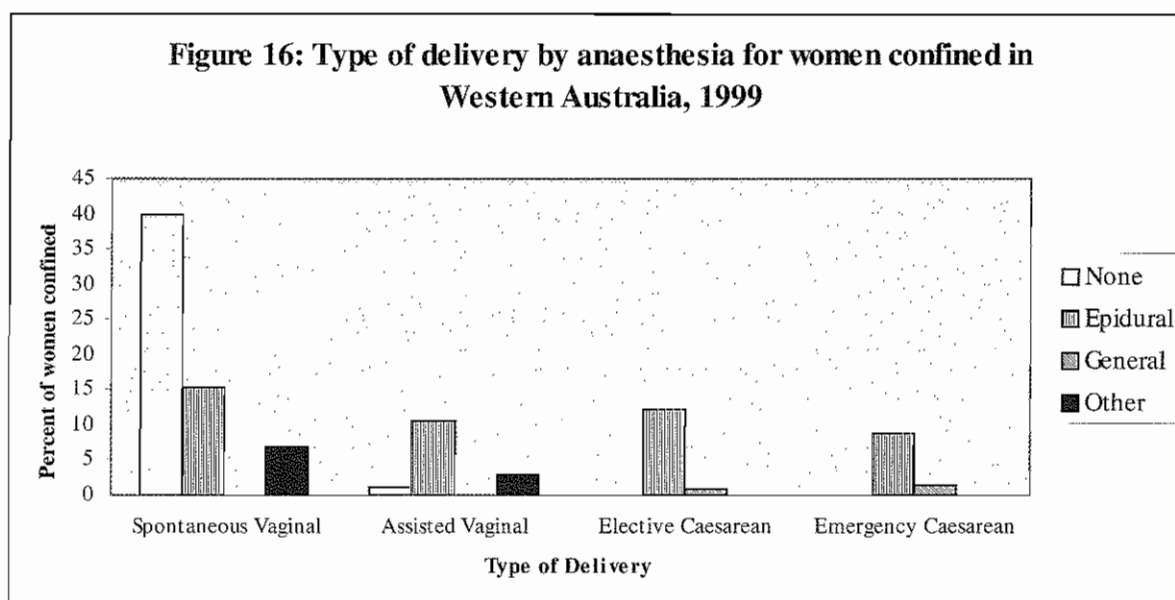
### 5.4 Analgesia

There were 7,892 (31.1%) women confined who received no pharmacological analgesia during labour. This includes 3,646 women who did not experience labour as they had caesarean section (3,310 elective caesarean and 336 emergency caesarean with no labour). Evaluation of the type of analgesia provided to women during labour showed that 7,865 (31.0%) received lumbar epidural analgesia, 585 (2.3%) spinal analgesia, 4,263 (16.8%) narcotic sedation with IM or IV and a further 4,054 (16.0%) of women used nitrous oxide and oxygen inhalation (Table 24).

## 5.5 Anaesthesia

At the time of delivery 10,426 (41.1%) women were not provided with pharmacological anaesthesia. Of the 14,952 women who were, 11,956 (47.3%) had lumbar epidural or spinal anaesthesia while 1,888 (7.4%) had only local anaesthesia to perineum. Anaesthesia for women undergoing elective caesarean section was predominantly lumbar epidural or spinal (n=3,310, 93.7%). Among women who had emergency caesarean section or assisted vaginal delivery the proportion of lumbar epidural or spinal anaesthesia administered were 86.4% and 72.6% respectively.

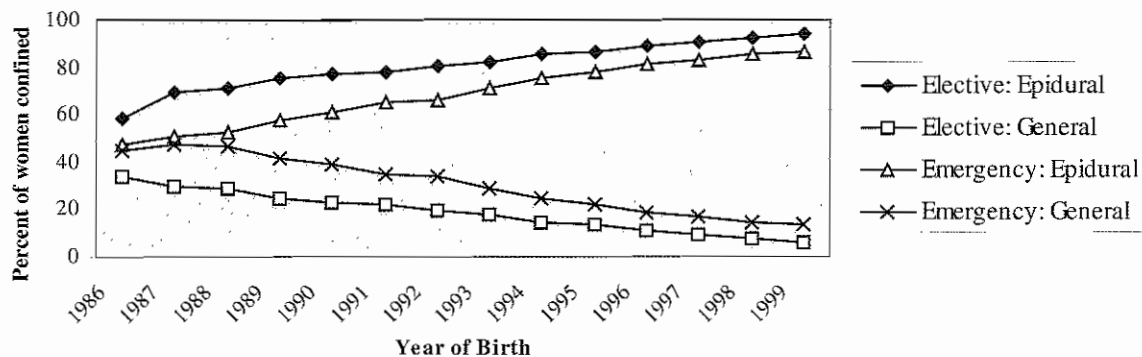
The recording of anaesthesia for delivery includes those procedures required for the third stage of labour. This explains in part the use of general anaesthesia for women with assisted or spontaneous vaginal deliveries (Table 25).



Trend data are presented using a combination of analgesia and anaesthesia during labour and delivery as historical data were collected in this form.

Over the fourteen year period (1986-1999), there has been a significant increase in the use of epidural anaesthesia for both elective and emergency caesarean sections with a corresponding decrease in general anaesthesia. The percentage of women having caesarean section under epidural anaesthesia increased to 93.7% elective and 86.4% emergency caesarean section in 1999 from 58.8% elective and 47.3% emergency caesarean section in 1986 (Table 26, Figure 17).

**Figure 17: Type of anaesthesia/analgesia for women delivered by caesarean section in Western Australia, 1986-1999**



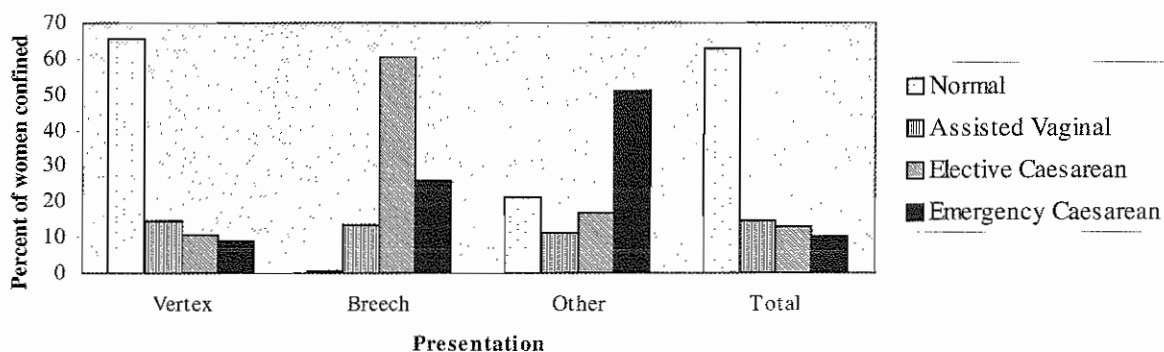
### 5.6 Presentation

The presentation for the 25,003 singleton confinements was identified as 23,809 (95.2%) vertex, 986 (3.9%) breech, and 208 (0.8%) 'other' presentations (Table 27, Figure 18).

The majority of vertex presentations of singleton births were delivered vaginally (80.1%). Of vertex presentations 65.6% delivered spontaneously and 14.5% required assistance.

More than three quarters (86.3%) of total singleton births presenting by the breech were delivered by caesarean section (60.6% elective and 25.7% emergency caesarean section) (Table 27).

**Figure 18: Presentation by type of delivery for singleton births in Western Australia, 1999**

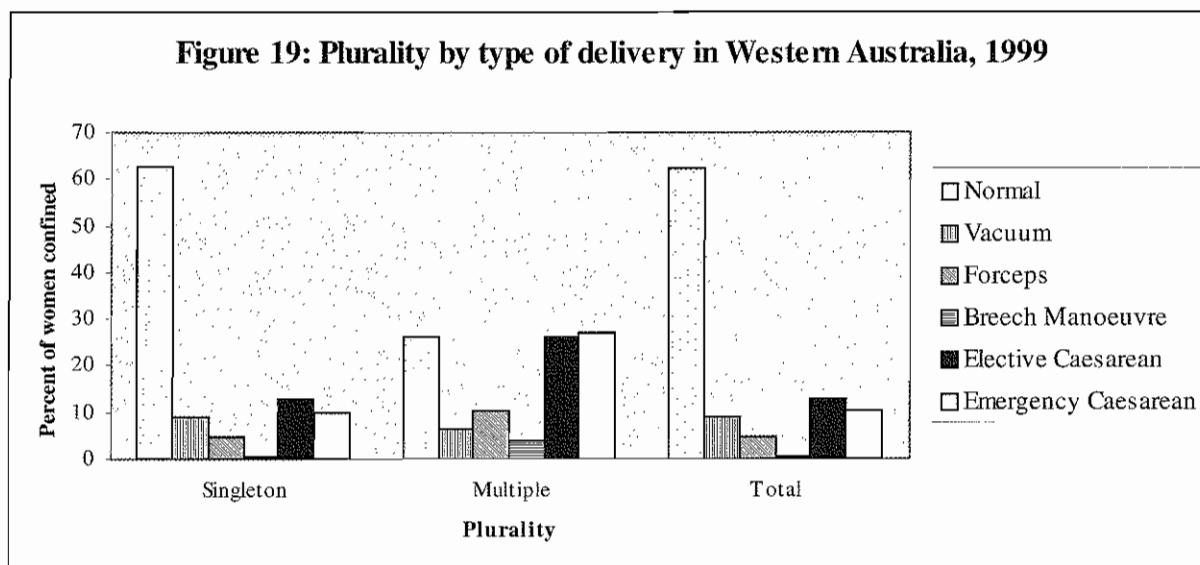


## 5.7 Type of Delivery

Less than two thirds (62.2%) of the total women confined in 1999 had a spontaneous vaginal delivery. Vaginal deliveries were assisted for approximately one in seven total confinements with 9.2% of women having a vacuum extraction and 4.7% a forceps delivery (Table 28, Figure 19).

The type of delivery for each woman with multiple pregnancy was classified according to features of labour and delivery for the first twin/triplet. Of the 13 women with triplet pregnancies 12 were delivered by caesarean section and there were **XXX** women for whom the first twin was delivered vaginally and the second by emergency caesarean section during 1999.

Among women with a twin pregnancy, 187 (51.9%) were delivered by caesarean section, 75 (20.8%) had assisted vaginal deliveries and 98 (27.2%) delivered spontaneously.



Of the 5,929 women who were delivered by caesarean section during 1999, over one third (2,309, 38.0%) were recorded to have had a previous caesarean section delivery or other uterine surgery.

Although a previous caesarean section does not necessitate caesarean section for subsequent births the probability of repeat caesarean is high. Among the 3,025 women confined for whom previous caesarean section was recorded, 2,309 (76.0%) underwent repeat caesarean section, 185 (6.0%) had an assisted vaginal delivery and 531 (17.0%) delivered spontaneously. (Table 30)

The incidence of caesarean section in Western Australia<sup>5</sup> gradually increased over the past decade from 15.1% in 1985 to 23.3% in 1999 (Table 32). The caesarean section rate for Australia<sup>6</sup> overall was 21.1% in 1998, and caesarean section rates for individual States and Territories are as follows: Northern Territory<sup>6</sup> 22.3% in 1998, Tasmania<sup>6</sup> 19.8% in 1998, South Australia<sup>6</sup> 24.9% in 1999, Victoria<sup>8</sup> 21.0% in 1998, New South Wales<sup>9</sup> 19.6% in 1999, Queensland<sup>10</sup> 22.7% in 1998 and Australian Capital Territory<sup>11</sup> 18.8% in 1998.

Consideration of the type of delivery of women confined and maternal parity shows that among nulliparous women, slightly less than half (49.3%) had a spontaneous vaginal delivery, 26.0% required an assisted vaginal delivery and 24.8% were delivered by caesarean section. Among women with a parity of five or more, 79.6% delivered spontaneously and 17.3% had a caesarean section (Table 29).

Examination of the type of delivery through time indicates that there has been little alteration in the percentage of women who had a spontaneous vaginal delivery (62.6% in 1985 and 62.2% in 1999). However, a decrease in the proportion of women having assisted vaginal deliveries corresponded to an increase in the percentage of caesarean sections. Elective caesarean sections proportions almost doubled from 7.8% in 1985 to 13.0% in 1999. The emergency caesarean section proportion increased from 7.3% in 1985 to 10.3% in 1999 (Table 32, Figure 20).

All women delivered by caesarean section had at least one complication of labour and delivery recorded and 31.8% had more than one complication recorded (Table 33).

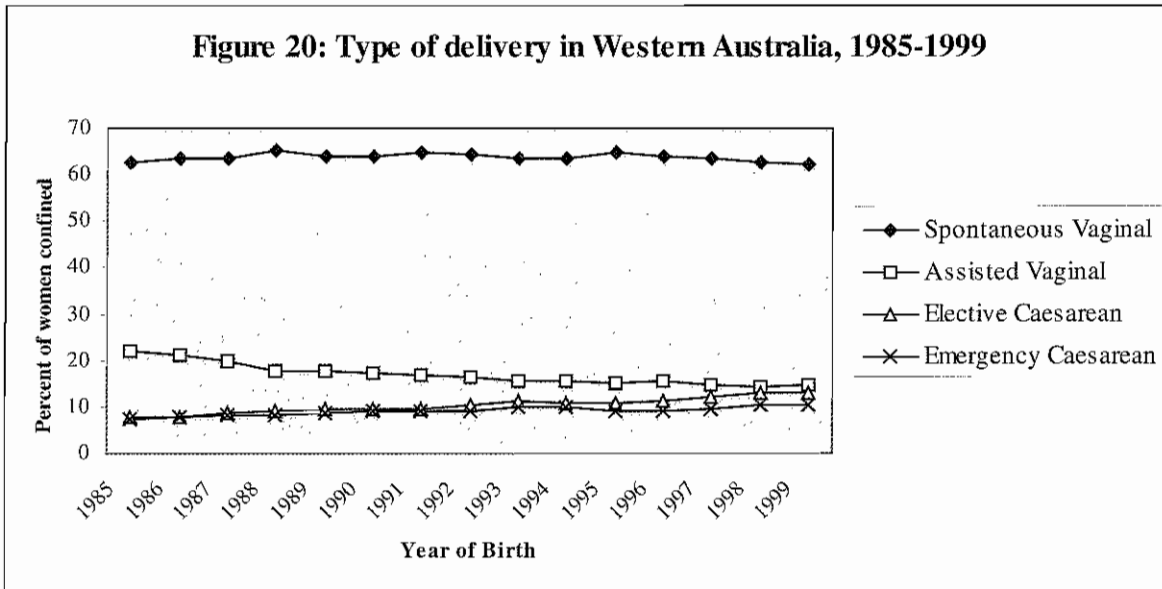
The indications for caesarean section were assessed by examination of complications of labour and delivery. For the 5,929 women confined by caesarean section, 8,584 complications of labour and delivery were recorded. The distribution of complications is shown in Table 33. Assessment of complications of labour and delivery for women confined by caesarean section showed previous caesarean section or other uterine surgery (26.7%), breech and other malpresentation (12.9%), fetal distress (11.3%), cephalopelvic disproportion (7.0%) and placental disorders and/or haemorrhage (8.0%) as the principal indications for caesarean section confinement (Table 34).

Of those women confined by caesarean section the highest proportion were at metropolitan obstetric teaching and departmental hospitals, and metropolitan and rural private hospitals. Overall, elective caesarean sections comprised 13.0% and emergency caesarean section 10.3% of women confined (Table 31).

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



**Figure 20: Type of delivery in Western Australia, 1985-1999**

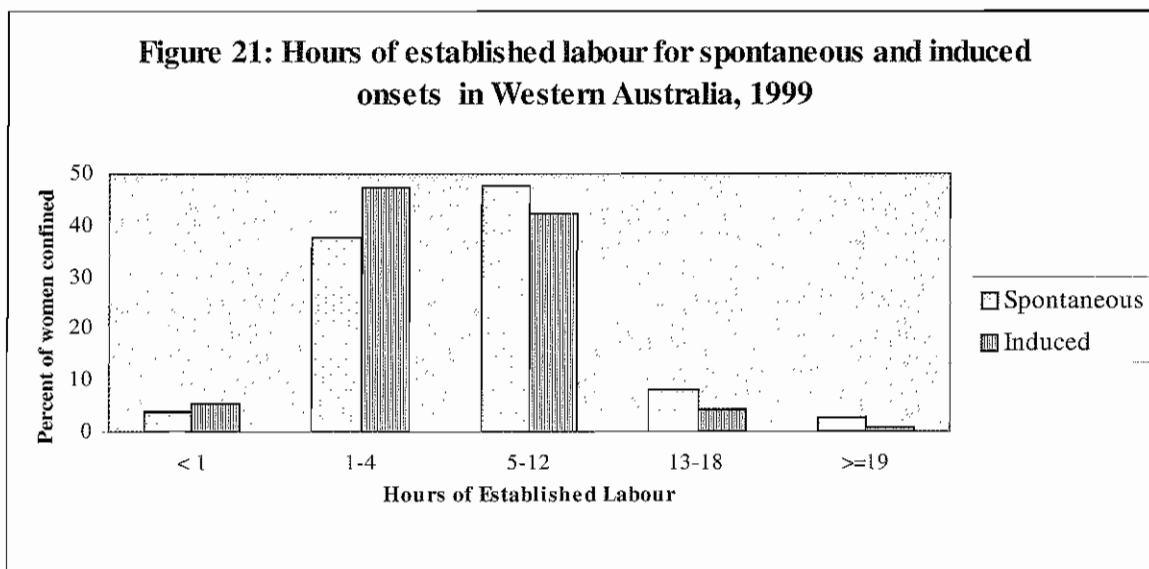


### 5.8 Hours of Established Labour

The recorded length of labour varied amongst women who had a spontaneous onset and those whose labour was induced. Less than half (42.3%) the women who had an induction of labour experienced between five and twelve hours of labour and almost half (47.6%) of the women with a spontaneous onset had between 5 and 12 hours of labour. There were 101 women (0.4%) of the total whose labour was recorded as more than 24 hours duration (Table 35, Figure 21).

Examination of type of delivery and hours of established labour showed that less than half (39.2%) of women confined had a labour lasting between 5 and 12 hours and of these 69.0% resulted in spontaneous delivery. Fourteen per cent of women did not establish in labour being confined by either elective or emergency caesarean section (Table 36).

**Figure 21: Hours of established labour for spontaneous and induced onsets in Western Australia, 1999**



## 5.9 Complications of Labour and Delivery

There were no complications of labour or delivery recorded for almost half (42.9%) of the women confined in 1999. However, for women with multiple pregnancies 15.7% of women were reported to have had no complications.

Among those women identified as having had a complication, fetal distress was recorded for 13.4% of singleton pregnancies and 12.0% of multiple pregnancies. Cephalopelvic disproportion was identified for 2.6% and post partum haemorrhage for 6.3% of all women confined (Table 37).

Other complications included 160 (0.6%) women with hypertension and 196 (0.8%) women with moderate to severe pre-eclampsia.

The second stage of labour was reported to be prolonged for 781 women (3.6% of women with established labour or 3.0% of total women confined). There were 165 additional women reported to have had prolonged labour with unspecified stage (0.7% of women with established labour or 0.6% of total women confined).

Uterine inertia was reported for 823 women (3.8% of women with established labour) and deep transverse arrest or persistent occipito-posterior position for 530 (2.4% of women with established labour). Shoulder dystocia was recorded for 358 women (1.8% of women who delivered per vaginam) and problems with cord compression or entanglement for 211 (1.1% of women who delivered per vaginam).

These data suggest significant morbidity in childbearing women. Furthermore, the Validation Study of the Midwives' Notification System<sup>3</sup> data indicated that complications of labour and delivery tend to be under-reported.

## 5.10 Accoucheur

Analysis of accoucheur at birth indicated that 9,985 (39.6%) women confined or 63.3% of women delivering spontaneously per vaginam were assisted by midwives. Obstetricians delivered 8,295 (32.7%) women and other medical officers attended 6,208 (24.5%) women at confinement. The proportion of elective caesarean section deliveries by obstetricians was 75.6% with the remaining (24.4%) being performed by other medical officers (Table 38).

## 5.11 Repair of Perineum and/or Vagina

There were 13,326 or 52.5% of all women confined, 7,407 (38.1%) of women delivered per vaginam who did not require any form of perineal or vaginal repair following delivery. Among women whose vaginal delivery incurred perineal and/or vaginal damage, 4,490 (23.1%) had an episiotomy repaired, 6,699 (34.4%) a first or second degree tear and for 191 (1.0%) a third or fourth degree tear needed repair. A further 672 (3.5%) women who delivered per vaginam were reported to have had repair of other vaginal and/or labial trauma (Table 39).

## 6. BABY CHARACTERISTICS - 1999

### 6.1 Births

A Notification of Case Attended Form 2 (Appendix B) was received for 25,771 births of 20 weeks or more gestation or 400 grams or greater birthweight in 1999.

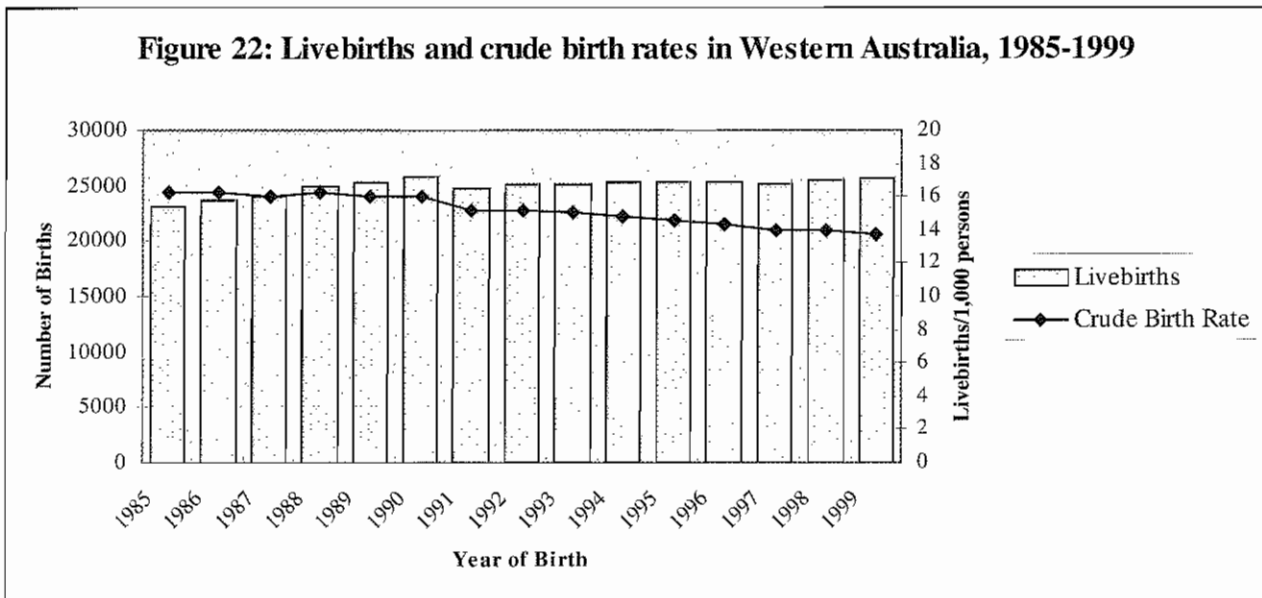
### 6.2 Livebirths

The actual number of livebirths increased gradually over the fifteen year period from 1985 to 1999 with the percentage representing 99.1% in 1985 and 99.3% in 1999 of total births in Western Australia (Table 40, Figure 22).

### 6.3 Crude Birth Rate

The crude birth rate was 13.8 per 1000 population in 1999. 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 1999.

Trend data indicate that the crude birth rate in Western Australia has steadily declined in recent years from 16.3 per 1000 in 1985 to 13.8 per 1000 in 1999 (Table 40, Figure 22).



### 6.4 Gender

There were 13,148 (51.0%) male births and 12,623 (49.0%) female births during 1999 (Table 41) (male:female ratio of 1.04).

The assessment of condition at birth showed that 48.6% of stillbirths and 51.0% of livebirths were male.

## 6.5 Condition at Birth

Of the total 25,771 births, 25,592 were liveborn and 179 (6.9 per 1000) were stillborn (Table 42).

There were significant differences in stillbirth rates based on the Aboriginality of their mothers. Among babies born to women recorded as non-Aboriginal the stillbirth rate (6.5 per 1000) was lower than the rate for babies of Aboriginal mothers (13.5 per 1000) (Table 42).

More than half of the stillbirths (61.5%) were delivered in a metropolitan obstetric teaching hospital where one-fifth (20.6%) of all births occurred. This reflects the referral for delivery to a tertiary centre of mothers with high risk pregnancies and/or with fetal death in utero. This is also reflected in the rural sector with 55.4% of the deliveries occurring in the regional hospitals and 66.7% of the stillbirths being delivered in these hospitals. (Table 43).

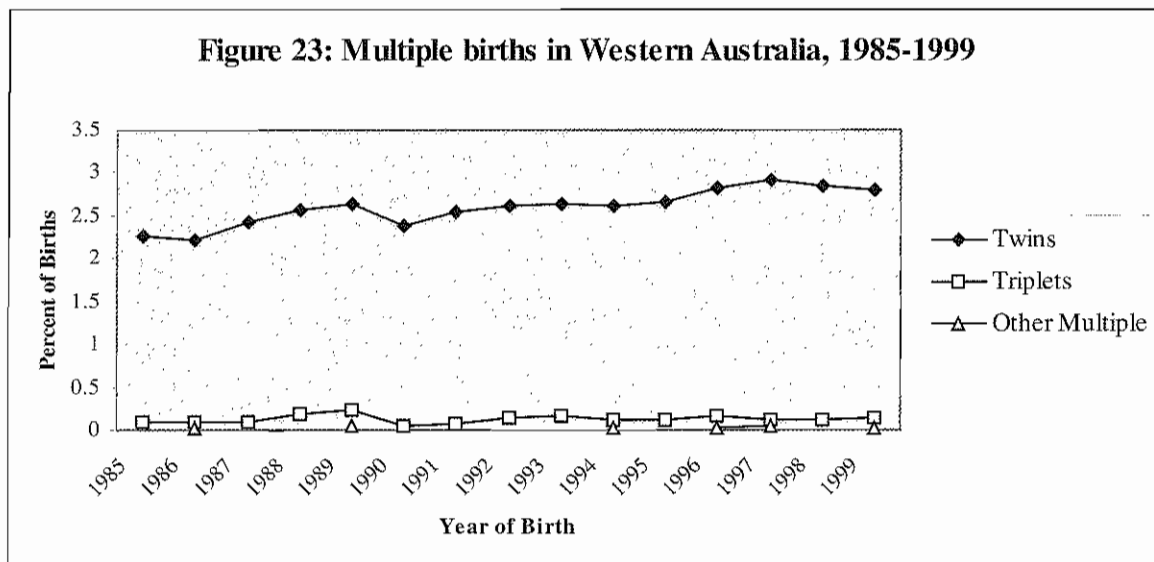
Consideration of condition at birth showed that livebirths represented 99.3% and stillbirths 0.7% of total births. This proportion of still births has varied from 0.7% in 1999 up to 0.9% in 1985 (Table 40).

## 6.6 Plurality of Birth

Singleton births accounted for 25,003 (97.0%) and multiple births 768 (3.0%) in 1999. The multiple births comprised 720 twin babies, 39 triplet babies and 9 higher multiple birth babies.

The proportion of multiple births remained relatively stable over the past fifteen years with a slight increase in twin births (2.3% in 1985 to 2.8% in 1999) (Table 44).

The rates for higher order multiple births gradually increased until 1989 and then declined. For example, the rate of triplet births increased from 24 (0.1%) babies in 1985 to 57 (0.2%) in 1989. Since 1992 the number has stabilised and varies from 27 (0.1%) in 1995 to 39 (0.2%) in 1999. There were 39 (0.2%) triplet births in 1999. Much of the variation in the multiple birth rates may be linked to fertility treatments (Table 44, Figure 23).



## 6.7 Apgar Score at One Minute and Five Minutes

More than three quarters of livebirths (77.3%) had a recorded Apgar Score at one minute of 8-10, while 465 (1.8%) livebirths had an Apgar Score of three or less at one minute of life (Table 45).

The majority of livebirths, (97.0%) had a recorded Apgar Score at five minutes of 8-10, and 770 (3.0%) livebirths had an Apgar Score of seven or less at five minutes of life (Table 46).

## 6.8 Time to Spontaneous Respiration

Eighty seven percent of all livebirths were recorded as having established spontaneous respiration within the first minute of life. A further 2705 (10.6%) of livebirths required between two and six minutes to establish respiration and 75 (0.3%) babies needed seven minutes or more. There were 411 (1.6%) livebirths who were intubated following delivery and therefore for these babies the time to establish spontaneous respiration is unknown (Table 45).

## 6.9 Resuscitation

More than half (52.7%) of the 25,592 liveborn babies in 1999 received some form of resuscitation at birth. Those babies who received no resuscitation numbered 12,097 (47.3%). Resuscitation procedures of intubation (427, 1.7%) and bag and mask (1694, 6.6%) were used and a further 4,493 (17.6%) babies received oxygen therapy only (Table 48).

When resuscitation and Apgar Scores at 5 minutes were examined it was found that 26.5% of the babies with an Apgar Score of 1-3 and 29.0% of those with an Apgar Score of 4-7 were intubated (Table 47).

## 6.10 Birthweight

Two thirds (66.8%) of all babies born weighed between 3000 and 3999 grams at birth with an average birthweight of **3343** grams. The percentage of low birthweight babies (less than 2500 grams) was 6.7% and those of very low birthweight (less than 1500 grams) was 1.0% of the total births. Low birthweight among babies of Aboriginal mothers was 14.2%, more than twice that of non-Aboriginal births of whom only 6.2% were in the low birthweight category (Table 49).

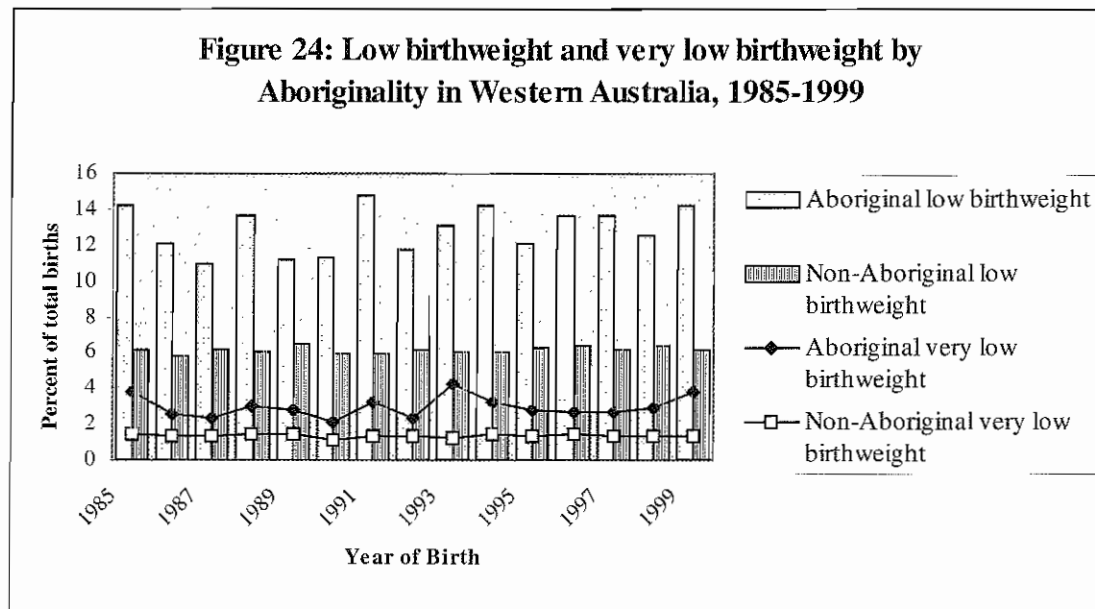
Among the 1,719 low birthweight babies (less than 2500 grams), 1,577 (91.7%) were liveborn and 142 (8.3%) were stillborn. This meant that while 79.3% of stillbirths were of low birthweight only 6.2% of livebirths were in the low birthweight category (Table 44).

Singleton births showed similar birthweight distribution to total births. Among singleton births of low birthweight babies there were 1,186 livebirths and 119 stillbirths. For stillbirths 76.3% were low birthweight and of the livebirths 4.8% were in this category (Table 52).

Of multiple births, there were 391 liveborn and 23 stillborn in the low birthweight group. None of the 23 stillborn multiple births had a birthweight greater than or equal to 2500 grams (Table 53).

Trend data from 1985 to 1999 on low birthweight (less than 2500 grams) and very low birthweight (less than 1500 grams) for babies of Aboriginal and non-Aboriginal women show marked differences. Among babies of Aboriginal women the low birthweight percentage ranged between 11.0% and 14.8% and the very low birthweight percentage between 2.2% and 4.3%. For babies of non-Aboriginal women the low birthweight proportions were much lower ranging between 5.9% and 6.5% while the very low birthweight was also lower ranging from 1.1% to 1.5% (Table 50, Figure 24).

**Figure 24: Low birthweight and very low birthweight by Aboriginality in Western Australia, 1985-1999**



### 6.11 Gestational Age

Preterm birth (less than 37 weeks gestation) occurred for 1,995 (7.7%) of the total births in 1999 (Table 54). When examined for singleton births only, 1,566 (6.3%) babies were preterm (Table 55). Of the 768 multiple births, more than half, 429 babies (55.9%) were preterm (Table 56).

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

### 6.12 Birth Defects

Data on selected birth defects included in this report are made available by the Western Australian Birth Defects Registry<sup>12</sup> (Table 57).

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.

### 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 relate only to babies admitted to Level 2 or Level 3 Special Care nurseries.

Among the 25,592 livebirths, a total of 1,963 (7.7%) babies were reported to have received special care for one day or more. Of these, 1,653 (84.2%) were singleton births and 310 (15.8%) were multiple births. The rates for these babies were 64.6 per 1000 singleton livebirths and 416.1 per 1000 multiple livebirths.

Ten per cent of babies admitted to special care nurseries stayed more than 28 days and 73 (3.7%) babies stayed longer than 60 days. Multiple birth babies stayed longer in special care units, with 189 (61.0%) staying 8 days or more. Babies whose length of stay in Special Care Nurseries was less than one day are not recorded (Table 58).

#### **6.14 Neonatal Transfers**

Among the 25,592 livebirths, 978 (3.8%) 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, 370 (37.8%) and those babies who were transferred to another hospital prior to being discharged home.

#### **6.15 Length of Stay**

The majority of liveborn babies (20,129, 78.7%) stayed in their hospital of birth from two to seven days and another 2,161 (8.4%) stayed between 8 and 28 days. A further 238 (0.9%) babies stayed longer than 28 days (Table 59).

The length of stay of those 60 babies who were neither transferred from nor died in the hospital of birth is shown on Table 60. Among these surviving liveborn babies, 2,183 (8.9%) stayed 8 to 28 days and 180 (0.7%) stayed for longer than 28 days.

#### **6.16 Perinatal Mortality**

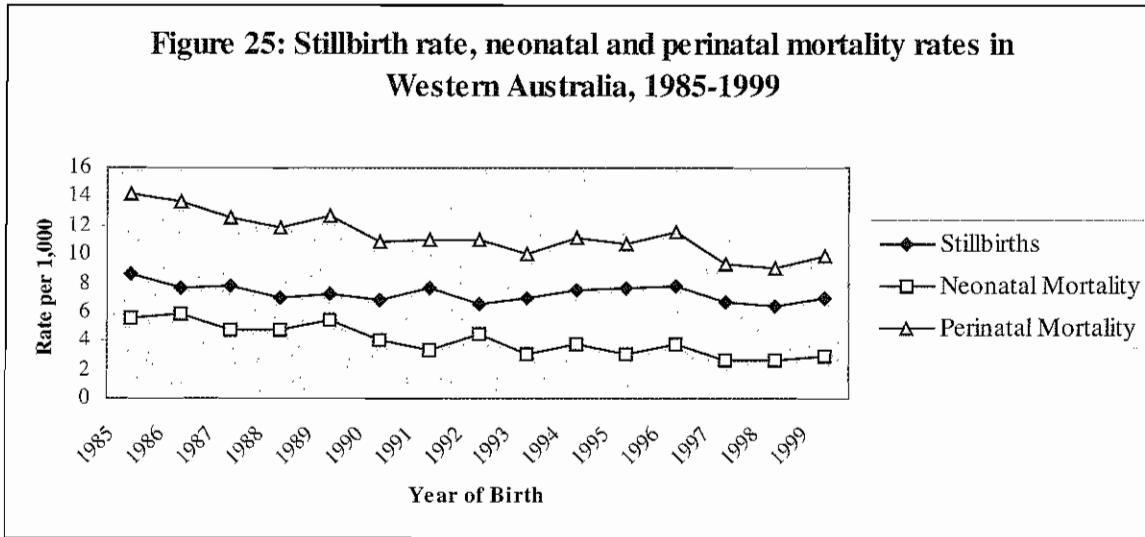
There were 179 stillbirths and 75 neonatal deaths of babies born during 1999. The perinatal mortality rate for Western Australia was 9.9 per 1000 total births of 20 weeks or more gestation or 400 grams birthweight. A comparative rate for births equal to or greater than 500 grams regardless of gestation was 6.8 per 1000 total births (Table 63).

Perinatal mortality rates considered on the basis of gestational age without reference to birthweight were 9.9 per 1000 for 20 weeks or more and 7.7 per 1000 for 22 weeks or more in 1999 (Table 64).

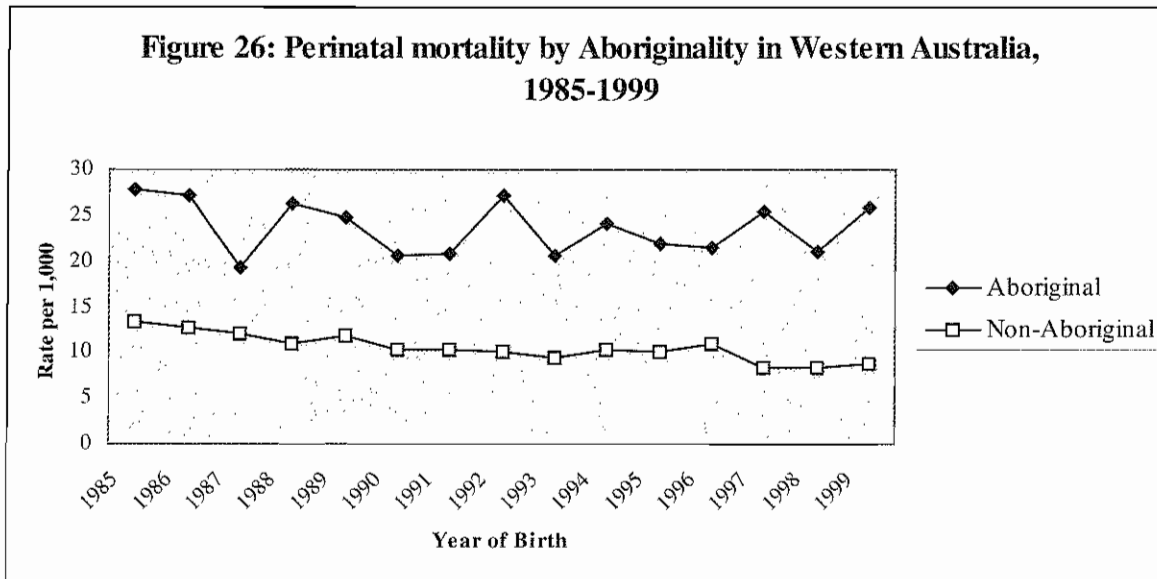
The perinatal mortality rate in Western Australia has been reduced by one third over the past fifteen years from 14.2 per 1000 in 1985 to 9.9 per 1000 in 1999. This decrease has mainly been due to the marked reductions in neonatal mortality rates and the smaller but consistent reductions in the stillbirth rates. (Table 66, Table 67, Figure 25)

In the fifteen years from 1985 to 1999 the perinatal mortality rate for babies of Aboriginal mothers has declined from 27.8 per 1000 to 25.8 per 1000 in 1999. However it remains almost three times the rate for babies of non-Aboriginal women (Table 68, Figure 26).

**Figure 25: Stillbirth rate, neonatal and perinatal mortality rates in Western Australia, 1985-1999**



**Figure 26: Perinatal mortality by Aboriginality in Western Australia, 1985-1999**



Three quarters (76.0%) of the perinatal deaths were of low birthweight. Overall 79.3% of stillbirths and 68.0% of neonatal deaths weighed less than 2500 grams at birth. Over half (54.7%) of the perinatal deaths had a birthweight of less than 1000 grams (Table 69).

Among the 768 multiple births, there were 30 perinatal deaths. Of these, 23 were stillborn and 7 were neonatal deaths. The stillbirth rate for multiple births (29.9 per 1000) was four times the rate for singleton births (6.2 per 1000). The neonatal mortality rate for multiple births (9.4 per 1000) was greater than that of the rate for singleton births (2.7 per 1000) (Table 70).



When stillbirths were examined by time of death, 86 (48.0%) occurred antepartum, 68 (38.0%) were intrapartum deaths and timing of stillbirth was unknown in 25 (14.0%) cases. More than one half (40, 52.0%) of neonatal deaths occurred within the first day of life (Table 71).

The causes of death for stillborn babies include contributing factors relating to extremely low birthweight (less than 1000 grams) (39.1%), intrauterine asphyxia (22.3%), problems with placenta and cord (8.4%) and birth defects incompatible with life (23.5%).

The principal causes contributing to death of neonates were reported to be extremely low birthweight (34.7%) and lethal birth defects (28.0%) (Table 72).

It is known that autopsies were requested for 114 (63.7%) stillbirths and 40 (53.3%) neonatal deaths. In the case of 12 (4.7%) perinatal deaths it is unknown whether an autopsy was requested (Table 73).

**Table 1: Age and Aboriginality of women confined in Western Australia, 1999**

Maternal Age	Aboriginality of Mother				Total	
	Aboriginal		Non-Aboriginal		No.	%
	No.	%	No.	%		
<= 14	8	0.5	7	0.0	15	0.1
15	36	2.3	28	0.1	64	0.3
16	60	3.8	101	0.4	161	0.6
17	86	5.4	185	0.8	271	1.1
18	88	5.5	333	1.4	421	1.7
19	102	6.4	475	2.0	577	2.3
<b>&lt;= 19</b>	<b>380</b>	<b>23.8</b>	<b>1129</b>	<b>4.7</b>	<b>1509</b>	<b>5.9</b>
20-24	530	33.1	3854	16.2	4384	17.3
25-29	387	24.2	7635	32.1	8022	31.6
30-34	204	12.8	7369	31.0	7573	29.8
35-39	88	5.5	3258	13.7	3346	13.2
40-44	9	0.6	512	2.2	521	2.1
>= 45	1	0.1	22	0.1	23	0.1
<b>TOTAL</b>	<b>1599</b>	<b>100.0</b>	<b>23779</b>	<b>100.0</b>	<b>25378</b>	<b>100.0</b>

Mean = 29 years. Standard deviation = 6 years.

**Table 2: Age of women confined in Western Australia, 1985-1999**

Year of Birth	Maternal Age						Total	
	<= 19		20-34		>= 35		No.	%
	No.	%	No.	%	No.	%		
1985	1457	6.3	20063	86.9	1559	6.8	23079	100.0
1986	1535	6.5	20344	86.2	1724	7.3	23603	100.0
1987	1494	6.3	20600	86.2	1801	7.5	23895	100.0
1988	1635	6.6	21085	85.0	2081	8.4	24801	100.0
1989	1586	6.3	21372	85.0	2199	8.7	25157	100.0
1990	1662	6.5	21617	84.1	2423	9.4	25702	100.0
1991	1639	6.6	20602	83.5	2438	9.9	24679	100.0
1992	1574	6.3	20757	83.1	2639	10.6	24970	100.0
1993	1496	6.0	20670	82.8	2807	11.2	24973	100.0
1994	1592	6.3	20515	81.8	2964	11.8	25071	100.0
1995	1522	6.1	20395	81.3	3173	12.6	25090	100.0
1996	1521	6.0	20297	80.6	3374	13.4	25192	100.0
1997	1446	5.8	19899	80.0	3524	14.2	24869	100.0
1998	1519	6.0	19928	78.8	3847	15.2	25294	100.0
1999	1509	5.9	19979	78.7	3890	15.3	25378	100.0

**Table 3: Country of birth and age of women confined in Western Australia, 1999**

Country of birth	Maternal Age						Total	
	<= 19		20-34		>= 35		No.	%
	No.	%	No.	%	No.	%		
Australia	1255	88.7	14079	74.6	2122	54.6	17456	73.0
New Zealand	57	4.0	672	3.6	164	4.2	893	3.7
Other Pacific	3	0.2	50	0.3	10	0.3	63	0.3
United Kingdom and Ireland	56	4.0	1740	9.2	603	15.5	2399	10.0
Other Europe	8	0.6	705	3.7	190	4.9	903	3.8
Vietnam	4	0.3	234	1.2	56	1.4	294	1.2
Malaysia	-	-	149	0.8	46	1.2	195	0.8
Other SE Asia	12	0.8	391	2.1	115	3.0	518	2.2
Other Asia	3	0.2	288	1.5	124	3.2	415	1.7
North America	-	-	97	0.5	59	1.5	156	0.7
South and Central America	6	0.4	61	0.3	11	0.3	78	0.3
South Africa and Zimbabwe	8	0.6	166	0.9	36	0.9	210	0.9
Other Africa and Middle East	3	0.2	248	1.3	76	2.0	327	1.4
<b>TOTAL</b>	<b>1415</b>	<b>100.0</b>	<b>18880</b>	<b>100.0</b>	<b>3890</b>	<b>100.0</b>	<b>23907</b>	<b>100.0</b>

Excludes 1471 women whose country of birth is unknown.

**Table 4: Conjugal state and plurality of women confined in Western Australia, 1999**

Conjugal State	Plurality				TOTAL	
	Singleton		Multiple		No.	%
	No.	%	No.	%		
Single	2138	8.6	25	6.7	2163	8.5
Married/De facto	22518	90.1	348	92.8	22866	90.1
Other <sup>1</sup>	347	1.4	2	0.5	349	1.4
<b>TOTAL</b>	<b>25003</b>	<b>100.0</b>	<b>375</b>	<b>100.0</b>	<b>25378</b>	<b>100.0</b>

<sup>1</sup> Other includes separated, divorced and widowed.

Table 5: Health zone of residence and Aboriginality of women confined in Western Australia, 1999

Health Zone of Residence	Aboriginality of Mother				TOTAL	
	Aboriginal No.	%	Non-Aboriginal No.	%	No.	%
<b>Metropolitan</b>						
North	120	7.5	5978	25.1	6098	24.0
East	134	8.4	3583	15.1	3717	14.6
South West	117	7.3	4114	17.3	4231	16.7
South East	169	10.6	4107	17.3	4276	16.8
<b>Country</b>						
Kimberley	403	25.2	241	1.0	644	2.5
Pilbara	164	10.3	584	2.5	748	2.9
Mid West	201	12.6	786	3.3	987	3.9
Midlands	44	2.8	708	3.0	752	3.0
Goldfields	121	7.6	971	4.1	1092	4.3
South West	62	3.9	1675	7.0	1737	6.8
Great Southern	61	3.8	1011	4.3	1072	4.2
Outside WA	3	0.2	21	0.1	24	0.1
<b>TOTAL</b>	<b>1599</b>	<b>100.0</b>	<b>23779</b>	<b>100.0</b>	<b>25378</b>	<b>100.0</b>

Table 6: Place of confinement for women resident in metropolitan health zones in Western Australia, 1999

Health Zone of Residence	Birth Hospital in Health Zone						Non Hospital	TOTAL
	North Metro		East	SW Metro	SE Metro	Country		
	Teaching No.	Other No.	Metro No.	No.	No.	No.	No.	No.
North	1364	4440	177	59	18	4	36	6098
East	1021	836	1737	30	64	2	27	3717
South West	662	175	20	3246	41	41	46	4231
South East	1510	243	195	694	1595	4	35	4276
<b>TOTAL</b>	<b>4557</b>	<b>5694</b>	<b>2129</b>	<b>4029</b>	<b>1718</b>	<b>51</b>	<b>144</b>	<b>18322</b>
	%	%	%	%	%	%	%	%
North	22.4	72.8	2.9	1.0	0.3	0.1	0.6	100.0
East	27.5	22.5	46.7	0.8	1.7	0.1	0.7	100.0
South West	15.6	4.1	0.5	76.7	1.0	1.0	1.1	100.0
South East	35.3	5.7	4.6	16.2	37.3	0.1	0.8	100.0
<b>TOTAL</b>	<b>24.9</b>	<b>31.1</b>	<b>11.6</b>	<b>22.0</b>	<b>9.4</b>	<b>0.3</b>	<b>0.8</b>	<b>100.0</b>

Table 7: Place of confinement for women resident in country health zones in Western Australia, 1999

Health Zone of Residence	Birth Hospital in Health Zone				Non Hospital	TOTAL
	Internal	Metro		Other Country		
		No.	Teaching No.		Other No.	No.
Kimberley	593	36	14	-	1	644
Pilbara	602	59	77	8	2	748
Mid West	758	111	89	23	6	987
Midlands	248	144	322	34	4	752
Goldfields	982	60	43	5	2	1092
South West	1570	92	43	11	21	1737
Grt Southern	836	86	117	19	14	1072
<b>TOTAL</b>	<b>5589</b>	<b>588</b>	<b>705</b>	<b>100</b>	<b>50</b>	<b>7032</b>
	%	%	%	%	%	%
Kimberley	92.1	5.6	2.2	-	0.2	100.0
Pilbara	80.5	7.9	10.3	1.1	0.3	100.0
Mid West	76.8	11.2	9.0	2.3	0.6	100.0
Midlands	33.0	19.1	42.8	4.5	0.5	100.0
Goldfields	89.9	5.5	3.9	0.5	0.2	100.0
South West	90.4	5.3	2.5	0.6	1.2	100.0
Grt Southern	78.0	8.0	10.9	1.8	1.3	100.0
<b>TOTAL</b>	<b>79.5</b>	<b>8.4</b>	<b>10.0</b>	<b>1.4</b>	<b>0.7</b>	<b>100.0</b>

Table 8: Actual place of confinement and intended place of confinement for women confined in Western Australia, 1999

Actual Place of Confinement	Intended Place of Confinement				TOTAL
	Hospital No.	Birth Centre No.	Home No.	Other No.	
Teaching	4555	165	8	5	4733
Public Hospital	11526	86	20	2	11634
Private Hospital	8382	9	6	1	8398
Birth Centre	12	405	-	-	417
Home	11	1	114	-	126
BBA	57	6	5	2	70
<b>TOTAL</b>	<b>24543</b>	<b>672</b>	<b>153</b>	<b>10</b>	<b>25378</b>
	%	%	%	%	%
Teaching	96.2	3.5	0.2	0.1	100.0
Public Hospital	99.1	0.7	0.2	0.0	100.0
Private Hospital	99.8	0.1	0.1	0.0	100.0
Birth Centre	2.9	97.1	-	-	100.0
Home	-	0.8	90.5	-	100.0
BBA	81.4	8.6	7.1	2.9	100.0
<b>TOTAL</b>	<b>96.7</b>	<b>2.6</b>	<b>0.6</b>	<b>0.0</b>	<b>100.0</b>

**Table 9: Place of confinement and plurality of women confined in Western Australia, 1999**

Place of Birth	Plurality				TOTAL	
	Singleton No.	%	Multiple No.	%	No.	%
<b>Metropolitan</b>						
Teaching <sup>1</sup>	4975	19.9	175	46.7	5150	20.3
Department	6323	25.3	40	10.7	6363	25.1
Private <sup>2</sup>	7809	31.2	116	30.9	7925	31.2
<b>Country</b>						
Regional <sup>3</sup>	3144	12.6	31	8.3	3175	12.5
Private	467	1.9	6	1.6	473	1.9
Other <sup>4</sup>	2090	8.4	6	1.6	2096	8.3
<b>Non Hospital</b>						
Homebirths	126	0.5	-	-	126	0.5
BBA <sup>5</sup>	69	0.3	1	0.3	70	0.3
<b>TOTAL</b>	<b>25003</b>	<b>100.0</b>	<b>375</b>	<b>100.0</b>	<b>25378</b>	<b>100.0</b>

<sup>1</sup> Teaching Hospital - University Medical School (Teaching Hospitals Act 1955).

<sup>2</sup> Private Hospital - includes some Private Hospitals with both private and public beds.

<sup>3</sup> Country Regional Hospital - Government Hospital in regional centres.

<sup>4</sup> Other Country Hospital - Government and Board Hospitals.

<sup>5</sup> BBA - born before arrival at hospital.

**Table 10: Place of confinement of women confined in Western Australia, 1985-1999**

Year of Birth	Place of Birth									
	Teaching		Public		Private		Home Birth		BBA	
	No.	%	No.	%	No.	%	No.	%	No.	%
1985	4663	20.2	11302	49.0	6900	29.9	143	0.6	71	0.3
1986	4921	20.8	11977	50.7	6483	27.5	174	0.7	48	0.2
1987	4625	19.4	12008	50.3	7053	29.5	144	0.6	65	0.3
1988	4766	19.2	12361	49.8	7420	29.9	175	0.7	79	0.3
1989	4675	18.6	12751	50.7	7478	29.7	176	0.7	77	0.3
1990	4674	18.2	13349	51.9	7436	28.9	151	0.6	92	0.4
1991	4199	17.0	13054	52.9	7204	29.2	145	0.6	77	0.3
1992	4300	17.2	13269	53.1	7216	28.9	107	0.4	78	0.3
1993	4694	18.8	12935	51.8	7161	28.7	102	0.4	81	0.3
1994	4917	19.6	12841	51.2	7111	28.4	109	0.4	93	0.4
1995	4931	19.7	12913	51.5	7055	28.1	96	0.4	95	0.4
1996	5074	20.1	12331	48.9	7583	30.1	120	0.5	84	0.3
1997	5025	20.2	11925	48.0	7742	31.1	113	0.5	64	0.3
1998	4912	19.4	11980	47.4	8201	32.4	102	0.4	99	0.4
1999	5150	20.3	11634	45.8	8398	33.1	126	0.5	70	0.3

Table 11: Parity and Aboriginality of women confined in Western Australia, 1999

Parity	Aboriginality of Mother				TOTAL	
	Aboriginal		Non-Aboriginal		No.	%
	No.	%	No.	%		
0	437	27.3	9815	41.3	10252	40.4
1-2	672	42.0	11912	50.1	12584	49.6
3-4	344	21.5	1782	7.5	2126	8.4
>= 5	146	9.1	270	1.1	416	1.6
<b>TOTAL</b>	<b>1599</b>	<b>100.0</b>	<b>23779</b>	<b>100.0</b>	<b>25378</b>	<b>100.0</b>

Table 12: Parity and age of women confined in Western Australia, 1999

Parity	Maternal Age						TOTAL	
	<= 19		20-34		>= 35		No.	%
	No.	%	No.	%	No.	%		
0	1242	82.3	8151	40.8	859	22.1	10252	40.4
1-2	262	17.4	10092	50.5	2230	57.3	12584	49.6
3-4	4	0.3	1497	7.5	625	16.1	2126	8.4
>= 5	1	0.1	239	1.2	176	4.5	416	1.6
<b>TOTAL</b>	<b>1509</b>	<b>100.0</b>	<b>19979</b>	<b>100.0</b>	<b>3890</b>	<b>100.0</b>	<b>25378</b>	<b>100.0</b>

Table 13: Parity of women confined in Western Australia, 1985-1999

Year of Birth	Number of Women	Parity				Average Parity
		0	1-2	3-4	>= 5	
		%	%	%	%	
1985	23079	38.1	52.2	8.4	1.2	1.04
1986	23603	38.9	51.4	8.5	1.2	1.04
1987	23895	38.9	51.3	8.5	1.3	1.04
1988	24801	38.6	51.4	8.7	1.3	1.05
1989	25157	39.5	50.2	8.9	1.4	1.05
1990	25702	39.0	50.5	9.2	1.3	1.06
1991	24679	39.7	49.8	9.1	1.3	1.05
1992	24970	38.7	50.8	9.0	1.5	1.06
1993	24973	38.7	50.9	8.9	1.6	1.06
1994	25071	40.0	49.7	8.8	1.5	1.04
1995	25090	40.6	49.2	8.6	1.6	1.03
1996	25192	40.0	49.9	8.5	1.5	1.03
1997	24869	40.3	49.6	8.6	1.6	1.03
1998	25294	40.0	49.7	8.7	1.6	1.03
1999	25378	40.4	49.6	8.4	1.6	1.02

**Table 14: Socioeconomic status and age of women resident in metropolitan Health Services confined in Western Australia, 1999**

Socio-economic Status <sup>1</sup>	Women Confined		Maternal Age						Parity ≥ 5	
			<= 17		18-34		≥ 35			
	No.	%	No.	%	No.	%	No.	%	No.	%
I	3367	18.5	9	0.0	2512	13.8	846	4.6	23	0.1
II	4677	25.6	33	0.2	3774	20.7	870	4.8	54	0.3
III	4966	27.2	91	0.5	4210	23.1	665	3.6	55	0.3
IV	5232	28.7	157	0.9	4414	24.2	661	3.6	125	0.7
<b>TOTAL</b>	<b>18242</b>	<b>100.0</b>	<b>290</b>	<b>1.6</b>	<b>14910</b>	<b>81.7</b>	<b>3042</b>	<b>16.7</b>	<b>257</b>	<b>1.4</b>

<sup>1</sup> Socioeconomic status is in accord with the socioeconomic indices for areas, a postcode-based indicator constructed by the Australian Bureau of Statistics using 1996 Census data. Postcodes were allocated to four groups based on the socioeconomic status.

**Table 15: Age-specific birth rates and Aboriginality for women confined in Western Australia, 1999**

Age	Aboriginality of Mother						TOTAL		
	Aboriginal			Non-Aboriginal			Births	Population	Birth Rate <sup>1</sup>
	Births	Population	Birth Rate <sup>1</sup>	Births	Population	Birth Rate <sup>1</sup>			
15-19	375	2791	134.4	1130	63149	17.9	1505	65940	22.8
20-24	536	2357	227.4	3885	65528	59.3	4421	67885	65.1
25-29	393	2344	167.7	7748	69019	112.3	8141	71363	114.1
30-34	213	2241	95.0	7505	67062	111.9	7718	69303	111.4
35-39	89	1960	45.4	3320	72700	45.7	3409	74660	45.7
40-44	9	1544	5.8	530	70260	7.5	539	71804	7.5
<b>TOTAL</b>	<b>1615</b>	<b>13237</b>	<b>122.0</b>	<b>24118</b>	<b>407718</b>	<b>59.2</b>	<b>25733</b>	<b>420955</b>	<b>61.1</b>

<sup>1</sup> Age-Specific Birth Rate - The total number of births in one year per 1000 women of the same age group.

SOURCE: Estimated resident population, Health Information Centre, HDWA 2000.



Table 16: Age-specific birth rates<sup>1</sup> by age and Aboriginality of mother in Western Australia, 1985-1999

Year of Birth	Aboriginality of Mother						TOTAL		
	Aboriginal			Non-Aboriginal			15-19	20-34	35-44
	15-19	20-34	35-44	15-19	20-34	35-44			
1985	172.7	161.9	14.9	18.3	111.6	16.1	24.6	113.0	16.1
1986	156.4	158.6	17.6	19.3	110.4	16.9	24.9	111.7	16.9
1987	159.1	166.7	23.3	17.9	109.2	16.8	23.5	110.9	16.9
1988	181.6	167.7	19.3	18.9	109.9	18.5	25.2	111.6	18.5
1989	165.2	169.4	20.8	18.7	108.6	18.6	24.4	110.4	18.7
1990	166.5	179.6	24.0	20.0	107.6	19.6	25.5	109.7	19.7
1991	180.1	157.7	21.2	19.6	102.4	19.2	25.8	104.1	19.2
1992	159.9	154.7	19.0	20.0	102.7	20.4	25.4	104.3	20.4
1993	165.7	152.3	21.4	18.5	102.4	21.6	24.2	104.0	21.6
1994	166.0	148.2	18.2	20.1	101.2	22.5	25.7	102.7	22.4
1995	143.6	151.8	22.5	19.7	99.6	23.7	24.6	101.3	23.7
1996	137.7	148.2	21.7	19.6	98.9	24.6	24.1	100.6	24.5
1997	156.2	159.4	22.0	17.4	95.7	25.1	22.7	97.9	25.0
1998	137.9	151.7	26.3	18.2	95.1	27.0	23.2	97.0	27.0
1999	134.4	164.5	28.0	17.9	94.9	26.9	22.8	97.2	27.0

<sup>1</sup> Age-Specific Birth Rate - The total number of births in one year per 1000 women of the same age group.

Table 17: Selected complications of pregnancy and plurality of women confined in Western Australia, 1999

Complications of Pregnancy <sup>1</sup>	Plurality				TOTAL	
	Singleton		Multiple		No.	% <sup>4</sup>
	No.	% <sup>2</sup>	No.	% <sup>3</sup>		
Threatened abortion	1368	5.5	30	8.0	1398	5.5
Threatened preterm labour	663	2.7	39	10.4	702	2.8
Urinary tract infection	971	3.9	10	2.7	981	3.9
Pre-eclampsia	1458	5.8	62	16.5	1520	6.0
Antepartum haemorrhage						
- placenta praevia	113	0.5	1	0.3	114	0.4
- abruptio	129	0.5	2	0.5	131	0.5
- other	636	2.5	18	4.8	654	2.6
Premature rupture of membranes	1222	4.9	58	15.5	1280	5.0
Gestational diabetes	903	3.6	22	5.9	925	3.6
Other	3115	12.5	115	30.7	3230	12.7
<b>No complications of pregnancy</b>	<b>16323</b>	<b>65.3</b>	<b>128</b>	<b>34.1</b>	<b>16451</b>	<b>64.8</b>

<sup>1</sup> A woman may have more than one complication of pregnancy.

<sup>2</sup> Percentage of women with a singleton pregnancy.

<sup>3</sup> Percentage of women with a multiple pregnancy.

<sup>4</sup> Percentage of women confined.

**Table 18: Pre-existing medical conditions for women confined in Western Australia, 1999**

Medical Conditions <sup>1</sup>	% of women	
	No.	confined
Asthma	2505	9.9
Cardiac murmurs	199	0.8
Genital herpes	484	1.9
Essential hypertension	223	0.9
Thyroid disorders	230	0.9
Epilepsy	131	0.5
Urinary tract infection	280	1.1
Anaemia	954	3.8
Bronchial disorders	54	0.2
Cervical dysplasia	152	0.6
Vaginal infections	319	1.3
Spinal deformities/disorders	142	0.6
Pre-existing diabetes	83	0.3
Psychological disorders	804	3.2
<b>No medical conditions</b>	<b>17941</b>	<b>70.7</b>

<sup>1</sup> A woman may have more than one medical condition.

**Table 19: Onset of labour and plurality of women confined in Western Australia, 1999**

Onset of Labour	Plurality				TOTAL	
	Singleton		Multiple		No	%
	No.	%	No	%		
Spontaneous	14043	56.2	135	36.0	14178	55.9
Induced	7442	29.8	112	29.9	7554	29.8
No Labour	3518	14.1	128	34.1	3646	14.4
<b>TOTAL</b>	<b>25003</b>	<b>100.0</b>	<b>375</b>	<b>100.0</b>	<b>25378</b>	<b>100.0</b>

**Table 20: Onset and augmentation of labour and type of delivery for women confined in Western Australia, 1999**

Onset and Augmentation of Labour	Type of Delivery								TOTAL	
	Spontaneous		Assisted Vaginal		Elective		Emergency		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
Spontaneous onset no augmentation	6730	26.5	802	3.2	-	-	771	3.0	8303	32.7
Spontaneous onset and augmentation	4005	15.8	1318	5.2	-	-	552	2.2	5875	23.1
Induced onset	5039	19.9	1555	6.1	-	-	960	3.8	7554	29.8
No Labour	-	-	-	-	3310	13.0	336	1.3	3646	14.4
<b>TOTAL</b>	<b>15774</b>	<b>62.2</b>	<b>3675</b>	<b>14.5</b>	<b>3310</b>	<b>13.0</b>	<b>2619</b>	<b>10.3</b>	<b>25378</b>	<b>100.0</b>

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

**Table 21: Augmentation of labour and hours of established labour for women with a spontaneous onset confined in Western Australia, 1999**

Type of Augmentation	Hours of Established Labour						TOTAL
	< 1	1-4	5-12	13-18	19-24	> 24	No.
	No.	No.	No.	No.	No.	No.	No.
None	434	3777	3607	376	66	21	8281
Oxytocin	34	332	819	250	81	21	1537
Artificial rupture of membranes	47	1007	1771	303	72	19	3219
Oxytocin and ARM	31	195	513	221	73	36	1069
Other	4	16	21	6	-	1	48
<b>TOTAL</b>	<b>550</b>	<b>5327</b>	<b>6731</b>	<b>1156</b>	<b>292</b>	<b>98</b>	<b>14154</b>
	%	%	%	%	%	%	%
None	78.9	70.9	53.6	32.5	22.6	21.4	58.5
Oxytocin	6.2	6.2	12.2	21.6	27.7	21.4	10.9
Artificial rupture of membranes	8.5	18.9	26.3	26.2	24.7	19.4	22.7
Oxytocin and ARM	5.6	3.7	7.6	19.1	25.0	36.7	7.6
Other	0.7	0.3	0.3	0.5	-	-	0.3
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Excludes 24 women for whom hours of established labour were not recorded.

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

**Table 22: Type of induction and delivery for women who were induced in Western Australia, 1999**

Type of Induction	Type of Delivery						TOTAL	
	Spontaneous Vaginal		Assisted Vaginal		Emergency Caesarean		No.	%
	No.	%	No.	%	No.	%		
Oxytocin	349	68.6	89	17.5	71	13.9	509	100.0
Prostaglandin	571	61.0	170	18.2	195	20.8	936	100.0
Artificial rupture of membrane	592	79.5	100	13.4	53	7.1	745	100.0
Oxytocin and ARM	2373	72.2	655	19.9	260	7.9	3288	100.0
Prostaglandin and ARM	460	71.7	120	18.7	62	9.7	642	100.0
Prostaglandin and Oxytocin	90	40.9	63	28.6	67	30.5	220	100.0
Prostaglandin, Oxytocin and ARM	560	49.2	329	28.9	249	21.9	1138	100.0
Other	44	57.9	29	38.2	3	3.9	76	100.0
<b>TOTAL</b>	<b>5039</b>	<b>66.7</b>	<b>1555</b>	<b>20.6</b>	<b>960</b>	<b>12.7</b>	<b>7554</b>	<b>100.0</b>

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

**Table 23: Onset of labour for singleton births of women confined in Western Australia, 1985-1999**

Year of Birth	Onset of Labour						TOTAL	
	Spontaneous		Induced		No Labour		No.	%
No.	%	No.	%	No.	%			
1985	14806	64.9	5886	25.8	2114	9.3	22806	100.0
1986	14824	63.5	6280	26.9	2224	9.5	23328	100.0
1987	14959	63.4	6183	26.2	2450	10.4	23592	100.0
1988	15688	64.1	6330	25.9	2443	10.0	24461	100.0
1989	15758	63.5	6386	25.8	2653	10.7	24797	100.0
1990	16512	65.0	6085	24.0	2792	11.0	25389	100.0
1991	15673	64.4	6045	24.8	2637	10.8	24355	100.0
1992	15395	62.5	6436	26.1	2797	11.4	24628	100.0
1993	14868	60.4	6766	27.5	2991	12.1	24625	100.0
1994	14958	60.5	6777	27.4	2993	12.1	24728	100.0
1995	14890	60.2	6879	27.8	2975	12.0	24744	100.0
1996	14856	59.9	6898	27.8	3063	12.3	24817	100.0
1997	14279	58.3	6945	28.4	3263	13.3	24487	100.0
1998	14047	56.4	7288	29.2	3583	14.4	24918	100.0
1999	14043	56.2	7442	29.8	3518	14.1	25003	100.0

**Table 24: Analgesia and type of delivery for women confined in Western Australia, 1999**

Type of Analgesia	Type of Delivery								TOTAL	
	Spontaneous		Assisted Vaginal		Elective		Emergency		No.	%
	No.	%	No.	%	No.	%	No.	%		
None	3774	14.9	183	0.7	3310	13.0	625	2.5	7892	31.1
Nitrous oxide	3697	14.6	303	1.2	-	-	54	0.2	4054	16.0
Intra-muscular narcotics	3606	14.2	499	2.0	-	-	158	0.6	4263	16.8
Epidural	3901	15.4	2500	9.9	-	-	1464	5.8	7865	31.0
Spinal	159	0.6	140	0.6	-	-	286	1.1	585	2.3
Other	637	2.5	50	0.2	-	-	32	0.1	719	2.8
<b>TOTAL</b>	<b>15774</b>	<b>62.2</b>	<b>3675</b>	<b>14.5</b>	<b>3310</b>	<b>13.0</b>	<b>2619</b>	<b>10.3</b>	<b>25378</b>	<b>100.0</b>

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

**Table 25: Anaesthesia and type of delivery for women confined in Western Australia, 1999**

Type of Anaesthesia	Type of Delivery								TOTAL	
	Spontaneous		Assisted Vaginal		Elective		Emergency		No.	%
	No.	%	No.	%	No.	%	No.	%		
None	10122	39.9	304	1.2	-	-	-	-	10426	41.1
Local anaesthesia to perineum	1448	5.7	440	1.7	-	-	-	-	1888	7.4
Pudendal	46	0.2	244	1.0	-	-	-	-	290	1.1
Epidural	3857	15.2	2580	10.2	1968	7.8	1682	6.6	10087	39.7
Spinal	69	0.3	87	0.3	1132	4.5	581	2.3	1869	7.4
General with Epidural or Spinal	-	-	4	0.0	34	0.1	72	0.3	110	0.4
General	16	0.1	7	0.0	176	0.7	284	1.1	483	1.9
Other	216	0.9	9	0.0	-	-	-	-	225	0.9
<b>TOTAL</b>	<b>15774</b>	<b>62.2</b>	<b>3675</b>	<b>14.5</b>	<b>3310</b>	<b>13.0</b>	<b>2619</b>	<b>10.3</b>	<b>25378</b>	<b>100.0</b>

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

**Table 26: Epidural and general anaesthesia/analgesia for women confined by caesarean section in Western Australia, 1986-1999**

Year of Birth	Type of Delivery								Number of Caesareans	
	Elective Caesarean				Emergency Caesarean				Elective No.	Emerg. No.
	Epidural		General		Epidural		General			
No.	%	No.	%	No.	%	No.	%	No.	No.	
1986	1089	58.8	622	33.6	868	47.3	823	44.9	1851	1835
1987	1436	69.6	610	29.6	1008	48.4	931	44.7	2063	2083
1988	1562	71.1	632	28.8	1047	49.4	929	43.8	2198	2120
1989	1774	75.3	582	24.7	1258	54.5	907	39.3	2357	2309
1990	1923	77.1	570	22.9	1436	61.4	902	38.6	2493	2338
1991	1846	78.2	516	21.8	1432	65.5	755	34.5	2362	2187
1992	2070	80.9	489	19.1	1486	65.9	768	34.1	2559	2254
1993	2282	82.6	481	17.4	1749	71.1	710	28.9	2763	2459
1994	2347	86.0	382	14.0	1891	75.8	603	24.2	2729	2494
1995	2371	86.5	369	13.5	1807	78.0	511	22.0	2740	2318
1996	2548	88.9	317	11.1	1860	81.5	423	18.5	2865	2283
1997	2761	90.8	281	9.2	2004	83.0	407	16.9	3042	2414
1998	3008	92.0	262	8.0	2257	85.6	379	14.4	3270	2636
1999	3100	93.7	210	6.3	2263	86.4	356	13.6	3310	2619

Women with multiple pregnancies are classified according to the features of the first multiple delivered.  
Epidural includes spinal anaesthesia/analgesia.

**Table 27: Presentation and type of delivery for singleton births in Western Australia, 1999**

Type of Delivery	Presentation						TOTAL	
	Vertex		Breech		Other		No.	%
	No.	%	No.	%	No.	%		
Normal	15628	65.6	3	0.3	44	21.2	15675	62.7
Vacuum	2301	9.7	-	-	7	3.4	2308	9.2
Forceps	1143	4.8	-	-	16	7.7	1159	4.6
Breech Manoeuvre	-	-	132	13.4	-	-	132	0.5
Elective Caesarean	2579	10.8	598	60.6	35	16.8	3212	12.8
Emergency Caesarean	2158	9.1	253	25.7	106	51.0	2517	10.1
<b>TOTAL</b>	<b>23809</b>	<b>100.0</b>	<b>986</b>	<b>100.0</b>	<b>208</b>	<b>100.0</b>	<b>25003</b>	<b>100.0</b>

**Table 28: Type of delivery and plurality of women confined in Western Australia, 1999**

Type of Delivery	Plurality								TOTAL	
	Singleton		Twin		Triplet		Other		No.	%
	No.	%	No.	%	No.	%	No.	%		
Normal	15675	62.7	98	27.2	-	-	1	50.0	15774	62.2
Vacuum	2308	9.2	24	6.7	-	-	-	-	2332	9.2
Forceps	1159	4.6	38	10.6	-	-	-	-	1197	4.7
Breech Manoeuvre	132	0.5	13	3.6	1	7.7	-	-	146	0.6
Elective Caesarean	3212	12.8	91	25.3	6	46.2	1	50.0	3310	13.0
Emergency Caesarean	2517	10.1	96	26.7	6	46.2	-	-	2619	10.3
<b>TOTAL</b>	<b>25003</b>	<b>100.0</b>	<b>360</b>	<b>100.0</b>	<b>13</b>	<b>100.0</b>	<b>2</b>	<b>100.0</b>	<b>25378</b>	<b>100.0</b>

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

**Table 29: Type of delivery and parity of women confined in Western Australia, 1999**

Type of Delivery	Parity								TOTAL	
	0		1-2		3-4		>= 5		No.	%
	No.	%	No.	%	No.	%	No.	%		
Spontaneous Vaginal	5051	49.3	8780	69.8	1612	75.8	331	79.6	15774	62.2
Assisted Vaginal	2662	26.0	936	7.4	64	3.0	13	3.1	3675	14.5
Elective Caesarean	883	8.6	2091	16.6	296	13.9	40	9.6	3310	13.0
Emergency Caesarean	1656	16.2	777	6.2	154	7.2	32	7.7	2619	10.3
<b>TOTAL</b>	<b>10252</b>	<b>100.0</b>	<b>12584</b>	<b>100.0</b>	<b>2126</b>	<b>100.0</b>	<b>416</b>	<b>100.0</b>	<b>25378</b>	<b>100.0</b>

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

**Table 30: Type of delivery and type of previous delivery of women confined in Western Australia, 1999**

Previous delivery	Type of Delivery								TOTAL	
	Spontaneous		Assisted Vaginal		Elective		Emergency		No.	%
	No.	%	No.	%	No.	%	No.	%		
First delivery	5051	49.3	2662	26.0	883	8.6	1656	16.2	10252	100.0
Previous deliveries no caesareans	10192	84.2	828	6.8	550	4.5	531	4.4	12101	100.0
Previous caesarean, last delivery vaginal	276	53.8	42	8.2	119	23.2	76	14.8	513	100.0
Previous caesarean, last delivery caesarean	255	10.2	143	5.7	1758	70.0	356	14.2	2512	100.0
<b>TOTAL</b>	<b>15774</b>	<b>62.2</b>	<b>3675</b>	<b>14.5</b>	<b>3310</b>	<b>13.0</b>	<b>2619</b>	<b>10.3</b>	<b>25378</b>	<b>100.0</b>

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

**Table 31: Place of confinement and type of delivery for women confined in Western Australia, 1999**

Place of Birth	Type of Delivery								TOTAL	
	Spontaneous Vaginal		Assisted Vaginal		Elective Caesarean		Emergency Caesarean		No.	%
	No.	%	No.	%	No.	%	No.	%		
<b>Metropolitan</b>										
Teaching	3235	62.8	705	13.7	462	9.0	748	14.5	5150	100.0
Departmental	4094	64.3	828	13.0	845	13.3	596	9.4	6363	100.0
Private	4174	52.7	1371	17.3	1565	19.7	815	10.3	7925	100.0
<b>Country</b>										
Regional	2206	69.5	467	14.7	222	7.0	280	8.8	3175	100.0
Private	275	58.1	91	19.2	59	12.5	48	10.1	473	100.0
Other	1594	76.0	213	10.2	157	7.5	132	6.3	2096	100.0
<b>Non-hospital</b>	196	100.0	-	-	-	-	-	-	196	100.0
<b>TOTAL</b>	<b>15774</b>	<b>62.2</b>	<b>3675</b>	<b>14.5</b>	<b>3310</b>	<b>13.0</b>	<b>2619</b>	<b>10.3</b>	<b>25378</b>	<b>100.0</b>

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

**Table 32: Type of delivery for women confined in Western Australia, 1985-1999**

Year of Birth	Type of Delivery								TOTAL	
	Spontaneous Vaginal		Assisted Vaginal		Elective Caesarean		Emergency Caesarean		No.	%
	No.	%	No.	%	No.	%	No.	%		
1985	14454	62.6	5131	22.2	1804	7.8	1690	7.3	23079	100.0
1986	14944	63.3	4973	21.1	1851	7.8	1835	7.8	23603	100.0
1987	15135	63.3	4730	19.8	2063	8.6	1967	8.2	23895	100.0
1988	16160	65.2	4447	17.9	2198	8.9	1996	8.0	24801	100.0
1989	16133	64.1	4483	17.8	2357	9.4	2184	8.7	25157	100.0
1990	16444	64.0	4424	17.2	2493	9.7	2338	9.1	25699	100.0
1991	15963	64.7	4167	16.9	2362	9.6	2187	8.9	24679	100.0
1992	16028	64.2	4129	16.5	2559	10.2	2254	9.0	24970	100.0
1993	15873	63.6	3878	15.5	2763	11.1	2459	9.8	24973	100.0
1994	15935	63.6	3913	15.6	2729	10.9	2494	9.9	25071	100.0
1995	16208	64.6	3824	15.2	2740	10.9	2318	9.2	25090	100.0
1996	16119	64.0	3925	15.6	2865	11.4	2283	9.1	25192	100.0
1997	15756	63.4	3657	14.7	3042	12.2	2414	9.7	24869	100.0
1998	15794	62.4	3594	14.2	3270	12.9	2636	10.4	25294	100.0
1999	15772	62.1	3677	14.5	3310	13.0	2619	10.3	25378	100.0

Women with multiple pregnancies are classified according to the features of the first multiple delivered.



**Table 33: Frequency of complications of labour and delivery for women confined by caesarean section in Western Australia, 1999**

Number of complications of labour and delivery	Elective Caesarean		Emergency Caesarean		TOTAL	
	No.	%	No.	%	No.	%
1	2678	80.9	1363	52.0	4041	68.2
2	551	16.6	805	30.7	1356	22.9
3	66	2.0	294	11.2	360	6.1
4	13	0.4	109	4.2	122	2.1
5	2	0.1	42	1.6	44	0.7
6	-	-	4	0.2	4	0.1
7	-	-	2	0.1	2	0.0
<b>TOTAL</b>	<b>3310</b>	<b>100.0</b>	<b>2619</b>	<b>100.0</b>	<b>5929</b>	<b>100.0</b>

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

**Table 34: Complications of labour and delivery for women confined by caesarean section in Western Australia, 1999**

Complications of labour and delivery <sup>1</sup>	Elective Caesarean		Emergency Caesarean		TOTAL	
	No.	%	No.	%	No.	%
Umbilical cord complications	32	0.8	107	2.4	139	1.6
Cephalopelvic disproportion	423	10.5	179	3.9	602	7.0
Breech and other malpresentation	714	17.7	391	8.6	1105	12.9
Previous caesarean section or other uterine surgery	1869	46.3	422	9.3	2291	26.7
Fetal distress	45	1.1	927	20.4	972	11.3
Multiple pregnancy	54	1.3	31	0.7	85	1.0
Pregnancy- induced disorders	140	3.5	227	5.0	367	4.3
Obstruction or delayed labour	-	-	1235	27.2	1235	14.4
Abnormal forces of labour	-	-	271	6.0	271	3.2
Placental disorders/haemorrhage	237	5.9	449	9.9	686	8.0
Medical/Physiological	33	0.8	6	0.1	39	0.5
Infection	42	1.0	80	1.8	122	1.4
Previous poor obstetric and/or reproductive history	128	3.2	17	0.4	145	1.7
Other	323	8.0	202	4.4	525	6.1
<b>TOTAL</b>	<b>4040</b>	<b>100.0</b>	<b>4544</b>	<b>100.0</b>	<b>8584</b>	<b>100.0</b>

<sup>1</sup> A woman may have more than one complication of labour and delivery.

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

**Table 35: Hours of established labour and onset of labour for women confined in Western Australia, 1999**

Hours of Labour	Onset of Labour			
	Spontaneous		Induction	
	No.	%	No.	%
< 1	551	3.9	404	5.3
1-4	5327	37.6	3559	47.1
5-12	6731	47.6	3198	42.3
13-18	1156	8.2	336	4.4
19-24	292	2.1	44	0.6
> 24	98	0.7	13	0.2
<b>TOTAL</b>	<b>14155</b>	<b>100.0</b>	<b>7554</b>	<b>100.0</b>

Excludes 3,646 women who did not experience labour and 24 women for whom hours of established labour were not recorded.

**Table 36: Type of delivery and hours of established labour for women confined in Western Australia, 1999**

Type of Delivery	Hours of Established Labour							TOTAL No.
	No Labour No.	< 1 No.	1-4 No.	5-12 No.	13-18 No.	19-24 No.	> 24 No.	
Normal	-	195	7845	6851	689	127	44	15751
Vacuum	-	1	444	1462	322	76	27	2332
Forceps	-	1	183	736	205	55	17	1197
Breech Manoeuvre	-	1	78	54	11	1	1	146
Elective Caesarean	3310	-	-	-	-	-	-	3310
Emergency Caesarean	336	756	336	826	265	77	22	2618
<b>TOTAL</b>	<b>3646</b>	<b>954</b>	<b>8886</b>	<b>9929</b>	<b>1492</b>	<b>336</b>	<b>111</b>	<b>25354</b>
	%	%	%	%	%	%	%	%
Normal	-	20.4	88.3	69.0	46.2	37.8	39.6	62.1
Vacuum	-	0.1	5.0	14.7	21.6	22.6	24.3	9.2
Forceps	-	0.1	2.1	7.4	13.7	16.4	15.3	4.7
Breech Manoeuvre	-	0.1	0.9	0.5	0.7	0.3	-	0.6
Elective Caesarean	90.8	-	-	-	-	-	-	13.1
Emergency Caesarean	9.2	79.2	3.8	8.3	17.8	22.9	19.8	10.3
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Excludes 24 women for whom hours of established labour were not recorded.

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

**Table 37: Selected complications of labour and delivery and plurality for women confined in Western Australia, 1999**

Complications of Labour and Delivery <sup>1</sup>	Plurality				TOTAL	
	Singleton		Multiple		No.	%
	No.	%	No.	%		
Precipitate delivery	1311	5.2	5	1.3	1316	5.2
Fetal distress	3339	13.4	45	12.0	3384	13.3
Prolapsed cord	42	0.2	7	1.9	49	0.2
Cord tightly around neck	1424	5.7	1	0.3	1425	5.6
Cephalopelvic disproportion	655	2.6	3	0.8	658	2.6
Post partum haemorrhage	1528	6.1	62	16.5	1590	6.3
Retained placenta - manual removal	364	1.5	5	1.3	369	1.5
Persistent occipito posterior	527	2.1	3	0.8	530	2.1
Shoulder dystocia	358	1.4	0	0.0	358	1.4
Failure to progress ≤ 3cms	308	1.2	8	2.1	316	1.2
Failure to progress > 3cms	648	2.6	11	2.9	659	2.6
Previous caesarean section	2766	11.1	41	10.9	2807	11.1
Other	6618	26.5	358	95.5	6976	27.5
<b>No complications of labour and delivery</b>	<b>10826</b>	<b>43.5</b>	<b>59</b>	<b>15.7</b>	<b>10885</b>	<b>42.9</b>

<sup>1</sup> A woman may have more than one complication of labour and delivery.

**Table 38: Type of delivery and accoucheur of women confined in Western Australia, 1999**

Accoucheur	Type of Delivery								TOTAL	
	Spontaneous		Assisted Vaginal		Elective		Emergency		No.	%
	No.	%	No.	%	No.	%	No.	%		
Obstetrician	2340	14.8	1842	50.1	2501	75.6	1612	61.6	8295	32.7
Other Medical Officer	2624	16.6	1768	48.1	809	24.4	1007	38.4	6208	24.5
Midwife	9985	63.3	64	1.7	-	-	-	-	10049	39.6
Student	730	4.6	-	-	-	-	-	-	730	2.9
Self/no attendant	33	0.2	-	-	-	-	-	-	33	0.1
Other	62	0.4	-	-	-	-	-	-	62	0.2
<b>TOTAL</b>	<b>15774</b>	<b>100.0</b>	<b>3674</b>	<b>100.0</b>	<b>3310</b>	<b>100.0</b>	<b>2619</b>	<b>100.0</b>	<b>25377</b>	<b>100.0</b>

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

**Table 39: Type of delivery and repair of perineum and/or vagina for women confined in Western Australia, 1999**

Type of Delivery	Repair of perineum and/or Vagina					TOTAL
	None No.	Episiotomy No.	1 or 2 degree tear No.	3 or 4 degree tear No.	Other No.	No.
Normal	6938	2219	5890	124	603	15774
Vacuum	294	1275	669	45	49	2332
Forceps	80	946	131	22	18	1197
Breech Manoeuvre	95	42	8	-	1	146
Elective Caesarean	3310	-	-	-	-	3310
Emergency Caesarean	2609	8	1	-	1	2619
<b>TOTAL</b>	<b>13326</b>	<b>4490</b>	<b>6699</b>	<b>191</b>	<b>672</b>	<b>25378</b>
	%	%	%	%	%	%
Normal	52.1	49.4	87.9	64.9	89.7	62.2
Vacuum	2.2	28.4	10.0	23.6	7.3	9.2
Forceps	0.6	21.1	2.0	11.5	2.7	4.7
Breech Manoeuvre	0.7	0.9	0.1	-	0.1	0.6
Elective Caesarean	24.8	-	-	-	-	13.0
Emergency Caesarean	19.6	0.2	0.0	-	0.1	10.3
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

**Table 40: Condition at birth and crude birth rate in Western Australia, 1985-1999**

Year of Birth	Condition at Birth				TOTAL	Crude Birth Rate <sup>1</sup>
	Livebirth		Stillbirth		No.	
	No.	%	No.	%		
1985	23156	99.1	204	0.9	23360	16.3
1986	23703	99.2	185	0.8	23888	16.2
1987	24015	99.2	191	0.8	24206	16.1
1988	24980	99.3	177	0.7	25157	16.3
1989	25359	99.3	184	0.7	25543	16.1
1990	25844	99.3	175	0.7	26019	16.0
1991	24815	99.2	194	0.8	25009	15.2
1992	25159	99.3	165	0.7	25324	15.2
1993	25159	99.3	176	0.7	25335	15.0
1994	25237	99.3	188	0.7	25425	14.8
1995	25254	99.2	191	0.8	25445	14.6
1996	25385	99.2	199	0.8	25584	14.4
1997	25096	99.3	171	0.7	25267	14.0
1998	25516	99.4	164	0.6	25680	13.9
1999	25592	99.3	179	0.7	25771	13.8

<sup>1</sup> Crude birth rate is the number of livebirths per 1,000 total population.

**Table 41: Condition at birth and gender of births in Western Australia, 1999**

Gender	Condition at Birth				TOTAL	
	Livebirth		Stillbirth		No.	%
	No.	%	No.	%	No.	%
Male	13061	51.0	87	48.6	13148	51.0
Female	12531	49.0	92	51.4	12623	49.0
<b>TOTAL</b>	<b>25592</b>	<b>100.0</b>	<b>179</b>	<b>100.0</b>	<b>25771</b>	<b>100.0</b>

**Table 42: Condition at birth and Aboriginality of mother for births in Western Australia, 1999**

Aboriginality of Mother	Condition at Birth				TOTAL		Stillbirth Rate
	Livebirth		Stillbirth		No.	%	
	No.	%	No.	%	No.	%	
Aboriginal	1602	6.3	22	12.3	1624	6.3	13.5
Non-Aboriginal	23990	93.7	157	87.7	24147	93.7	6.5
<b>TOTAL</b>	<b>25592</b>	<b>100.0</b>	<b>179</b>	<b>100.0</b>	<b>25771</b>	<b>100.0</b>	<b>6.9</b>

**Table 43: Condition at birth and place of birth for births in Western Australia, 1999**

Place of Birth	Condition at Birth				TOTAL		Stillbirth Rate
	Livebirth		Stillbirth		No.	%	
	No.	%	No.	%	No.	%	
<b>Metropolitan</b>							
Teaching	5227	20.4	110	61.5	5337	20.7	20.6
Department	6392	25.0	11	6.1	6403	24.8	1.7
Private	8027	31.4	21	11.7	8048	31.2	2.6
<b>Country</b>							
Regional	3184	12.4	22	12.3	3206	12.4	6.9
Private	476	1.9	3	1.7	479	1.9	6.3
Other	2094	8.2	8	4.5	2102	8.2	3.8
<b>Non-Hospital</b>							
Homebirths	125	0.5	1	0.6	126	0.5	7.9
BBA	67	0.3	3	1.7	70	0.3	42.9
<b>TOTAL</b>	<b>25592</b>	<b>100.0</b>	<b>179</b>	<b>100.0</b>	<b>25771</b>	<b>100.0</b>	<b>6.9</b>

**Table 44: Plurality of all births in Western Australia, 1985-1999**

Year of Birth	Plurality							
	Singleton		Twins		Triplets		Other Multiple	
	No.	%	No.	%	No.	%	No.	%
1985	22806	97.6	530	2.3	24	0.1	-	-
1986	23328	97.7	532	2.2	24	0.1	4	0.0
1987	23592	97.5	590	2.4	24	0.1	-	-
1988	24461	97.2	648	2.6	48	0.2	-	-
1989	24797	97.1	676	2.6	57	0.2	13	0.1
1990	25389	97.6	618	2.4	12	0.0	-	-
1991	24355	97.4	636	2.5	18	0.1	-	-
1992	24628	97.3	660	2.6	36	0.1	-	-
1993	24625	97.2	668	2.6	42	0.2	-	-
1994	24728	97.3	666	2.6	27	0.1	4	0.0
1995	24744	97.2	674	2.6	27	0.1	-	-
1996	24817	97.0	720	2.8	39	0.2	8	0.0
1997	24487	96.9	738	2.9	30	0.1	12	0.0
1998	24918	97.0	732	2.9	30	0.1	-	-
1999	25003	97.0	720	2.8	39	0.2	9	0.0

**Table 45: Apgar score at one minute and time to spontaneous respiration of livebirths in Western Australia, 1999**

Time to Spontaneous Respiration	Apgar Score at 1 Minute								TOTAL	
	0		1-3		4-7		8-10		No.	%
	No.	%	No.	%	No.	%	No.	%		
<= 1	2	28.6	37	8.1	3152	59.0	19162	97.1	22353	87.5
2-3	1	14.3	90	19.7	1650	30.9	499	2.5	2240	8.8
4-6	-	-	129	28.2	291	5.5	45	0.2	465	1.8
7-10	-	-	34	7.4	29	0.5	4	-	67	0.3
> 10	-	-	6	1.3	2	0.0	-	-	8	0.0
Intubation <sup>1</sup>	4	57.1	162	35.4	214	4.0	32	0.2	412	1.6
<b>TOTAL</b>	<b>7</b>	<b>100.0</b>	<b>458</b>	<b>100.0</b>	<b>5338</b>	<b>100.0</b>	<b>19742</b>	<b>100.0</b>	<b>25545</b>	<b>100.0</b>

Excludes 47 livebirths for whom Apgar Score at 1 minute and/or T.S.R. were unknown.

<sup>1</sup> These babies were intubated at birth and T.S.R. was not recorded.

**Table 46: Apgar score at five minutes and time to spontaneous respiration of livebirths in Western Australia, 1999**

Time to Spontaneous Respiration	Apgar Score at 5 Minutes								TOTAL	
	0		1-3		4-7		8-10		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
<= 1	6	60.0	12	26.1	150	21.0	22191	89.6	22359	87.5
2-3	-	-	-	-	156	21.8	2084	8.4	2240	8.8
4-6	-	-	6	13.0	153	21.4	306	1.2	465	1.8
7-10	-	-	9	19.6	51	7.1	7	0.0	67	0.3
> 10	-	-	2	4.3	6	0.8	-	-	8	0.0
Intubation <sup>1</sup>	4	40.0	17	37.0	198	27.7	192	0.8	411	1.6
<b>TOTAL</b>	<b>10</b>	<b>100.0</b>	<b>46</b>	<b>100.0</b>	<b>714</b>	<b>100.0</b>	<b>24780</b>	<b>100.0</b>	<b>25550</b>	<b>100.0</b>

Excludes 42 livebirths for whom Apgar Score at 5 minutes and/or T.S.R. were unknown.

<sup>1</sup> These babies were intubated at birth and T.S.R. was not recorded.

**Table 47: Apgar score at five minutes and resuscitation methods of livebirths in Western Australia, 1999**

Resuscitation	Apgar Score at 5 Minute								TOTAL	
	0		1-3		4-7		8-10		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
None	5	50.0	17	34.7	17	2.4	12032	48.6	12071	47.2
Suction Only	-	-	-	-	21	2.9	6414	25.9	6435	25.2
Oxygen Therapy	-	-	1	2.0	135	18.8	4356	17.6	4492	17.6
Bag & Mask	-	-	4	8.2	285	39.7	1404	5.7	1693	6.6
Intubation	2	20.0	13	26.5	208	29.0	203	0.8	426	1.7
Ext Card Mass	3	30.0	13	26.5	23	3.2	8	0.0	47	0.2
Other	-	-	1	2.0	29	4.0	363	1.5	393	1.5
<b>TOTAL</b>	<b>10</b>	<b>100.0</b>	<b>49</b>	<b>100.0</b>	<b>718</b>	<b>100.0</b>	<b>24780</b>	<b>100.0</b>	<b>25557</b>	<b>100.0</b>

Excludes 35 livebirths for whom Apgar Score at 5 minutes were unknown.

**Table 48: Birthweight and resuscitation methods of livebirths in Western Australia, 1999**

Resuscitation	Birthweight (grams)					TOTAL
	< 500 No.	500-1499 No.	1500-1999 No.	2000-2499 No.	> 2500 No.	No.
None	12	20	57	402	11606	12097
Suction Only	-	10	33	156	6238	6437
Oxygen Therapy	-	75	149	284	3985	4493
Bag & Mask	-	11	37	102	1544	1694
Intubation	5	116	40	40	226	427
Ext Card Mass	-	1	6	7	32	46
Other	-	2	1	11	379	393
<b>TOTAL</b>	<b>17</b>	<b>235</b>	<b>323</b>	<b>1002</b>	<b>24010</b>	<b>25587</b>
	%	%	%	%	%	%
None	70.6	8.5	17.6	40.1	48.3	47.3
Suction Only	-	4.3	10.2	15.6	26.0	25.2
Oxygen Therapy	-	31.9	46.1	28.3	16.6	17.6
Bag & Mask	-	4.7	11.5	10.2	6.4	6.6
Intubation	29.4	49.4	12.4	4.0	0.9	1.7
Ext Card Mass	-	0.4	-	-	0.1	0.2
Other	-	0.9	-	1.1	1.6	1.5
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Excludes 5 livebirths for whom birthweight were unknown.

**Table 49: Birthweight distribution and Aboriginality of mother for births in Western Australia, 1999**

Birthweight (grams)	Aboriginality of Mother				TOTAL	
	Aboriginal No.	%	Non-Aboriginal No.	%	No.	%
< 500	15	0.9	67	0.3	82	0.3
500-999	18	1.1	108	0.4	126	0.5
1000-1499	29	1.8	139	0.6	168	0.7
1500-1999	45	2.8	287	1.2	332	1.3
2000-2499	124	7.6	887	3.7	1011	3.9
<b>&lt; 2500</b>	<b>231</b>	<b>14.2</b>	<b>1488</b>	<b>6.2</b>	<b>1719</b>	<b>6.7</b>
2500-2999	413	25.4	3669	15.2	4082	15.8
3000-3499	522	32.2	8853	36.7	9375	36.4
3500-3999	334	20.6	7498	31.1	7832	30.4
4000-4499	97	6.0	2236	9.3	2333	9.1
>= 4500	26	1.6	399	1.7	425	1.6
<b>TOTAL</b>	<b>1623</b>	<b>100.0</b>	<b>24143</b>	<b>100.0</b>	<b>25766</b>	<b>100.0</b>

Excludes 5 births for whom birthweight were unknown.

Mean = 3342 grams. Standard deviation = 607 grams.



**Table 50: Low birthweight and very low birthweight by Aboriginality of mother for births in Western Australia, 1985-1999**

Year of Birth	Aboriginality of Mother							
	Aboriginal				Non-Aboriginal			
	Low birthweight <sup>1</sup>		Very low birthweight <sup>2</sup>		Low birthweight <sup>1</sup>		Very low birthweight <sup>2</sup>	
	No.	%	No.	%	No.	%	No.	%
1985	178	14.2	48	3.8	1351	6.1	318	1.4
1986	151	12.1	32	2.6	1329	5.9	305	1.3
1987	148	11.0	31	2.3	1405	6.1	311	1.4
1988	197	13.6	44	3.0	1420	6.0	340	1.4
1989	163	11.2	40	2.8	1573	6.5	356	1.5
1990	177	11.4	34	2.2	1457	6.0	280	1.1
1991	220	14.8	48	3.2	1405	6.0	311	1.3
1992	169	11.8	33	2.3	1481	6.2	309	1.3
1993	191	13.1	62	4.3	1456	6.1	281	1.2
1994	206	14.2	47	3.2	1441	6.0	348	1.5
1995	177	12.1	41	2.8	1496	6.2	322	1.3
1996	198	13.7	39	2.7	1542	6.4	349	1.4
1997	217	13.7	45	2.8	1467	6.2	328	1.4
1998	192	12.6	44	2.9	1538	6.4	320	1.3
1999	231	14.2	62	3.8	1488	6.2	314	1.3

<sup>1</sup> Low birthweight - less than 2500 grams.

<sup>2</sup> Very low birthweight - less than 1500 grams.

**Table 51: Birthweight distribution and condition at birth for total births in Western Australia, 1999**

Birthweight (grams)	Condition at Birth				TOTAL	
	Livebirth		Stillbirth		No.	%
	No.	%	No.	%		
< 500	17	0.1	65	36.3	82	0.3
500-999	85	0.3	41	22.9	126	0.5
1000-1499	150	0.6	18	10.1	168	0.7
1500-1999	323	1.3	9	5.0	332	1.3
2000-2499	1002	3.9	9	5.0	1011	3.9
<b>&lt; 2500</b>	<b>1577</b>	<b>6.2</b>	<b>142</b>	<b>79.3</b>	<b>1719</b>	<b>6.7</b>
2500-2999	4069	15.9	13	7.3	4082	15.8
3000-3499	9363	36.6	12	6.7	9375	36.4
3500-3999	7826	30.6	6	3.4	7832	30.4
4000-4499	2328	9.1	5	2.8	2333	9.1
>= 4500	424	1.7	1	0.6	425	1.6
<b>TOTAL</b>	<b>25587</b>	<b>100.0</b>	<b>179</b>	<b>100.0</b>	<b>25766</b>	<b>100.0</b>

Excludes 5 births for whom birthweight were unknown.

**Table 52: Birthweight distribution and condition at birth for singleton births in Western Australia, 1999**

Birthweight (grams)	Condition at Birth				TOTAL	
	Livebirth		Stillbirth		No.	%
	No.	%	No.	%	No.	%
< 500	15	0.1	53	34.0	68	0.3
500-999	70	0.3	35	22.4	105	0.4
1000-1499	101	0.4	14	9.0	115	0.5
1500-1999	212	0.9	8	5.1	220	0.9
2000-2499	788	3.2	9	5.8	797	3.2
<b>&lt; 2500</b>	<b>1186</b>	<b>4.8</b>	<b>119</b>	<b>76.3</b>	<b>1305</b>	<b>5.2</b>
2500-2999	3829	15.4	13	8.3	3842	15.4
3000-3499	9263	37.3	12	7.7	9275	37.1
3500-3999	7814	31.5	6	3.8	7820	31.3
4000-4499	2326	9.4	5	3.2	2331	9.3
>= 4500	424	1.7	1	0.6	425	1.7
<b>TOTAL</b>	<b>24842</b>	<b>100.0</b>	<b>156</b>	<b>100.0</b>	<b>24998</b>	<b>100.0</b>

Excludes 5 singleton births for whom birthweight were unknown.

**Table 53: Birthweight distribution and condition at birth for multiple births in Western Australia, 1999**

Birthweight (grams)	Condition at Birth				TOTAL	
	Livebirth		Stillbirth		No.	%
	No.	%	No.	%	No.	%
< 500	2	0.3	12	52.2	14	1.8
500-999	15	2.0	6	26.1	21	2.7
1000-1499	49	6.6	4	17.4	53	6.9
1500-1999	111	14.9	1	4.3	112	14.6
2000-2499	214	28.7	-	-	214	27.9
<b>&lt; 2500</b>	<b>391</b>	<b>52.5</b>	<b>23</b>	<b>100.0</b>	<b>414</b>	<b>53.9</b>
2500-2999	240	32.2	-	-	240	31.3
3000-3499	100	13.4	-	-	100	13.0
3500-3999	12	1.6	-	-	12	1.6
4000-4499	2	0.3	-	-	2	0.3
>= 4500	-	-	-	-	-	-
<b>TOTAL</b>	<b>745</b>	<b>100.0</b>	<b>23</b>	<b>100.0</b>	<b>768</b>	<b>100.0</b>

**Table 54: Birthweight distribution and gestation for total births in Western Australia, 1999**

Birthweight (grams)	Gestation (weeks)										TOTAL	
	20-27		28-32		33-36		37-42		≥ 43		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
< 500	82	44.1	-	-	-	-	-	-	-	-	82	0.3
500-999	91	48.9	32	9.8	3	0.2	-	-	-	-	126	0.5
1000-1499	12	6.5	135	41.4	20	1.3	1	0.0	-	-	168	0.7
1500-1999	1	0.5	125	38.3	188	12.7	19	0.1	-	-	333	1.3
2000-2499	-	-	29	8.9	501	33.8	481	2.0	-	-	1011	3.9
<b>&lt; 2500</b>	<b>186</b>	<b>100.0</b>	<b>321</b>	<b>98.5</b>	<b>712</b>	<b>48.0</b>	<b>501</b>	<b>2.1</b>	<b>-</b>	<b>-</b>	<b>1720</b>	<b>6.7</b>
2500-2999	-	-	4	1.2	547	36.9	3530	14.9	-	-	4081	15.8
3000-3499	-	-	-	-	179	12.1	9195	38.7	1	25.0	9375	36.4
3500-3999	-	-	1	0.3	37	2.5	7793	32.8	1	25.0	7832	30.4
4000-4499	-	-	-	-	4	0.3	2328	9.8	1	25.0	2333	9.1
≥ 4500	-	-	-	-	4	0.3	420	1.8	1	25.0	425	1.6
<b>TOTAL</b>	<b>186</b>	<b>100.0</b>	<b>326</b>	<b>100.0</b>	<b>1483</b>	<b>100.0</b>	<b>23767</b>	<b>100.0</b>	<b>4</b>	<b>100.0</b>	<b>25766</b>	<b>100.0</b>

Excludes 5 births for whom birthweight were unknown.

**Table 55: Birthweight distribution and gestation for singleton births in Western Australia, 1999**

Birthweight (grams)	Gestation (weeks)										TOTAL	
	20-27		28-32		33-36		37-42		≥ 43		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
< 500	68	43.0	-	-	-	-	-	-	-	-	68	
500-999	79	50.0	23	10.3	3	0.3	-	-	-	-	105	0.4
1000-1499	10	6.3	89	39.7	15	1.3	1	0.0	-	-	115	0.5
1500-1999	1	0.6	88	39.3	117	9.9	15	0.1	-	-	221	0.9
2000-2499	-	-	19	8.5	367	31.0	411	1.8	-	-	797	3.2
<b>&lt; 2500</b>	<b>158</b>	<b>100.0</b>	<b>219</b>	<b>97.8</b>	<b>502</b>	<b>42.4</b>	<b>427</b>	<b>1.8</b>	<b>0</b>	<b>0.0</b>	<b>1306</b>	<b>5.2</b>
2500-2999	-	-	4	1.8	473	39.9	3364	14.4	-	-	3841	15.4
3000-3499	-	-	-	-	164	13.9	9110	38.9	1	25.0	9275	37.1
3500-3999	-	-	1	0.4	37	3.1	7781	33.2	1	25.0	7820	31.3
4000-4499	-	-	-	-	4	0.3	2326	9.9	1	25.0	2331	9.3
≥ 4500	-	-	-	-	4	0.3	420	1.8	1	25.0	425	1.7
<b>TOTAL</b>	<b>158</b>	<b>100.0</b>	<b>224</b>	<b>100.0</b>	<b>1184</b>	<b>100.0</b>	<b>23428</b>	<b>100.0</b>	<b>4</b>	<b>100.0</b>	<b>24998</b>	<b>100.0</b>

Excludes 5 singleton births for whom birthweight were unknown.

**Table 56: Birthweight distribution and gestation for multiple births in Western Australia, 1999**

Birthweight (grams)	Gestation (weeks)								TOTAL			
	20-27		28-32		33-36		37-42				>= 43	
	No.	%	No.	%	No.	%	No.	%	No.	%		
< 500	14	50.0	-	-	-	-	-	-	-	-	14	1.8
500-999	12	42.9	9	8.8	-	-	-	-	-	-	21	2.7
1000-1499	2	7.1	46	45.1	5	1.7	-	-	-	-	53	6.9
1500-1999	-	-	37	36.3	71	23.7	4	1.2	-	-	112	14.6
2000-2499	-	-	10	9.8	134	44.8	70	20.6	-	-	214	27.9
<b>&lt; 2500</b>	<b>28</b>	<b>100.0</b>	<b>102</b>	<b>100.0</b>	<b>210</b>	<b>70.2</b>	<b>74</b>	<b>21.8</b>	-	-	<b>414</b>	<b>53.9</b>
2500-2999	-	-	-	-	74	24.7	166	49.0	-	-	240	31.3
3000-3499	-	-	-	-	15	5.0	85	25.1	-	-	100	13.0
3500-3999	-	-	-	-	-	-	12	3.5	-	-	12	1.6
4000-4499	-	-	-	-	-	-	2	0.6	-	-	2	0.3
>= 4500	-	-	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>28</b>	<b>100.0</b>	<b>102</b>	<b>100.0</b>	<b>299</b>	<b>100.0</b>	<b>339</b>	<b>100.0</b>	-	-	<b>768</b>	<b>100.0</b>

**Table 57: Births identified with birth defects in Western Australia, 1995-1999**

Diagnostic Category (and British Paediatric Association Code)	Year of Birth									
	1995		1996		1997		1998		1999	
	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>
Nervous System Defects (74000-74299)	115	4.5	92	3.6	97	3.8	100	3.9	89	3.5
Cardiovascular Defects (74500-74799)	295	11.6	325	12.7	310	12.3	285	11.1	319	12.4
Respiratory System Defects (74800-74899)	35	1.4	44	1.7	35	1.4	30	1.2	38	1.5
Gastro-Intestinal Defects (74900-75199)	168	6.6	155	6.1	190	7.5	147	5.7	158	6.1
Uro-Genital Defects (75200-75399)	462	18.2	443	17.3	414	16.4	387	15.1	324	12.6
Musculo-Skeletal Defects (75400-75699)	417	16.4	507	19.8	449	17.8	412	16.1	399	15.5
Chromosome Defects (75800-75899)	116	4.6	105	4.1	115	4.6	110	4.3	109	4.2

<sup>1</sup> Rate per 1000 births

SOURCE: Western Australian Birth Defects Registry.

**Table 58: Length of stay in special care and plurality for livebirths in Western Australia, 1999**

Length of Stay <sup>1</sup> (days)	Plurality				Total	
	Singleton No.	%	Multiple No.	%	No.	%
1	541	32.7	46	14.8	587	29.9
2	216	13.1	9	2.9	225	11.5
3	165	10.0	20	6.5	185	9.4
4	90	5.4	11	3.5	101	5.1
5	63	3.8	13	4.2	76	3.9
6	46	2.8	9	2.9	55	2.8
7	37	2.2	13	4.2	50	2.5
8-14	206	12.5	49	15.8	255	13.0
15-20	76	4.6	44	14.2	120	6.1
21-28	67	4.1	33	10.6	100	5.1
29-60	89	5.4	47	15.2	136	6.9
61-90	38	2.3	12	3.9	50	2.5
91-180	19	1.1	4	1.3	23	1.2
<b>TOTAL</b>	<b>1653</b>	<b>100.0</b>	<b>310</b>	<b>100.0</b>	<b>1963</b>	<b>100.0</b>

<sup>1</sup> Excludes births with less than 24 hours stay in Special Care Nurseries.

**Table 59: Length of stay in hospital of birth and birthweight distribution of livebirths in Western Australia, 1999**

Birthweight (grams)	Length of Stay (days)						TOTAL No.
	<=1 No.	2-7 No.	8-14 No.	15-20 No.	21-28 No.	>= 28 No.	
< 500	15	1	-	-	-	1	17
500-999	7	7	2	1	2	66	85
1000-1499	9	6	7	12	20	96	150
1500-1999	28	55	79	59	59	43	323
2000-2499	58	604	243	62	25	10	1002
<b>&lt; 2500</b>	<b>117</b>	<b>673</b>	<b>331</b>	<b>134</b>	<b>106</b>	<b>216</b>	<b>1577</b>
2500-2999	483	3092	441	37	9	7	4069
3000-3499	1144	7659	525	21	6	8	9363
3500-3999	979	6437	394	8	5	3	7826
4000-4499	290	1918	115	1	-	4	2328
>= 4500	46	350	28	-	-	-	424
<b>TOTAL</b>	<b>3059</b>	<b>20129</b>	<b>1834</b>	<b>201</b>	<b>126</b>	<b>238</b>	<b>25587</b>
	%	%	%	%	%	%	%
< 500	0.5	0.0	-	-	-	0.4	0.1
500-999	0.2	0.0	0.1	0.5	1.6	27.7	0.3
1000-1499	0.3	0.0	-	6.0	15.9	40.3	0.6
1500-1999	0.9	0.3	4.3	29.4	46.8	18.1	1.3
2000-2499	1.9	3.0	13.2	30.8	19.8	4.2	3.9
<b>&lt; 2500</b>	<b>3.8</b>	<b>3.3</b>	<b>18.0</b>	<b>66.7</b>	<b>84.1</b>	<b>90.8</b>	<b>6.2</b>
2500-2999	15.8	15.4	24.0	18.4	7.1	2.9	15.9
3000-3499	37.4	38.0	28.6	10.4	4.8	3.4	36.6
3500-3999	32.0	32.0	21.5	4.0	4.0	1.3	30.6
4000-4499	9.5	9.5	6.3	0.5	-	1.7	9.1
>= 4500	1.5	1.7	1.5	-	-	-	1.7
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Excludes 5 livebirths for whom birthweight were unknown.  
Includes homebirths in midwife's care.

**Table 60: Length of stay in hospital of birth and birthweight distribution of surviving livebirths in Western Australia, 1999**

Birthweight (grams)	Length of Stay (days)						TOTAL No.
	<=1 No.	2-7 No.	8-14 No.	15-20 No.	21-28 No.	>= 28 No.	
< 500	-	-	-	-	-	1	1
500-999	-	-	-	-	-	45	45
1000-1499	-	1	1	2	6	69	79
1500-1999	-	24	41	47	46	38	196
2000-2499	22	532	215	58	22	8	857
<b>&lt; 2500</b>	<b>22</b>	<b>557</b>	<b>257</b>	<b>107</b>	<b>74</b>	<b>161</b>	<b>1178</b>
2500-2999	382	3033	428	35	8	5	3891
3000-3499	1006	7569	521	21	5	7	9129
3500-3999	887	6375	393	7	4	3	7669
4000-4499	260	1893	115	-	-	4	2272
>= 4500	41	344	28	-	-	-	413
<b>TOTAL</b>	<b>2598</b>	<b>19771</b>	<b>1742</b>	<b>170</b>	<b>91</b>	<b>180</b>	<b>24552</b>
	%	%	%	%	%	%	%
< 500	-	-	-	-	-	0.6	0.0
500-999	-	-	-	-	-	25.0	0.2
1000-1499	-	0.0	0.1	-	6.6	38.3	0.3
1500-1999	-	0.1	2.4	27.6	50.5	21.1	0.8
2000-2499	0.8	2.7	12.3	34.1	24.2	4.4	3.5
<b>&lt; 2500</b>	<b>0.8</b>	<b>2.8</b>	<b>14.8</b>	<b>62.9</b>	<b>81.3</b>	<b>89.4</b>	<b>4.8</b>
2500-2999	14.7	15.3	24.6	20.6	8.8	2.8	15.8
3000-3499	38.7	38.3	29.9	12.4	5.5	3.9	37.2
3500-3999	34.1	32.2	22.6	4.1	4.4	1.7	31.2
4000-4499	10.0	9.6	6.6	-	-	2.2	9.3
>= 4500	1.6	1.7	1.6	-	-	-	1.7
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Includes homebirths in midwife's care.

Excludes 978 inter-hospital transfers and 62 deaths in hospital of birth.

**Table 61: Length of stay in hospital of birth and gestational age of livebirths in Western Australia, 1999**

Gestation (weeks)	Length of Stay (days)						TOTAL No.
	<=1 No.	2-7 No.	8-14 No.	15-20 No.	21-28 No.	>= 28 No.	
20-27	25	6	3	1	2	50	87
28-32	18	24	30	32	48	152	304
33-36	104	744	410	127	62	15	1462
37-42	2915	19353	1391	41	14	21	23735
>= 43	1	3	-	-	-	-	4
<b>TOTAL</b>	<b>3063</b>	<b>20130</b>	<b>1834</b>	<b>201</b>	<b>126</b>	<b>238</b>	<b>25592</b>
	%	%	%	%	%	%	%
20-27	0.8	0.0	0.2	0.5	1.6	21.0	0.3
28-32	0.6	0.1	1.6	15.9	38.1	63.9	1.2
33-36	3.4	3.7	22.4	63.2	49.2	6.3	5.7
37-42	95.2	96.1	75.8	20.4	11.1	8.8	92.7
>= 43	0.0	0.0	-	-	-	-	0.0
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Includes homebirths in midwife's care.

**Table 62: Length of stay in hospital of birth and gestational age of surviving livebirths in Western Australia, 1999**

Gestation (weeks)	Length of Stay (days)						TOTAL No.
	<=1 No.	2-7 No.	8-14 No.	15-20 No.	21-28 No.	>= 28 No.	
20-27	-	-	-	-	-	30	30
28-32	-	5	2	12	26	119	164
33-36	30	646	359	120	54	13	1222
37-42	2567	19117	1381	38	11	18	23132
>= 43	1	3	-	-	-	-	4
<b>TOTAL</b>	<b>2598</b>	<b>19771</b>	<b>1742</b>	<b>170</b>	<b>91</b>	<b>180</b>	<b>24552</b>
	%	%	%	%	%	%	%
20-27	-	-	-	-	-	16.7	0.1
28-32	-	0.0	0.1	7.1	28.6	66.1	0.7
33-36	1.2	3.3	20.6	70.6	59.3	7.2	5.0
37-42	98.8	96.7	79.3	22.4	12.1	10.0	94.2
>= 43	0.0	0.0	-	-	-	-	0.0
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Includes homebirths in midwife's care.

Excludes 978 inter-hospital transfers and 62 deaths in hospital of birth.



**Table 63: Perinatal mortality in Western Australia using birthweight criteria, 1999**

Birthweight	Stillbirth rate	Neonatal death rate	Perinatal death rate
>= 400 grams	5.1	2.6	7.7
>= 500 grams	4.5	2.3	6.8

**Stillbirth rate:** the number of stillbirths per 1000 total births.

**Neonatal death rate:** the number of neonatal deaths per 1000 livebirths.

**Perinatal death rate:** the number of stillbirths and neonatal deaths per 1000 total births.

**Table 64: Perinatal mortality in Western Australia using gestational age criteria, 1999**

Gestation	Stillbirth rate	Neonatal death rate	Perinatal death rate
>= 20 weeks	6.9	2.9	9.9
>= 22 weeks	5.2	2.5	7.7

**Stillbirth rate:** the number of stillbirths per 1000 total births.

**Neonatal death rate:** the number of neonatal deaths per 1000 livebirths.

**Perinatal death rate:** the number of stillbirths and neonatal deaths per 1000 total births.

**Table 65: Stillbirth, neonatal and perinatal mortality rates by Aboriginality of mother in Western Australia, 1999**

Type of Death	Aboriginality of Mother		TOTAL
	Aboriginal	Non-Aboriginal	
Stillbirth rate	13.5	6.5	6.9
Neonatal death rate	12.5	2.3	2.9
Perinatal death rate	25.8	8.8	9.9

**Stillbirth rate:** the number of stillbirths per 1000 total births.

**Neonatal death rate:** the number of neonatal deaths per 1000 livebirths.

**Perinatal death rate:** the number of stillbirths and neonatal deaths per 1000 total births.

**Table 66: Stillbirth rate by Aboriginality of mother in Western Australia, 1985-1999**

Year of Birth	Aboriginality of Mother		Total Rate
	Aboriginal Rate	Non-Aboriginal Rate	
1985	15.9	8.2	8.6
1986	16.0	7.3	7.7
1987	13.4	7.5	7.8
1988	14.5	6.6	7.0
1989	15.8	6.7	7.2
1990	11.5	6.5	6.8
1991	14.8	7.3	7.7
1992	15.3	6.0	6.6
1993	13.7	6.5	6.9
1994	16.5	6.8	7.5
1995	13.0	7.4	7.7
1996	14.5	7.4	7.8
1997	20.9	5.8	6.7
1998	9.9	6.2	6.4
1999	13.5	6.5	6.9

**Stillbirth rate:** the number of stillbirths per 1000 total births.

**Table 67: Neonatal mortality by Aboriginality of mother in Western Australia, 1985-1999**

Year of Birth	Aboriginality of Mother		Total Rate
	Aboriginal Rate	Non-Aboriginal Rate	
1985	12.1	5.2	5.6
1986	11.4	5.6	5.9
1987	6.0	4.7	4.7
1988	11.9	4.4	4.8
1989	9.1	5.2	5.4
1990	9.1	3.7	4.1
1991	6.1	3.1	3.3
1992	12.0	4.0	4.5
1993	7.0	2.9	3.1
1994	7.7	3.5	3.8
1995	9.0	2.6	3.0
1996	7.0	3.6	3.8
1997	4.5	2.5	2.6
1998	11.3	2.2	2.7
1999	12.5	2.3	2.9

**Neonatal death rate:** the number of neonatal deaths per 1000 livebirths.

**Table 68: Perinatal mortality by Aboriginality of mother in Western Australia, 1985-1999**

Year of Birth	Aboriginality of Mother		Total Rate
	Aboriginal Rate	Non-Aboriginal Rate	
1985	27.8	13.4	14.2
1986	27.2	12.8	13.6
1987	19.3	12.1	12.5
1988	26.2	10.9	11.8
1989	24.8	11.8	12.6
1990	20.5	10.2	10.8
1991	20.9	10.4	11.0
1992	27.2	10.0	11.0
1993	20.6	9.4	10.0
1994	24.1	10.3	11.1
1995	21.8	10.0	10.7
1996	21.5	10.9	11.5
1997	25.3	8.3	9.3
1998	21.1	8.4	9.1
1999	25.8	8.8	9.9

**Perinatal death rate:** the number of stillbirths and neonatal deaths per 1000 total births.

**Table 69: Birthweight distribution of stillbirths, neonatal and perinatal deaths in Western Australia, 1999**

Birthweight	Stillbirths		Neonatal deaths		Perinatal deaths	
	No.	%	No.	%	No.	%
< 500	63	35.2	17	22.7	80	31.5
500-999	43	24.0	16	21.3	59	23.2
1000-1499	18	10.1	4	5.3	22	8.7
1500-1999	9	5.0	8	10.7	17	6.7
2000-2499	9	5.0	6	8.0	15	5.9
<b>&lt; 2500</b>	<b>142</b>	<b>79.3</b>	<b>51</b>	<b>68.0</b>	<b>193</b>	<b>76.0</b>
2500-2999	12	6.7	8	10.7	20	7.9
3000-3499	12	6.7	6	8.0	18	7.1
3500-3999	7	3.9	7	9.3	14	5.5
4000-4499	5	2.8	3	4.0	8	3.1
>= 4500	1	0.6	-	-	1	0.4
<b>TOTAL</b>	<b>179</b>	<b>100.0</b>	<b>75</b>	<b>100.0</b>	<b>254</b>	<b>100.0</b>

**Table 70: Plurality of stillbirths, neonatal and perinatal deaths in Western Australia, 1999**

Plurality	Stillbirths		Neonatal deaths		Perinatal deaths	
	No.	Rate	No.	Rate	No.	Rate
Singleton	156	6.2	68	2.7	224	9.0
Multiple	23	29.9	7	4.0	30	39.1
<b>TOTAL</b>	<b>179</b>	<b>6.9</b>	<b>75</b>	<b>2.9</b>	<b>254</b>	<b>9.9</b>

**Stillbirth rate, singletons:** the number of singleton stillbirths per 1000 singleton births.

**Neonatal death rate, singletons:** the number of singleton neonatal deaths per 1000 singleton livebirths.

**Perinatal death rate, singletons:** the number of singleton stillbirths and singleton neonatal deaths per 1000 singleton births.

**Stillbirth rate, multiples:** the number of multiple stillbirths per 1000 multiple births.

**Neonatal death rate, multiples:** the number of multiple neonatal deaths per 1000 multiple livebirths.

**Perinatal death rate, multiples:** the number of multiple stillbirths and multiple neonatal deaths per 1000 multiple births.

**Table 71: Age at death for neonatal deaths in Western Australia, 1999**

Age at Neonatal death	No.	% of neonatal deaths
< Day 1	40	53.3
Day 1	8	10.7
Day 2	6	8.0
Day 3	3	4.0
Day 4	1	1.3
Day 5	3	4.0
Day 6	-	-
Day 7	1	1.3
Day 8-14	8	10.7
Day 15-21	3	4.0
Day 22-28	2	2.7
<b>TOTAL</b>	<b>75</b>	<b>100.0</b>

**Table 72: Causes of stillbirths and neonatal deaths in Western Australia, 1999**

Causes of Death	Stillbirths		Neonatal Deaths	
	No.	%	No.	%
Lethal birth defects	42	23.5	21	28.0
Extremely low birthweight (< 1000 grams) <sup>1</sup>	70	39.1	26	34.7
Low birthweight (1000-2499 grams) <sup>2</sup>	7	3.9	5	6.7
Asphyxia	40	22.3	9	12.0
Maternal - Obstetric	3	1.7	4	5.3
Medical	-	-	-	-
Hypertension	-	-	-	-
Placenta and cord	15	8.4	-	-
Hydrops fetalis	-	-	1	1.3
Infection	-	-	-	-
Sudden Infant Death Syndrome	-	-	3	4.0
Other	2	1.1	-	-
Unknown	-	-	6	8.0
<b>TOTAL</b>	<b>179</b>	<b>100.0</b>	<b>75</b>	<b>100.0</b>

<sup>1</sup> Any non-malformed perinatal death of birthweight less than 1000 grams was included in the extremely low birthweight category.

<sup>2</sup> Any non-malformed perinatal death of birthweight greater than or equal to 1000 grams and less than 2500 grams was included in the low birthweight category.

**Table 73: Autopsy requests for stillbirths, neonatal and perinatal deaths in Western Australia, 1999**

Autopsy Request	Stillbirths		Neonatal Deaths		Perinatal Deaths	
	No.	%	No.	%	No.	%
Yes	114	63.7	40	53.3	154	60.6
No	56	31.3	32	42.7	88	34.6
Unknown	9	5.0	3	4.0	12	4.7
<b>TOTAL</b>	<b>179</b>	<b>100.0</b>	<b>75</b>	<b>100.0</b>	<b>254</b>	<b>100.0</b>

## REFERENCES

1. Gee V. Guidelines for Completion of the Notification of Case Attended Midwives' Form 2. Health Department of Western Australia, Perth, 2nd edn, 1990.
2. Annotated ICD-9-CM 1992-93 International Classification of Diseases, 9th Revision, Clinical Modification. HCIA Baltimore, Maryland, 1992.
3. Gee V and Dawes VP. Validation Study of the Western Australia Midwives' Notification System 1992. Health Department of Western Australia, Perth, 1994.
4. Hicks DG. Aboriginal Mortality Rates in Western Australia, 1983. Health Department of Western Australia, Perth, 1985.
5. Gee V. Perinatal Statistics in Western Australia: Sixteenth Annual Report of the Western Australian Midwives' Notification System for 1998, Health Department of Western Australia, Perth, 2000.
6. Nassar N, Sullivan EA, Lancaster P and Day P 2000. Australia's Mothers and Babies 1998. AIHW Cat. No.PER 15. Sydney: AIHW National Perinatal Statistics Unit (Perinatal Statistics Series no.10).
7. Chan A, Scott J, Nguyen A, Keane R. Pregnancy Outcome in South Australia 1999, South Australian Health Commission, Adelaide, 1999.
8. Riley M and Halliday J. Births in Victoria 1996-1998, Perinatal Data Collection Unit, Victorian Government Department of Human Services, Melbourne, 1999.
9. Public Health Division. New South Wales Mothers and Babies 1999. Sydney: NSW Health Department, 2001.
10. Perinatal Statistics Queensland 1996, Health Information Centre, Queensland Health, 1998.
11. Bourne M, (2002), ACT Maternal and Perinatal 1998 Tables, Clinical Epidemiology and Health Outcome Centre, ACT Department of Health, Housing and Community Care: Health Series No 26, ACT Government, Canberra ACT.
12. Bower C, Ryan A, Rudy E, Cosgrove P. Report of the Birth Defects Registry in Western Australia 1980-1999, King Edward Memorial Hospital, No 7, 2000.

## APPENDIX A

<b>Age-Specific Birth Rate</b>	The total births (livebirths and stillbirths) per 1000 to women aged between 15-44 years.
<b>Apgar Score</b>	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.
<b>BBA</b>	A birth that occurs prior to arrival of the mother at the intended place of confinement.
<b>Birth Defects</b>	Any defect present at birth, probably of developmental origin.
<b>Birthweight</b>	The first weight, measured to the nearest five grams, of the newborn which is usually obtained within the first hour of birth.
<b>Low Birthweight</b>	A birthweight of less than 2500 grams.
<b>Very Low Birthweight</b>	A birthweight of less than 1500 grams.
<b>Caesarean Section</b>	<p>A delivery of the fetus through an incision in the abdominal wall.</p> <p>Elective Caesarean Section. A planned procedure prior to onset of labour and before spontaneous rupture of membranes or without any induction procedure.</p> <p>Emergency Caesarean Section. An unplanned procedure, performed because of a complication. May be performed before the onset of labour or during labour.</p>
<b>Crude Birth Rate</b>	The number of livebirths per 1000 person-years of total population.
<b>Length of Stay</b>	The total number of patient days in hospital at time of discharge. A stay of less than one 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.

<b>Livebirth</b>	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.
<b>Mortality Rates</b>	Stillbirth - the number of stillbirths per 1000 total births in a year.  Neonatal Mortality - the number of neonatal deaths per 1000 livebirths in a year.  Perinatal Mortality - the number of stillbirths and neonatal deaths per 1000 total births in a year.
<b>Neonatal Death</b>	The death of a liveborn infant within 28 days of birth.
<b>Parity</b>	The total number of livebirths and stillbirths of the mother prior to the parturition under consideration.  Nulliparous - never having completed a pregnancy beyond 20 weeks gestation.
<b>Perinatal Death</b>	A stillbirth or neonatal death.
<b>Plurality</b>	The number of fetuses or babies resulting from the pregnancy. On this basis pregnancy may be classified as singleton or multiple.
<b>Stillbirth</b>	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

Health Act (Notification by Midwife) Regulations Form 2. **NOTIFICATION OF CASE ATTENDED**

**MR 15**

<b>Surname</b> _____	Unit Record No <input type="text"/>	Hospital _____
<b>Forenames</b> _____	Birth Date (Mother) <input type="text"/> 2 0 <input type="text"/>	Ward _____
<b>Address of usual residence</b> Number and Street _____	State _____ Post Code <input type="text"/>	<b>Marital Status</b> 1=never married 2=widowed 3=divorced <input type="checkbox"/> 4=separated 5=married (incl. defacto) <input type="checkbox"/> 6=unknown
Town or City _____	Height (cms) <input type="text"/>	<b>Ethnic Origin</b> 1=Caucasian 2= Aboriginal / TSI <input type="checkbox"/>
Maiden name _____	Tel. No. <input type="text"/>	Other _____

Pregnancy Details	Labour Details	Baby Details
-------------------	----------------	--------------

<p><b>Previous Pregnancies :</b> - total number (excluding this pregnancy) <input type="text"/></p> <p><b>Previous pregnancy outcomes:</b> - children now living: <input type="text"/></p> <p>- born alive, now dead: <input type="text"/></p> <p>- stillborn: <input type="text"/></p> <p>Previous caesarean section: 1=yes 2=no <input type="checkbox"/></p> <p>Caesarean last delivery: 1=yes 2=no <input type="checkbox"/></p> <p>Previous multiple birth: 1=yes 2=no <input type="checkbox"/></p> <p><b>This Pregnancy:</b> Date of LMP: <input type="text"/> 2 0 <input type="text"/></p> <p>This date certain 1=yes 2=no <input type="checkbox"/></p> <p><b>Expected due date:</b> <input type="text"/> 2 0 <input type="text"/></p> <p>based on 1=clinical signs/dates <input type="checkbox"/> 2=ultrasound &lt; 20 weeks <input type="checkbox"/></p> <p><b>Smoking during Pregnancy:</b> 1=yes 2=no <input type="checkbox"/></p> <p><b>Complications of Pregnancy:</b></p> <p>1 <input type="checkbox"/> threatened abortion (&lt;20wks)</p> <p>2 <input type="checkbox"/> threatened preterm labour (&lt;37 wks)</p> <p>3 <input type="checkbox"/> urinary tract infection</p> <p>4 <input type="checkbox"/> pre-eclampsia</p> <p>5 <input type="checkbox"/> APH - placenta praevia</p> <p>6 <input type="checkbox"/> abruptio</p> <p>7 <input type="checkbox"/> other</p> <p>8 <input type="checkbox"/> pre-labour rupture of membranes</p> <p>9 <input type="checkbox"/> gestational diabetes</p> <p>10 <input type="checkbox"/> other (specify).....</p>	<p><b>Onset of Labour:</b> 1=spontaneous 2=induced 3=no labour <input type="checkbox"/></p> <p><b>Augmentation:</b></p> <p>1 <input type="checkbox"/> none</p> <p>2 <input type="checkbox"/> oxytocin</p> <p>3 <input type="checkbox"/> prostaglandins</p> <p>4 <input type="checkbox"/> artificial rupture of membranes</p> <p>8 <input type="checkbox"/> other</p> <p><b>Induction:</b></p> <p>1 <input type="checkbox"/> none</p> <p>2 <input type="checkbox"/> oxytocin</p> <p>3 <input type="checkbox"/> prostaglandins</p> <p>4 <input type="checkbox"/> artificial rupture of membranes</p> <p>8 <input type="checkbox"/> other</p> <p><b>Analgesia (during labour):</b></p> <p>1 <input type="checkbox"/> none</p> <p>2 <input type="checkbox"/> nitrous oxide</p> <p>3 <input type="checkbox"/> intra-muscular narcotics</p> <p>4 <input type="checkbox"/> epidural / caudal</p> <p>5 <input type="checkbox"/> spinal</p> <p>8 <input type="checkbox"/> other</p> <p><b>Duration of Labour:</b> hrs mins</p> <p>1st stage (hours &amp; mins): <input type="text"/></p> <p>2nd stage: <input type="text"/></p>	<p>(NB. separate form for each baby)</p> <p><b>Adoption:</b> 1=yes 2=no <input type="checkbox"/></p> <p><b>Born Before Arrival:</b> 1=yes 2=no <input type="checkbox"/></p> <p><b>Birth Date</b> <input type="text"/> 2 0 <input type="text"/></p> <p><b>Birth Time (24 hr clock)</b> <input type="text"/></p> <p><b>Plurality:</b> number of babies this birth <input type="text"/></p> <p>if multiple specify this baby number <input type="text"/></p> <p><b>Presentation:</b> 1=vertex 2=breech <input type="checkbox"/> 3=face 4=brow 8=other <input type="checkbox"/></p> <p><b>Method of Birth:</b></p> <p>1 <input type="checkbox"/> spontaneous</p> <p>2 <input type="checkbox"/> vacuum successful</p> <p>3 <input type="checkbox"/> unsuccessful</p> <p>4 <input type="checkbox"/> forceps successful</p> <p>5 <input type="checkbox"/> unsuccessful</p> <p>6 <input type="checkbox"/> breech (vaginal)</p> <p>7 <input type="checkbox"/> elective caesarean</p> <p>8 <input type="checkbox"/> emergency caesarean</p> <p><b>Accoucheur(s):</b></p> <p>1 <input type="checkbox"/> obstetrician</p> <p>2 <input type="checkbox"/> other medical officer</p> <p>3 <input type="checkbox"/> midwife</p> <p>4 <input type="checkbox"/> student</p> <p>5 <input type="checkbox"/> self / no attendant</p> <p>8 <input type="checkbox"/> other</p> <p><b>Gender:</b> 1=male 2=female <input type="checkbox"/></p> <p><b>Status of Baby at Birth:</b> 1=liveborn 2=stillborn <input type="checkbox"/></p> <p><b>Infant Weight (grams):</b> <input type="text"/></p> <p><b>Length (cms):</b> <input type="text"/></p> <p><b>Head Circumference (cms):</b> <input type="text"/></p> <p><b>Time to establish unassisted regular breathing (mins):</b> <input type="text"/></p> <p><b>Resuscitation:</b> 1=none 2=suction only 3=oxygen therapy <input type="checkbox"/> 4=bag &amp; mask 5=endotracheal intubation 6=ext. cardiac massage &amp; vent. 8=other</p> <p><b>Apgar Score:</b> 1 minute <input type="text"/> 5 minutes <input type="text"/></p> <p><b>Estimated Gestation (weeks):</b> <input type="text"/></p> <p><b>Birth Defects (specify):</b> .....</p> <p><b>Birth Trauma (specify):</b> .....</p>
---	--	---

Delivery Details
------------------

<p><b>Anaesthesia (during delivery):</b></p> <p>1 <input type="checkbox"/> none</p> <p>2 <input type="checkbox"/> local anaesthesia to perineum</p> <p>3 <input type="checkbox"/> pudendal</p> <p>4 <input type="checkbox"/> epidural / caudal</p> <p>5 <input type="checkbox"/> spinal</p> <p>6 <input type="checkbox"/> general</p> <p>8 <input type="checkbox"/> other</p> <p><b>Complications of Labour and Delivery:</b> (include reason stated for operative delivery)</p> <p>1 <input type="checkbox"/> precipitate delivery</p> <p>2 <input type="checkbox"/> fetal distress</p> <p>3 <input type="checkbox"/> prolapsed cord</p> <p>4 <input type="checkbox"/> cord tight around neck</p> <p>5 <input type="checkbox"/> cephalopelvic disproportion</p> <p>6 <input type="checkbox"/> PPH (=&gt;500mls)</p> <p>7 <input type="checkbox"/> retained placenta - manual removal</p> <p>8 <input type="checkbox"/> persistent occipito posterior</p> <p>9 <input type="checkbox"/> shoulder dystocia</p> <p>10 <input type="checkbox"/> failure to progress &lt;=3cms</p> <p>11 <input type="checkbox"/> failure to progress &gt; 3cms</p> <p>12 <input type="checkbox"/> previous caesarean section</p> <p>13 <input type="checkbox"/> other (specify).....</p>	<p><b>Perineal Status:</b></p> <p>1=intact 2=1st degree tear <input type="checkbox"/></p> <p>3=2nd degree tear 4=3rd degree tear <input type="checkbox"/></p> <p>5=episiotomy 6=episiotomy plus tear</p> <p>8=other</p>	<p><b>Medical Conditions:</b></p> <p>1 <input type="checkbox"/> essential hypertension</p> <p>2 <input type="checkbox"/> pre-existing diabetes mellitus</p> <p>3 <input type="checkbox"/> asthma</p> <p>4 <input type="checkbox"/> genital herpes</p> <p>8 <input type="checkbox"/> other (specify).....</p> <p><b>Procedures/treatments:</b></p> <p>1 <input type="checkbox"/> fertility treatments (include drugs)</p> <p>2 <input type="checkbox"/> cervical suture</p> <p>3 <input type="checkbox"/> CVS/placental biopsy</p> <p>4 <input type="checkbox"/> amniocentesis</p> <p>5 <input type="checkbox"/> ultrasound</p> <p>6 <input type="checkbox"/> CTG antepartum</p> <p>7 <input type="checkbox"/> CTG intrapartum</p> <p><b>Intended place of birth at onset of labour:</b> 1=hospital 2=birth centre attach. hospital <input type="checkbox"/> 3=birth centre free standing 4=home 8=other <input type="checkbox"/></p>
---	---	--

<p><b>MIDWIFE:</b> Name..... Signature..... date...../...../..... Reg.No. <input type="text"/></p>	<p>Please forward completed form to: Health Information Centre Health Dept of Western Australia. PO Box 8172 Stirling Street, Perth 6849.</p> <p>NB: Guidelines for completion of this form are available from the above address</p>	<p>Sep. Date <input type="text"/> 2 0 <input type="text"/></p> <p><b>Mode of separation:</b> 1=transferred 8=died 9=disch. home <input type="checkbox"/></p> <p>transferred to: <input type="text"/></p> <p><b>Special care (wholedays only):</b> <input type="text"/></p>
--	--	--