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PERINATAL STATISTICS IN WESTERN AUSTRALIA

Tenth Annual Report
of the Western Australian Midwives'
Notification System
1992

VIVIEN GEE
BAppSc.(Nursing Admin.), RN, RM, CHN
Health Services Statistics and Epidemiology Branch

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WESTERN AUSTRALIAN MIDWIVES' NOTIFICATION SYSTEM
MATERNAL AND CHILD HEALTH STUDIES UNIT
HEALTH SERVICES STATISTICS AND EPIDEMIOLOGY BRANCH
HEALTH DEPARTMENT OF WESTERN AUSTRALIA
189 ROYAL STREET, EAST PERTH, WA, 6004

CLERICAL STAFF: Mrs Pamela Addison
Miss Coral Lukies
Mrs Margaret Oman

CO-ORDINATOR: Mrs Vivien Gee

FOREWORD

The first decade of Annual Reports of the West Australian Midwives Notification System is now complete. The Midwives Notification System has an international reputation based on its use in the many case control studies on cerebral palsy and birth defects published by West Australian researchers. How should it grow and develop in the future?

Answers to that question will depend on how the report and its data is used by the providers, researchers and clients of maternity services in this state. It must not exist only as a written record, containing straightforward analyses and observations of trends. It has other critical applications that already influence its structure and that should affect its development.

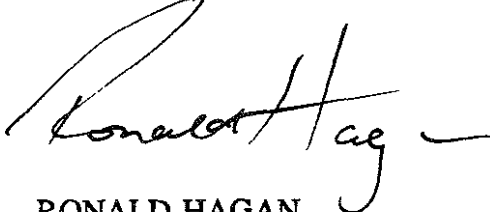
Three immediately come to mind (1) as an audit of perinatal services in WA (2) as a data base for regional health planners and (3) as a continuing source of data for perinatal research. Each requires that the report and its data mark the starting point for further analysis and study.

Many interesting questions arise from this present report in each of these areas. Is it appropriate that over one quarter of Aboriginal mothers are in their teens and does this pose questions for sex education and contraception in the aboriginal community? Why is the proportion of multiple births rising again and is this related to more successful in-vitro fertilisation techniques? Why is the autopsy rate low for both neonatal deaths and stillbirths and does this reflect the initial counselling received by grieving parents? Why are more than half the women resident in the east metropolitan region confined outside that region and what should be done by that region's health planners? Why is bag and mask resuscitation used much more frequently in the delivery room in the 1990s?

We each can and should search out many such questions related to problems in our own areas of expertise and seek answers.

I commend this report to you, read it, study it and then seek more information from its authors to help you further understand and investigate your problems. The Health Services Statistics and Epidemiology Branch are always approachable and very helpful. How each of us uses this report will help shape its future growth and development.

Vivien Gee, her staff and the midwives of this state, are to be congratulated on their work.



RONALD HAGAN
MB; BCh; BSc; DABP; MBA; Grad Dipl Comp
Neonatal Paediatrician

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The author wishes 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 1992.

Sincere thanks are also extended to:

- . Dr Vivienne Dawes for her continued support and advice;
- . Maternal and Child Health Studies Unit clerical staff who processed and coded the information;
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1. SUMMARY

The Midwives' Notification System compiles information on all births in Western Australia. This Report presents data on births in 1992 and also describes trends from 1983-1992.

In 1992, 24,918 women gave birth in Western Australia. The number of teenage mothers was 1570 (6.3%) and the number of mothers aged 35 years or more was 2631 (10.6%). The fertility rate of women aged 15-19 years has declined slightly over the past decade from 27.2 births per 1000 women-years in 1983 to 25.3 in 1992. Amongst women aged 35-44 years, the fertility rate has increased from 14.4 births per 1000 women-years in 1983 to 20.3 in 1992. Most births occur to women aged 20-34 years, and in 1992 the fertility rate in this group was 104.1 births per 1000 women-years. Overall, the fertility rate declined during the decade.

Most mothers were of caucasian racial origin (87.8%). Aboriginal women comprised 5.7% of mothers and women of all other races comprised 6.5%. Fertility rates among Aboriginal women are on average twice as high as fertility rates among non-Aboriginal women.

Most mothers have their babies in hospital. In 1992, 99.3% of mothers delivered in hospital and there were only 107 (0.4%) planned home confinements.

Whereas 68.9% of women reported being resident in the metropolitan area, 74.0% of confinements occurred in metropolitan hospitals. This indicates the movement of women from the country to deliver in the metropolitan area, closer to specialised care. Women from country regions close to the metropolitan area were more likely to travel to Perth for delivery than women in distant country regions. The proportion of confinements in the country hospitals has declined slightly from 27.4% in 1983 to 25.3% in 1992.

A total of 25,258 babies (of birthweight $\geq 500\text{g}$) were born in 1992. Whilst most of these babies (97.3%) resulted from singleton pregnancies, there were 676 babies resulting from twin or triplet pregnancies. One pregnancy in every 74 was a multiple pregnancy. There were no quadruplet or quintuplet pregnancies recorded in 1992.

Labour was spontaneous in onset for 62.2% of mothers and induced for a further 26.2%.

The rate of caesarean section in 1992 was 19.3%. This figure has risen from 13.2% in 1983, and represents one of the most striking features of modern obstetrics. Of the 1795 women in 1992 recorded as having had a previous caesarean section or other uterine surgery, 1590 (88.6%) were delivered by caesarean section and only 205 (11.4%) delivered vaginally.

Spontaneous vaginal delivery occurred for 64.2% of mothers and a further 16.5% had an assisted vaginal delivery (forceps, vacuum extraction or breech manoeuvre).

Although 62.2% of mothers had a spontaneous onset of labour, only 29.4% of mothers proceeded through labour without augmentation and achieved a spontaneous vaginal delivery. Thus, just under a third of births occurred without intervention to the processes of labour or delivery.

Another feature of modern obstetrics is the increased use of epidural analgesia and anaesthesia. In 1992, a total of 8144 (32.7%) mothers received an epidural at some stage during labour and delivery. Among women delivering by elective caesarean section, 82.8% had an epidural anaesthetic. The number of women receiving a general anaesthetic at some stage during labour and delivery was 1355 (5.4%). It should be noted that some hospitals conducting booked deliveries do not offer an epidural service.

A significant proportion of pregnant women have pre-existing medical conditions. In 1992, the most common of these conditions was asthma, affecting 5.8% of mothers. Epilepsy was recorded for 0.5% and hepatitis B for 0.3% of mothers.

Complications of pregnancy were recorded for 36.2% of women. The most common complications were threatened abortion in early pregnancy (5.4%) and pre-eclampsia (5.2%).

One of the most important factors affecting the survival of a baby is birthweight. In 1992, most babies (67.6%) weighed 3000-3999g at birth, and the average birthweight was 3351g. The percentage of low birthweight (<2500g) babies was 6.3%, and this percentage has been static over the decade.

Most babies (80.0%) stayed in their hospital of birth for between two and seven days after birth. Two hundred and ten babies had a length of stay of more than four weeks. There are substantial costs attached to extended lengths of stay, particularly when care in a neonatal intensive care unit is involved.

Among the babies born in 1992 there were 115 stillbirths and 96 neonatal deaths, giving a perinatal mortality rate of 8.4 perinatal deaths/1000 total births. The perinatal mortality rate has declined significantly over the decade, from 11.5/1000 in 1983.

Babies of Aboriginal mothers fare considerably worse than babies of non-Aboriginal women. The percentage of low birthweight Aboriginal babies (11.3% in 1992) is approximately double that of non-Aboriginal babies (6.0% in 1992). Mortality rates of Aboriginal babies are more than double the non-Aboriginal rates. The Aboriginal perinatal mortality rate in 1992 was 21.7/1000 compared with 7.6/1000 among non-Aboriginal babies. There has been some improvement in Aboriginal perinatal mortality over the decade.

The maternal mortality rate remains very low at 0.04 maternal deaths/1000 livebirths in 1992. There were a total of 13 maternal deaths during the decade: these deaths include deaths due to obstetric causes as well as deaths from other causes such as accidents, suicide and pre-existing medical conditions.

2. INTRODUCTION

This is the Tenth 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 1992 calendar year. Only those pregnancies which resulted in a final product of conception having a birthweight equal to or greater than 500 grams have been included. Notifications were received for 66 babies whose birthweight was less than 500 grams.

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

When the Notification of Case Attended (Midwives') Form 2 are received by the Maternal and Child Health Studies Unit, the information is checked for completeness and, if necessary, followed up for additional details. The information is then transcribed into a coded format, using the World Health Organisation - International Classification of Diseases, 9th Revision Clinical Modification² (ICD-9-CM) to code morbidity and once this is complete the forms are sent for data entry and computing.

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

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

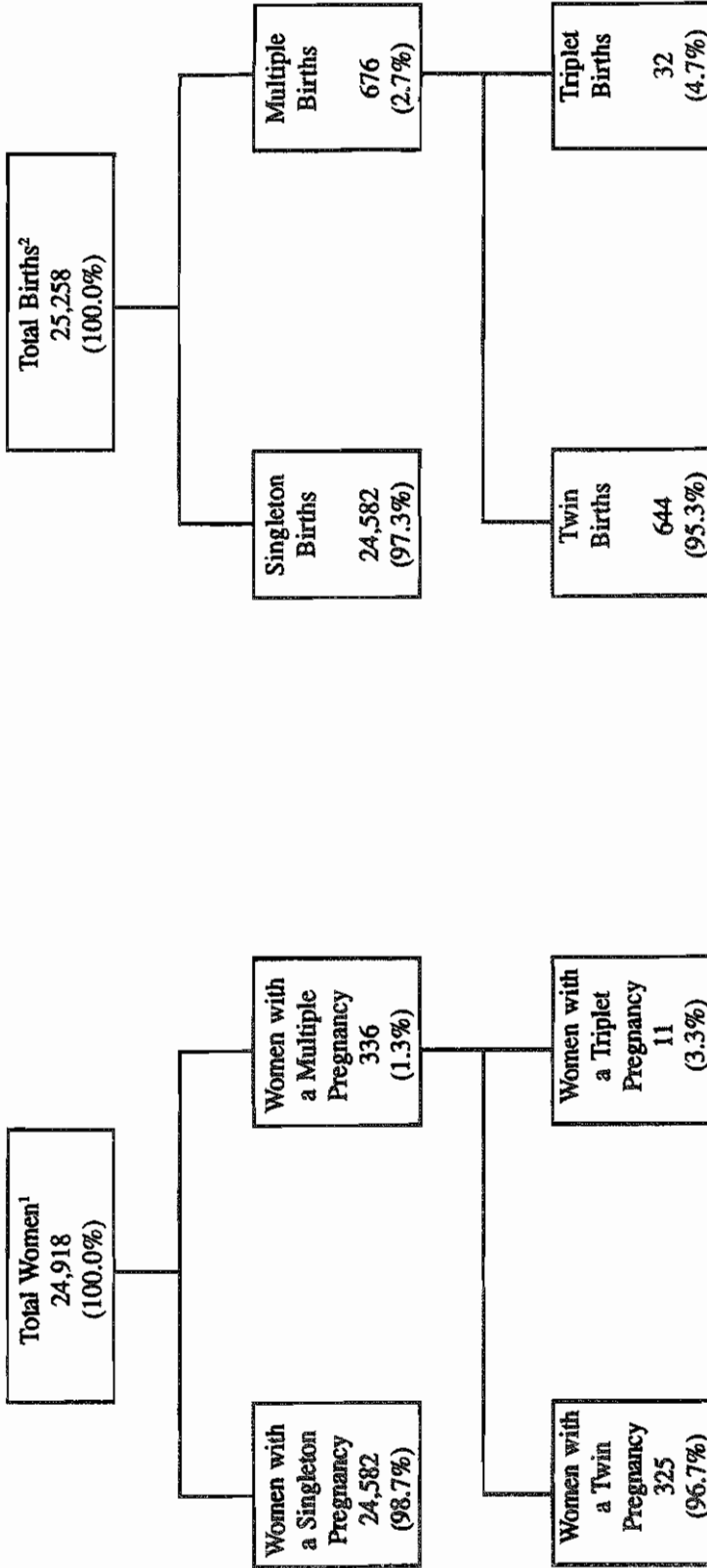
Additional tabulations are available upon request to:

Mrs Vivien Gee
Co-ordinator, Midwives' Notification System
Health Services Statistics and Epidemiology Branch
Health Department of Western Australia
189 Royal Street
EAST PERTH WA 6004

Telephone: (09) 222 4262
Fax: (09) 222 4236

TREE DIAGRAM 1

PREGNANCIES AND BIRTHS IN WESTERN AUSTRALIA, 1992



Excludes births less than 500 grams birthweight.

¹ Includes six women with a twin pregnancy where one twin weighed less than 500 grams birthweight.

² Includes six single twin births whose birthweight was 500 grams or more.

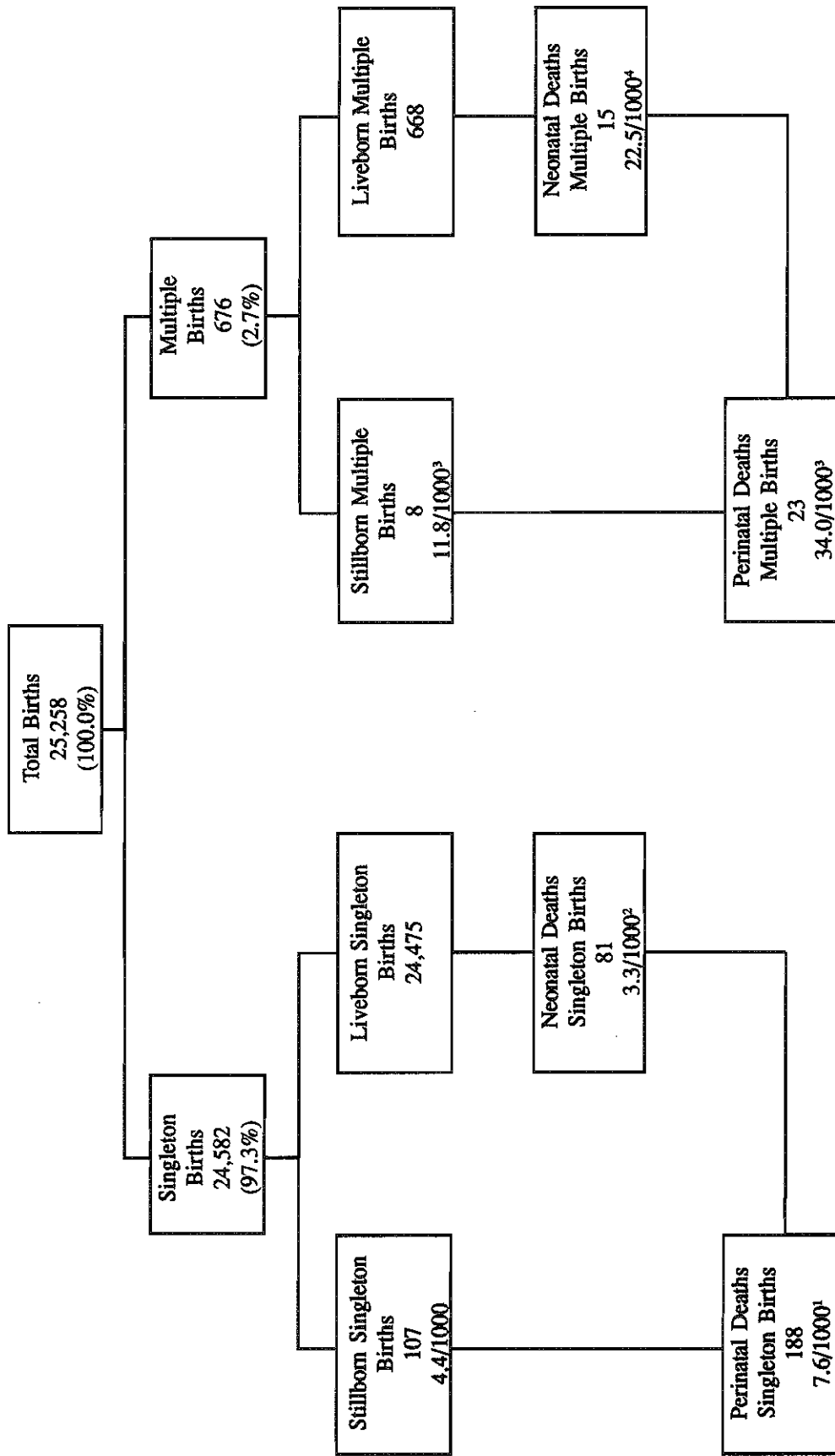
¹Includes one woman with a triplet pregnancy where one triplet weighed less than 500 grams birthweight.

²Includes two triplet babies whose birthweight was 500 grams or more.

SOURCE: MIDWIVES' NOTIFICATION SYSTEM

TREE DIAGRAM 2

PLURALITY OF BIRTHS AND PERINATAL DEATHS IN WESTERN AUSTRALIA, 1992



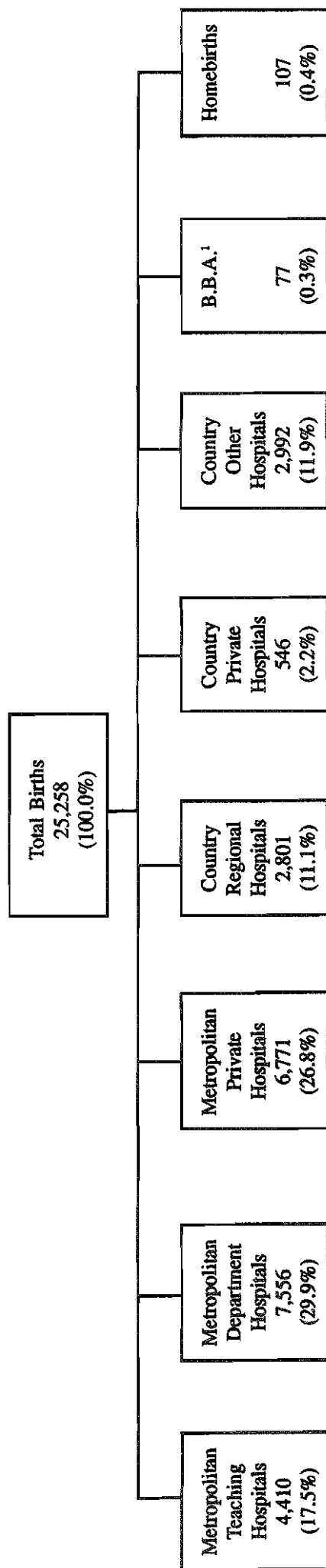
Excludes births less than 500 grams birthweight.
 ¹/1000 total singleton births ²/1000 singleton livebirths
 ³/1000 total multiple births ⁴/1000 multiple livebirths

SOURCE: MIDWIVES' NOTIFICATION SYSTEM
 REGISTRAR GENERAL'S OFFICE

HOSPITAL MORBIDITY SYSTEM
 COMMUNITY AND CHILD HEALTH SERVICES

TREE DIAGRAM 3

PLACE OF DELIVERY FOR ALL BIRTHS IN WESTERN AUSTRALIA, 1992



Excludes births less than 500 grams birthweight.

¹ B.B.A. (born before arrival)

SOURCE: MIDWIVES' NOTIFICATION SYSTEM

3. MATERNAL DEMOGRAPHIC INFORMATION

3.1 Age

There were 24,918 women confined in Western Australia during 1992. The range of maternal age for these women was 12 years to 48 years with a mean age of 27.9 years. Women aged between 20 and 34 years represented 83.1% of all women confined. Young women aged 19 years or less represented 6.3% of total women confined with the 35 year and older group increasing to 10.6% from 9.9% in 1991. Among Aboriginal mothers, 27.9% of births were to teenagers whereas 5.2% of births to Caucasian mothers were to teenagers (Table 1). Trend data for maternal age are provided in Section 7 (Table 49).

TABLE 1:

AGE AND RACE OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

Maternal Age	Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
≤14	5	-	17	1.2	-	-	22	0.1
15	19	0.1	23	1.6	2	0.1	44	0.2
16	94	0.4	67	4.7	1	0.1	162	0.7
17	205	0.9	80	5.7	4	0.3	289	1.2
18	326	1.5	99	7.0	10	0.6	435	1.7
19	481	2.2	109	7.7	28	1.7	618	2.5
≤19	1130	5.2	395	27.9	45	2.8	1570	6.3
20-24	4427	20.2	520	36.8	238	14.6	5185	20.8
25-29	7792	35.6	320	22.6	495	30.4	8607	34.5
30-34	6256	28.6	136	9.6	533	32.7	6925	27.8
35-39	1952	8.9	39	2.8	271	16.6	2262	9.1
40-44	307	1.4	5	0.4	46	2.8	358	1.4
≥45	10	0.1	-	-	1	0.1	11	-
TOTAL	21874	100.0	1415	100.0	1629	100.0	24918	100.0

Excludes births less than 500 grams birthweight.
Mean = 27.9 years. Standard Deviation = 5.3 years.

3.2 Race

Ethnic grouping of women identified the majority (87.8%) of women confined as caucasian. The remaining twelve percent was comprised of Aboriginal women (5.7%) and women of 'Other' races (6.5%).

There were 1629 women confined whose race was identified as 'Other' than Caucasian or Aboriginal. Examination of a 10% sample of women in this group showed 75.2% to be of Asian racial origin and 4.8% of Maori or Pacific Islander racial origin.

3.3 Conjugal State

Ten percent of all women confined in Western Australia during 1992 were reported to be socially unsupported, being either single, widowed, separated or divorced. Single women represented the largest unsupported group (9.5%). For women with multiple pregnancy 8.9% were unsupported (Table 2). Trend data for the conjugal state of women confined is provided in Section 7 (Table 49).

TABLE 2:

CONJUGAL STATE AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

Conjugal State	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
Single	2343	9.5	27	8.0	2370	9.5
Married/Defacto	22045	89.7	306	91.1	22351	89.7
Other ¹	194	0.8	3	0.9	197	0.8
TOTAL	24582	100.0	336	100.0	24918	100.0

Excludes births less than 500 grams birthweight.

¹ Other includes separated, divorced and widowed.

3.4 Health Region

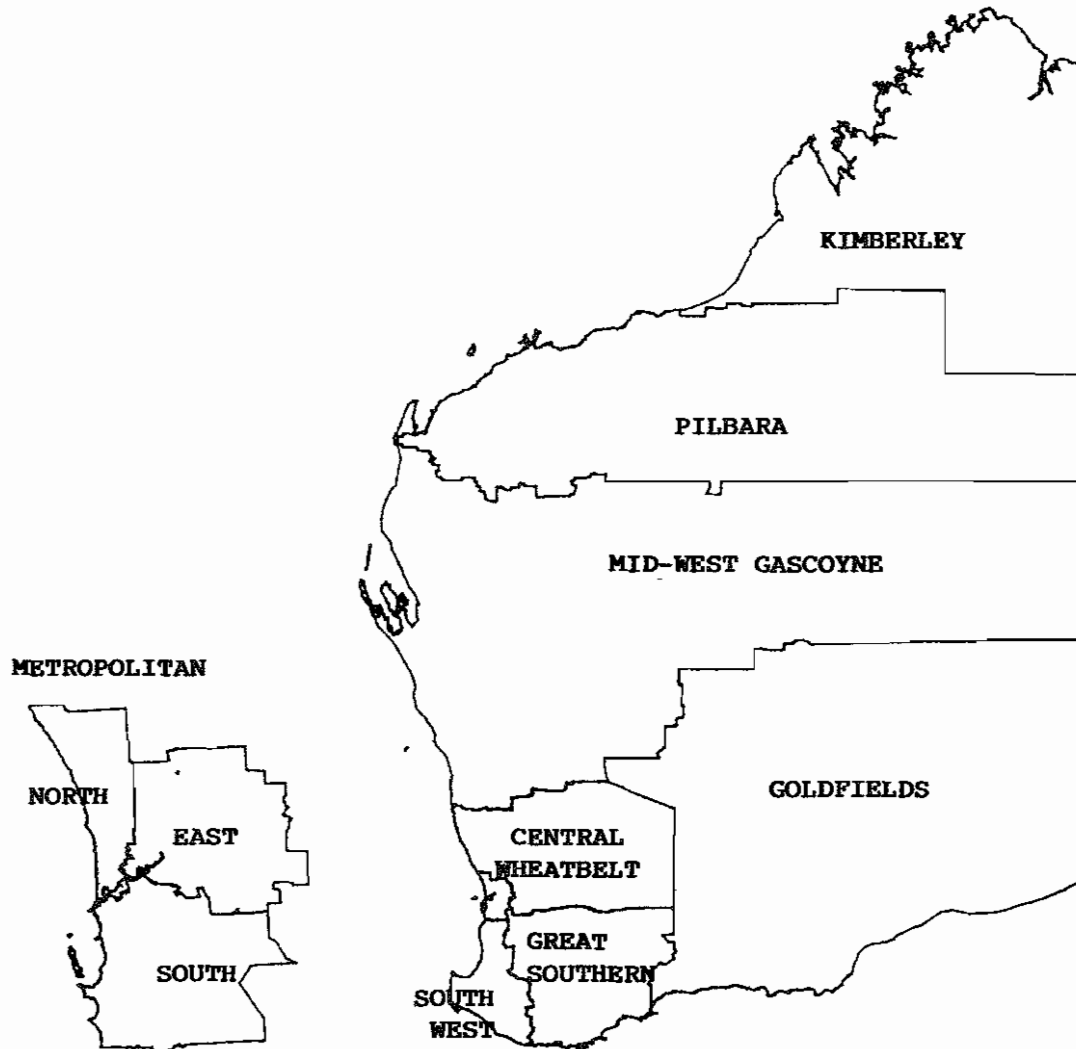
More than two thirds (68.9%) of women confined in 1992 gave their residential address as being within the three Metropolitan Health Regions. There were 31.0% of women confined whose usual place of residence was within the seven Country Health Regions and 24 women (0.1%) who were not residents of Western Australia.

Among Aboriginal women confined, 31.3% were Metropolitan residents and 68.3% were residents of country regions (Table 3).

Information on Western Australian women confined in other States and outside Australia during 1992 is not included in this report.

FIGURE I

**HEALTH REGION OF RESIDENCE OF WOMEN
CONFINED IN WESTERN AUSTRALIA, 1992**



HEALTH REGION		%
Metropolitan:	North	21.2
	East	22.8
	South	24.9
	Total	68.9
Country:	South-West	8.6
	Great Southern	4.5
	Central	3.2
	Goldfields	4.6
	Mid-West Gascoyne	4.3
	Pilbara	3.7
	Kimberley	2.2
Total WA	100.0	

Excludes births less than 500 grams birthweight and those 24 (0.1%) mothers resident outside Western Australia.

SOURCE: Midwives' Notification System

TABLE 3:

HEALTH REGION OF RESIDENCE AND RACE OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

HEALTH REGION	Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
<u>Metropolitan</u>								
North	4792	21.9	113	8.0	389	23.9	5294	21.2
East	4939	22.6	181	12.8	556	34.1	5676	22.8
South	5620	25.7	149	10.5	430	26.4	6199	24.9
<u>Country</u>								
South West	2047	9.4	56	4.0	37	2.3	2140	8.6
Great Southern	1032	4.7	61	4.3	24	1.5	1117	4.5
Central Wheatbelt	749	3.4	49	3.5	10	0.6	808	3.2
Goldfields	973	4.4	129	9.1	38	2.3	1140	4.6
Mid-West Gascoyne	830	3.8	190	13.4	44	2.7	1064	4.3
Pilbara	674	3.1	155	11.0	87	5.3	916	3.7
Kimberley	205	1.0	327	23.1	8	0.5	540	2.2
Outside WA	13	0.1	5	0.4	6	0.4	24	0.1
TOTAL	21874	100.0	1415	100.0	1629	100.0	24918	100.0

Excludes births less than 500 grams birthweight.

Metropolitan Regions

There were 24,918 women confined in Western Australian hospitals during 1992, of whom 18,438 (74.0%) were confined in hospitals within the metropolitan area (Table 6). These included 17,014 (68.3%) women resident in the metropolitan area, a further 1,411 (5.7%) women with a country residential address and 22 (0.1%) women resident outside Western Australia (Table 4).

Consideration of the maternal usual place of residence within Health Regions 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 North Metropolitan Region.

Of women resident in the North Metropolitan Region 95.5% were confined at hospitals within the area. Of these 18.9% were confined at a metropolitan teaching hospital and 76.6% at other hospitals in the area.

In the East Metropolitan Region, almost half (47.8%) of women were confined in the region, 26.9% in a metropolitan teaching hospital and a further 21.7% in the North Metropolitan Region.

For women residing in the South Metropolitan Region, 63.7% were confined in hospitals within the area with a further 19.4% confined in a metropolitan teaching hospital (Table 4, Figure II).

TABLE 4:

**MATERNAL RESIDENCE AND BIRTH HOSPITAL IN METROPOLITAN HEALTH REGION FOR WOMEN CONFINED IN WESTERN AUSTRALIA
- 1992**

Maternal Residence Management Regions	BIRTH HOSPITALS IN MANAGEMENT REGIONS								Total			
	North Metro		East Metro		South Metro		Country		No.	%		
	Teaching	Other	No.	%	No.	%	No.	%	No.	%		
North Metro	997	4034	18.9	76.6	158	3.0	70	1.3	4	0.1	5263	100.0
East Metro	1518	1226	26.9	21.7	2693	47.8	194	3.4	6	0.1	5637	100.0
South Metro	1193	422	19.4	6.9	596	9.7	3913	63.7	19	0.3	6143	100.0

Excludes births less than 500 grams birthweight and 126 non hospital births.

Country Regions

One quarter, 6295 (25.3%) of women confined in Western Australian hospitals during 1992 were confined in country hospitals (Table 6). There were a further 1395 (5.6%) 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 closer to specialised care. Women living in country regions closer to the city are more likely to travel to Perth for delivery than women in distant country regions.

TABLE 5:

MATERNAL RESIDENCE AND BIRTH HOSPITAL IN HEALTH REGIONS FOR WOMEN CONFINED IN COUNTRY AREAS OF WESTERN AUSTRALIA - 1992

Health Region of Maternal Residence	BIRTH HOSPITALS IN HEALTH REGIONS								Total	
	Internal		Metropolitan				Country			
	No.	%	Teaching		Other		No.	%	No.	%
<u>Country</u>										
South West	1793	84.9	131	6.2	177	8.4	11	0.5	2112	100.0
Great Southern	915	82.3	66	5.9	102	9.2	29	2.6	1112	100.0
Central	402	49.9	104	12.9	287	35.7	12	1.5	805	100.0
Goldfields	983	86.5	56	4.9	83	7.3	14	1.2	1136	100.0
Mid-West	807	76.0	115	10.8	116	10.9	24	2.3	1062	100.0
Pilbara	755	82.9	54	5.9	86	9.4	16	1.8	911	100.0
Kimberley	494	93.0	22	4.1	12	2.3	3	0.6	531	100.0
Non W.A.	-	-	7	31.8	6	27.3	9	40.9	22	100.0

Excludes births less than 500 grams birthweight and 58 non hospital births.

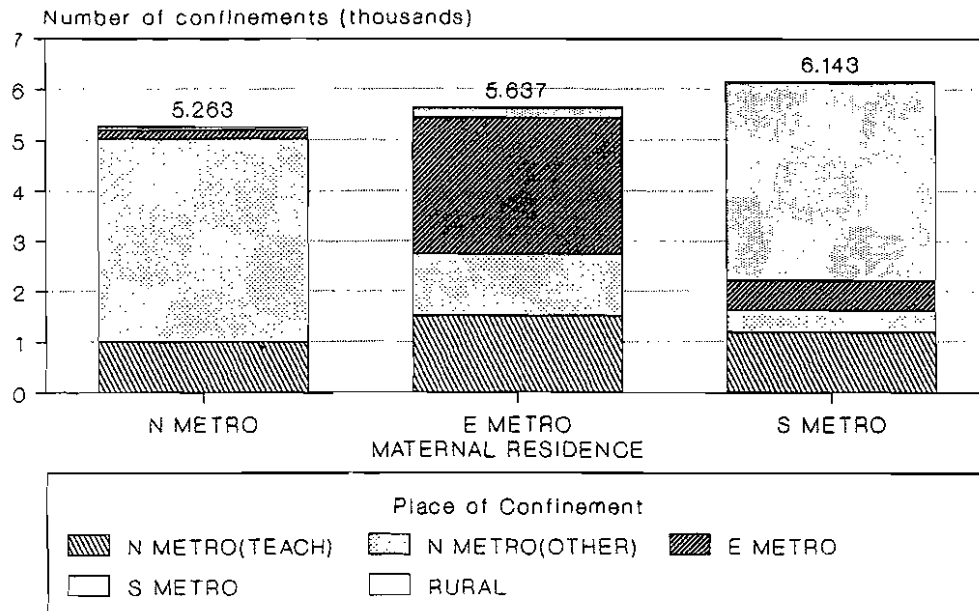
3.5 Place of Confinement

During 1992 there were 24,918 women confined in Western Australia. Of these, 99.3% gave birth in metropolitan or country hospitals. Non-hospital births included 77 babies born before arrival at hospital (BBA) and 107 babies born at home as planned. Trend data for the past 10 Years are available in section 7 (Table 49).

Of the total births, 74.0% were in metropolitan hospitals. These included 17.1% occurring in a metropolitan teaching hospital, 30.1% in metropolitan Departmental (Government) hospitals and 26.8% in private metropolitan hospitals. The majority (87.2%) of multiple births in 1992 occurred in metropolitan hospitals, with 43.2% being delivered in a teaching hospital (Table 6).

FIGURE II

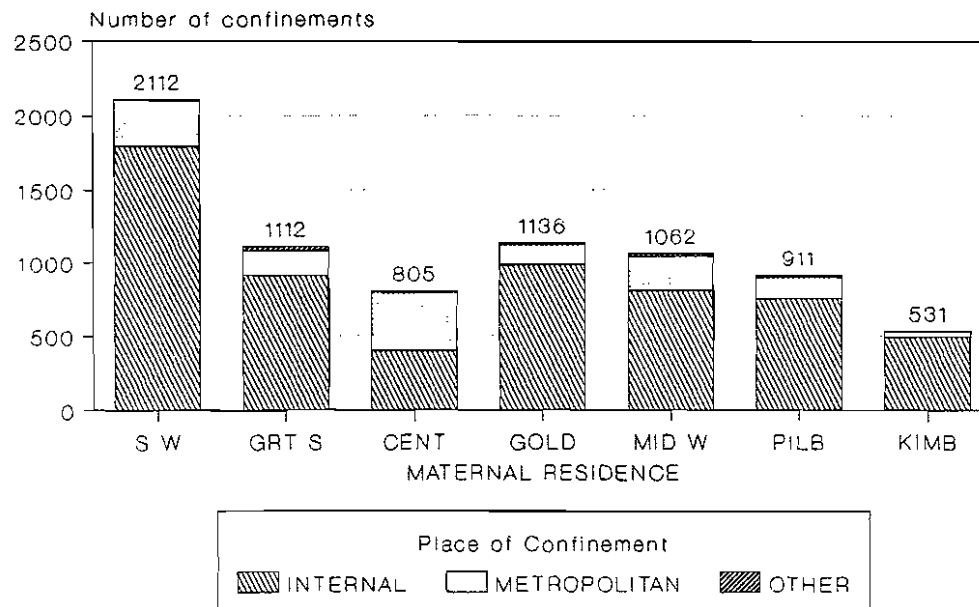
HOSPITAL BIRTHS AND MATERNAL RESIDENCE METROPOLITAN HEALTH REGIONS, WA 1992



Excludes births <500 grams birthweight and 126 non-hospital births.
SOURCE: MIDWIVES' NOTIFICATION SYSTEM

FIGURE III

HOSPITAL BIRTHS AND MATERNAL RESIDENCE IN COUNTRY HEALTH REGIONS OF W.A. 1992



Excludes births <500 grams birthweight and 58 non hospital births.
SOURCE: MIDWIVES' NOTIFICATION SYSTEM

TABLE 6:

PLACE OF CONFINEMENT AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

Place of Confinement	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
<u>Metropolitan</u>						
¹ Teaching Department	4119	16.8	145	43.2	4263	17.1
Private	7450	30.3	53	15.8	7503	30.1
	6577	26.8	95	28.3	6672	26.8
<u>Country</u>						
² Regional	2750	11.2	26	7.7	2776	11.1
Private	532	2.2	6	1.8	538	2.2
³ Other	2970	12.1	11	3.3	2981	12.0
<u>Non-Hospital</u>						
Homebirths	107	0.4	-	-	107	0.4
⁴ BBA	77	0.3	-	-	77	0.3
TOTAL	24582	100.0	336	100.0	24918	100.0

Excludes births less than 500 grams birthweight

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

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

³ Other country hospitals - includes Government and Board Hospitals.

⁴ BBA (born before arrival at hospital).

Homebirth numbers were reduced from 151 (0.6%) in 1990 and 145 (0.6%) in 1991 to 107 (0.4%) in 1992. Trend data on planned homebirths over the past decade are provided in section 7 (Table 49).

The Department received notification that an additional 27 women had planned a homebirth but because of complications were either referred or transferred during pregnancy (11 women) or labour (16 women). These women and their babies are included in hospital birth statistics.

Five other women received medical attention in hospital for management of difficulties with the third stage of labour and/or for postpartum haemorrhage. One baby was admitted to hospital following homebirth for assistance with feeding.

4. PREGNANCY PROFILE

4.1 Previous Pregnancies

More than a third (38.7%) of women confined in 1992 were confined for the first time. The range of previous confinements extended to eleven with a mean of 1.06. The percentage of Caucasian women confined for the first time (39.3%) was higher than for Aboriginal women confined for the first time (27.5%). However among women having their fifth or more child, the percentage of Aboriginal women (7.8%) was greater than for Caucasian women (1.1%) (Table 7).

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

TABLE 7:

PARITY AND RACE OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

Parity	Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
0	8601	39.3	389	27.5	645	39.6	9635	38.7
1-2	11228	51.3	629	44.5	798	49.0	12655	50.8
3-4	1807	8.3	286	20.2	156	9.6	2249	9.0
≥5	238	1.1	111	7.8	30	1.8	379	1.5
TOTAL	21874	100.0	1415	100.0	1629	100.0	24918	100.0

Excludes births less than 500 grams birthweight.

Of the 9635 nulliparous women, 1261 (13.1%) were identified as teenagers (19 years or less) and 81.7% were aged 20 to 34 years. Amongst the 369 women aged forty or more, 59 were having their first baby.

Teenage mothers were 80.3% nulliparous and 19.7% had a parity of 1-4. There were 2 teenagers who had a parity of three or more. Among the 369 women confined aged 40 years or more 59 (16.0%) were nulliparous, 156 (42.3%) had a parity of 1-2, 97 (26.3%) a parity of 3-4 and 57 (15.4%) a parity of 5 or more (Table 8).

TABLE 8:

PARITY AND AGE OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

Maternal Age	Parity								Total	
	0		1-2		3-4		5			
	No.	%	No.	%	No.	%	No.	%	No.	%
<15	22	0.2	-	-	-	-	-	-	22	0.1
15-19	1239	12.9	307	2.4	2	0.1	-	-	1548	6.2
≤19	1261	13.1	307	2.4	2	0.1	-	-	1570	6.2
20-24	2740	28.4	2270	17.9	169	7.5	6	1.6	5185	20.8
25-29	3367	34.9	4505	35.6	664	29.5	71	18.7	8607	34.5
30-34	1765	18.3	4159	32.9	867	38.6	134	35.4	6925	27.8
35-39	443	4.6	1258	9.9	450	20.0	111	29.3	2262	9.1
40-44	59	0.6	155	1.2	91	4.0	53	14.0	358	1.4
≥45	-	-	1	-	6	0.3	4	1.1	11	-
TOTAL	9635	100.0	12655	100.0	2249	100.0	379	100.0	24918	100.0

Excludes births less than 500 grams birthweight.

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

The numbers of births in the quartiles vary from 5855 to 6479. Differences in maternal age and parity were investigated. Table 9 shows the percentages of women confined, living in Western Australia who were at the extremes of the reproductive age range, i.e. 17 years and below or 35 years and above. The percentage of young women, 17 years and below, in the lowest socio-economic group (40.1%) was almost twice that for women of the same age in the highest socio-economic group (16.5%). This trend was reversed for older women, 35 years and above, where the percentage of women in the highest socio-economic group (33.5%) was far greater than that for women in the lowest socio-economic group (20.8%).

To investigate the trend in grand multiparity by socio-economic status, the proportion of women of parity ≥5 was calculated. Of the grand multiparas, 15.9% were in the highest socio-economic group and 38.4% were in the lowest (Table 9).

TABLE 9:

**SOCIO-ECONOMIC STATUS AND MATERNAL AGE AND PARITY OF WOMEN
CONFINED IN WESTERN AUSTRALIA, 1992**

Socio-Economic Status	Women Confined		Maternal Age						Parity	
			≤ 17 years		18-34 years		≥ 35 years		≥ 5 babies	
	n	%	n	% ²	n	% ²	n	% ²	n	% ²
I (Highest)	6479	26.0	85	0.3	5514	22.1	880	3.5	60	0.2
II	5855	23.5	89	0.4	5150	20.7	616	2.5	83	0.3
III	6341	25.5	135	0.5	5620	22.6	586	2.4	90	0.4
IV (Lowest)	6219	25.0	207	0.8	5465	22.0	547	2.2	145	0.6
TOTAL	24894	100.0	516	2.1	21749	87.4	2629	10.6	378	1.5

Excludes births less than 500 grams birthweight and 24 women who were resident outside Western Australia.

1. Socio-economic status is derived from a postcode indicator constructed by the Australian Bureau of Statistics using 1986 census data. Postcodes were allocated to four equal-sized socio-economic status levels by Mr Richard Hockey.
2. Percentage of all women confined.

4.2 Fertility Rates

Age-specific fertility rates in the Aboriginal and non-Aboriginal sub-populations and the total population are shown in Table 10. The population estimates used were preliminary data from the 1991 census. Difficulties in estimation of Aboriginal populations are recognised where underenumeration may occur. Therefore the reader may wish to adjust the denominators in accord with the directive of Hicks.³

Overall, the fertility rate among Aboriginal women (128.8/1000) was more than double that of non-Aboriginal women (62.2/1000). Among the 15 to 19 year age group the fertility rate of Aboriginal women (136.2/1000) was seven times the rate for non-Aboriginal women (20.0/1000). For those women in the 20 to 34 year age group the rate for Aboriginal women (160.0/1000) was far greater than that for non-Aboriginal women (102.3/1000). The rates for Aboriginal women (22.6/1000) and non-Aboriginal women (20.0/1000) in the 35 to 44 year age group were similar (Table 10, Figure IV).

Trend data on fertility rates among Aboriginal and non-Aboriginal women are provided in section 7, Table 49.

TABLE 10:

FERTILITY RATES¹ OF ABORIGINAL AND NON-ABORIGINAL WOMEN IN WESTERN AUSTRALIA, 1992

Maternal Age	Aboriginal			Non-Aboriginal			Total		
	Births	Population	Fertility Rate ¹	Births	Population	Fertility Rate ¹	Births	Population	Fertility Rate ¹
15-19	380	2789	136.2	1180	58839	20.0	1560	61628	25.3
20-24	523	2579	202.8	4700	63977	73.5	5223	66556	78.5
25-29	323	2094	154.3	8405	63443	132.5	8728	65537	133.2
30-34	139	1485	93.6	6919	68268	101.4	7058	69753	101.2
35-39	39	1114	35.0	2257	66307	34.0	2296	67421	34.1
40-44	5	875	5.7	355	62222	5.7	360	63097	5.7
TOTAL	1409	10936	128.8	23816	383056	62.2	25225	393992	64.0

Excludes births less than 500 grams birthweight.

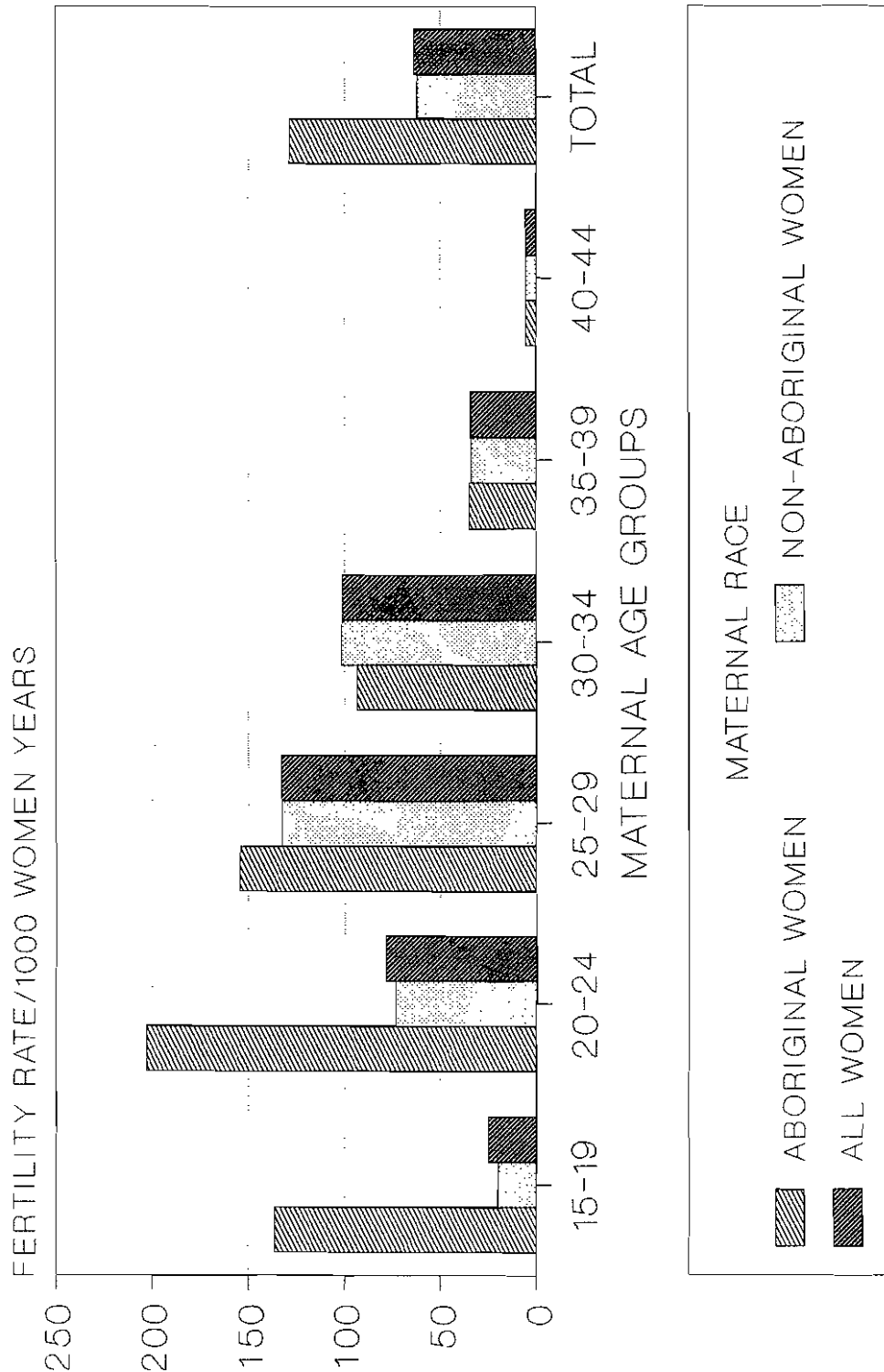
¹ Fertility Rate: Total births/1000 women-years of women aged 15-44 years

SOURCE:

AUSTRALIAN BUREAU OF STATISTICS - Cat. No. 3201.0 (preliminary data); total population data
 COMMUNITY AND CHILD HEALTH SERVICES: Aboriginal population data
 MIDWIVES' NOTIFICATION SYSTEM.

FIGURE IV

FERTILITY RATES OF ABORIGINAL AND NON-ABORIGINAL WOMEN IN W.A. 1992



Excludes births less than 500 grams birthweight.
 1. Fertility Rate: Total Births/1000 Women Years
 SOURCE: Midwives' Notification System, Australian Bureau of Statistics.

4.3 Complications of Pregnancy

Almost two thirds (63.8%) of all women confined during 1992 were recorded as having no complications of pregnancy (Table 11).

Pre-eclampsia was reported in 1299 (5.2%) women. Of the women with multiple pregnancy, the proportion with pre-eclampsia was twice that for women with singleton pregnancies (Table 11). Among 'other' complications there were 852 (3.4%) women recorded as having unspecified hypertension, 357 (1.4%) with anaemia of pregnancy, 537 (2.2%) with a viral or bacterial genito-urinary tract infection, 255 (1.0%) with retarded fetal growth and 493 (2.0%) with symptoms of gestational diabetes.

TABLE 11:

SELECTED COMPLICATIONS OF PREGNANCY ACCORDING TO PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

	Plurality				Total	
	Singleton		Multiple			
	No.	% ¹	No.	% ²	No.	% ³
<u>Complications of Pregnancy</u> (NB a woman may have >1 complication)						
Threatened Abortion	1325	5.4	28	8.3	1353	5.4
Urinary Tract Infection	1052	4.3	15	4.5	1067	4.3
Pre-eclampsia	1263	5.1	36	10.7	1299	5.2
APH - placenta praevia	168	0.7	2	0.6	170	0.6
APH - abruptio	156	0.6	3	0.9	159	0.6
APH - other	716	2.9	20	6.0	736	3.0
Premature Rupture of Membranes	908	3.7	45	13.4	953	3.8
Other	4839	19.7	190	56.5	5029	20.2
<u>No Complications of Pregnancy</u>	15809	64.3	83	24.7	15892	63.8

Excludes births less than 500 grams birthweight.

APH = Antepartum haemorrhage

¹ Percentage of women with a singleton pregnancy

² Percentage of women with a multiple pregnancy

³ Percentage of women confined

Although it was thought that complications of pregnancy may be under-reported by midwives, the validation study undertaken in 1987⁴ showed that they were well reported, except for premature rupture of the membranes. (Due to confusion between definitions of premature and preterm rupture of membranes the latter was less than 95% accurate.)

4.4 Medical Conditions

There were 5292 reported instances of pre-existing medical complications recorded among the 24,918 women confined during 1992. Of these, 1447 (5.8%) of women confined were reported as asthmatic, 125 (0.5%) as epileptic, 71 (0.3%) as having pre-existing diabetes and 153 (0.6%) with known thyroid disorders.

TABLE 12:

PRE-EXISTING MEDICAL CONDITIONS FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

	No.	% of Women Confined
<u>Medical Conditions</u>		
<i>(NB a woman may have >1 medical condition)</i>		
Asthma	1447	5.8
Cardiac Murmurs	209	0.8
Genital Herpes	172	0.7
Essential Hypertension	169	0.7
Thyroid Disorders	153	0.6
Epilepsy	125	0.5
Urinary Tract Infections	122	0.5
Anaemia	87	0.3
Infertility	86	0.3
Bronchial Disorders	80	0.3
Hepatitis B	78	0.3
Vaginal Infections	74	0.3
Spinal Deformities	72	0.3
Pre-existing Diabetes	71	0.3
Depressive Disorders	71	0.3
<u>No Medical Conditions</u>	20317	81.5

Excludes births less than 500 grams birthweight.

5. LABOUR AND DELIVERY

5.1 Onset of Labour

Almost two thirds (62.2%) of women confined during 1992 established labour spontaneously. Among women with multiple pregnancy 41.1% had a spontaneous onset of labour.

Induction of labour occurred for 26.7% of women. One hundred and seven (31.9%) women with multiple pregnancy underwent induction of labour (Table 13).

TABLE 13:

ONSET OF LABOUR AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

Onset of Labour	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
Spontaneous	15371	62.5	138	41.1	15509	62.2
Induced	6414	26.1	107	31.9	6521	26.2
No labour	2797	11.4	91	27.1	2888	11.6
TOTAL	24582	100.0	336	100.0	24918	100.0

Excludes births less than 500 grams birthweight.

There were 61 women reported as having had a failed induction of labour during 1992.

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

5.2 Augmentation of Labour

There were 6308 (25.3%) 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 4298 (17.2%) women was followed by a spontaneous vaginal delivery, 1496 (6.0%) women required an assisted vaginal delivery and 514 (2.1%) women an emergency caesarean section.

Of the 15510 women for whom onset of labour was spontaneous 6308 (40.7%) had labour augmented and 9202 (59.3%) did not.

It is of interest to note that less than one third (7336, 29.4%) of women established labour following spontaneous onset, received no augmentation of labour and achieved a spontaneous vaginal delivery (Table 14).

TABLE 14:

ONSET AND AUGMENTATION OF LABOUR AND TYPE OF DELIVERY FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

Labour (women confined)	Type of delivery								Total	
	Spontaneous Vaginal		Assisted Vaginal		Elective Caesarean		Emergency Caesarean			
Spontaneous onset no Augmentation	7336	29.4	1151	4.6	-	-	715	2.9	9202	36.9
Spontaneous onset and Augmentation	4298	17.2	1496	6.0	-	-	514	2.1	6308	25.3
Induced onset	4353	17.5	1472	5.9	-	-	696	2.8	6521	26.2
No labour	-	-	-	-	2559	10.3	328	1.3	2887	11.6
TOTAL	15987	64.2	4119	16.5	2559	10.3	2253	9.0	24918	100.0

Excludes births less than 500 grams birthweight.

Women with multiple pregnancies are classified by first multiple birth.

5.3 Presentation

The presentation for the 24,582 singleton confinements was identified as 23,512 (95.6%) vertex, 952 (3.9%) breech, and 118 (0.5%) "other" presentations (Table 15).

Vertex presentations of singleton births were delivered vaginally in 83.8% of cases during 1992.

More than three quarters (79.4%) of total singleton births presenting by the breech were delivered by caesarean section (53.4% elective and 26.1% emergency caesarean section) (Table 15).

TABLE 15:

PRESENTATION AND TYPE OF DELIVERY FOR SINGLETON BIRTHS IN WESTERN AUSTRALIA, 1992

Type of Delivery	Presentation						Total	
	Vertex		Breech		Other			
	No.	%	No.	%	No.	%	No.	%
Normal	15847	67.4	23	2.4	10	8.5	15880	64.6
Vacuum	2073	8.8	-	-	4	3.4	2077	8.5
Forceps	1781	7.6	4	0.4	5	4.2	1790	7.3
Breech Manoeuvre	-	-	169	17.8	-	-	169	0.7
Elective Caesarean	1954	8.3	508	53.4	28	23.7	2490	10.1
Emergency Caesarean	1857	7.8	248	26.1	70	59.3	2175	8.9
TOTAL	23512	100.0	952	100.0	118	100.0	24582	100.0

Excludes births less than 500 grams birthweight.

5.4 Type of Delivery

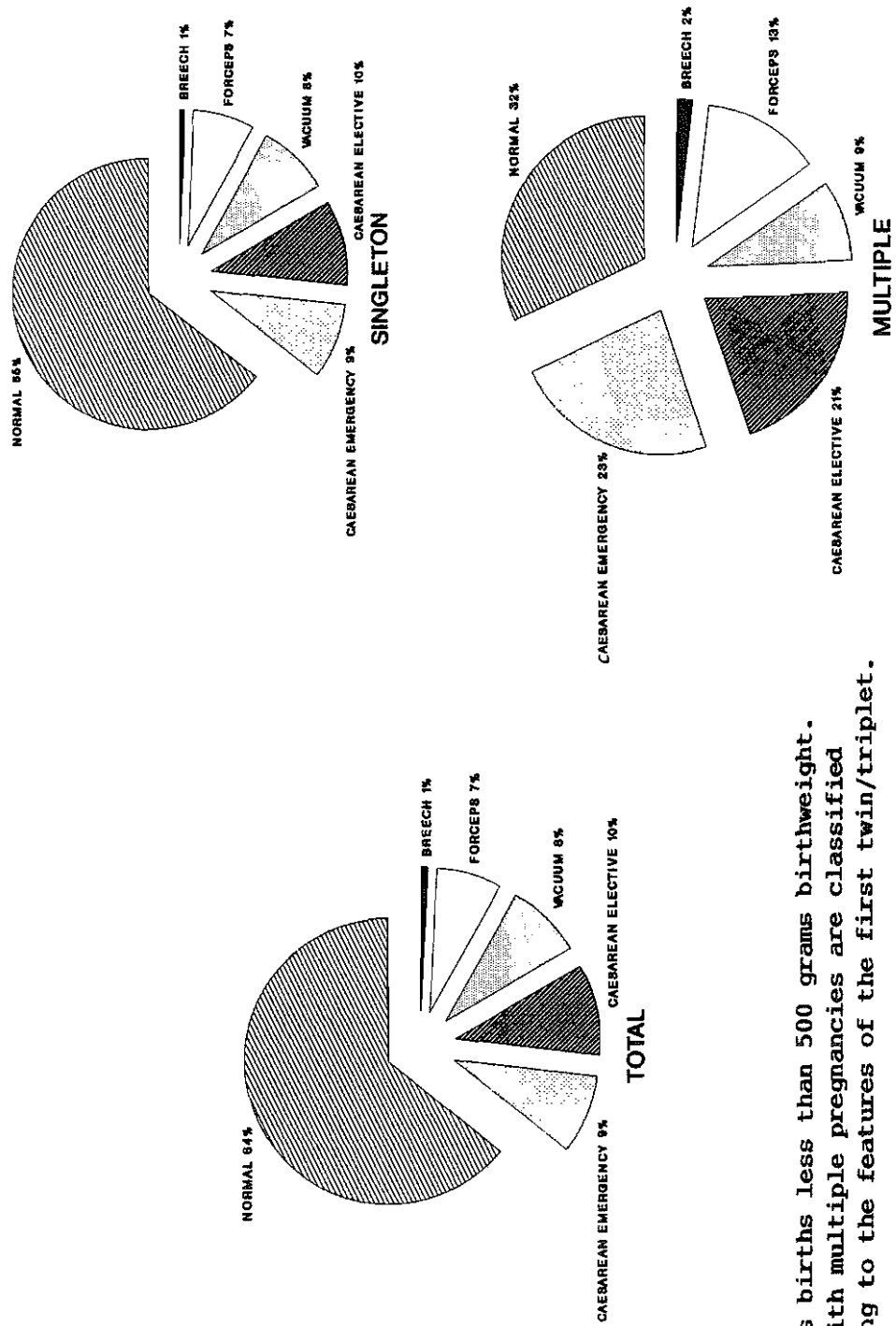
Less than two thirds (64.2%) of the total women confined in 1992 had a spontaneous vaginal delivery. Vaginal deliveries were assisted for approximately one in six total confinements with 8.5% of women having a vacuum extraction and 7.3% a forcep delivery (Table 16, Figure V).

The type of delivery for each woman with multiple pregnancy was classified according to features of labour and delivery for the first twin/triplet. While all eleven women with triplet pregnancies were delivered by caesarean section there were five women for whom the first twin was delivered vaginally and the second by emergency caesarean section.

Among women with a twin pregnancy, 136 (41.8%) were delivered by caesarean section, 82 (25.2%) had assisted vaginal deliveries and 107 (32.9%) delivered spontaneously.

Of the women who were delivered by caesarean section during 1992, one third (33.0%) had had a previous caesarean section delivery or other uterine surgery. There were 1795 woman confined recorded as having had a previous caesarean section delivery or other uterine surgery. Of these 1590 (88.6%) were delivered by caesarean section, 85 (4.7%) had assisted vaginal deliveries and 120 (6.7%) had a spontaneous vaginal delivery.

FIGURE V TYPE OF DELIVERY AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1992



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

TABLE 16:

TYPE OF DELIVERY AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

Type of Delivery	Plurality						Total	
	Singleton Pregnancy		Twin Pregnancy		Triplet Pregnancy			
	No.	%	No.	%	No.	%	No.	%
Normal	15880	64.6	107	32.9	-	-	15987	64.2
Vacuum	2077	8.5	31	9.5	-	-	2108	8.5
Forceps	1790	7.3	45	13.8	-	-	1835	7.4
Breech Manoeuvre	170	0.7	6	1.8	-	-	176	0.7
Elective Caesarean	2490	10.1	62	19.1	7	63.6	2559	10.3
Emergency Caesarean	2175	8.9	74	22.8	4	36.4	2253	9.0
TOTAL	24582	100.0	325	100.0	11	100.0	24918	100.0

Excludes births less than 500 grams birthweight.

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

The incidence of caesarean section in Western Australia gradually increased over the past decade from 13.2% in 1983 to 19.3% in 1992 (Table 49). The incidence of caesarean section elsewhere in Australia is as follows: New South Wales⁶ 16.6% in 1991, Northern Territory⁷ 17.4% in 1990, South Australia⁸ 22.1% in 1991, Victoria⁹ 17.4% in 1991, Australian Capital Territory¹⁰ 18.9% in 1990, Tasmania¹¹ 12.9% in 1988 and Queensland¹² 18.9% in 1988.

Consideration of the type of delivery of women confined and maternal parity shows that among nulliparous women, almost half (49.6%) had a spontaneous vaginal delivery, 30.0% required an assisted vaginal delivery and 20.5% were delivered by caesarean section. Among women with a parity of 5 or more, 77.6% delivered spontaneously and 16.9% had caesarean sections (Table 17).

TABLE 17:

TYPE OF DELIVERY AND PARITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

Type of Delivery	Parity								Total	
	0		1-2		3-4		≥5			
Spontaneous Vaginal	4775	49.6	9137	72.2	1781	79.2	294	77.6	15987	64.2
Assisted Vaginal	2889	30.0	1103	8.7	106	4.7	21	5.5	4119	16.5
Caesarean Elective	635	6.6	1663	13.1	229	10.2	32	8.4	2559	10.3
Caesarean Emergency	1336	13.9	752	5.9	133	5.9	32	8.4	2253	9.0
TOTAL	9635	100.0	12655	100.0	2249	100.0	379	100.0	24918	100.0

Excludes births less than 500 grams birthweight.

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

The indications for caesarean section were assessed by examination of complications of labour and delivery. For the 4812 women confined by caesarean section 7085 complications of labour and delivery were recorded. The distribution of complications is shown in Table 19. All women had at least one complication recorded and 43.7% had more than one complication recorded (Table 18).

TABLE 18:

FREQUENCY OF COMPLICATIONS OF LABOUR AND DELIVERY FOR WOMEN CONFINED BY CAESAREAN SECTION IN WESTERN AUSTRALIA, 1992

Number of complications of labour and delivery	Women confined by caesarean section	
	n	%
1	2708	56.3
2	1478	30.7
3	517	10.7
4	102	2.1
5	7	0.1
TOTAL	4812	100.0

Assessment of complications of labour and delivery for women confined by caesarean section showed previous caesarean section or other uterine surgery (22.4%) and cephalopelvic disproportion (16.0%) as the principal indications for caesarean section confinement (Table 19).

TABLE 19:

COMPLICATIONS OF LABOUR AND DELIVERY FOR WOMEN CONFINED BY CAESAREAN SECTION IN WESTERN AUSTRALIA, 1992

Complications of Labour and Delivery	Caesarean Section				Total	
	Emergency		Elective		n	%
	n	%	n	%		
Umbilical Cord Complications	83	2.3	18	0.5	101	1.4
Cephalopelvic Disproportion	491	13.5	641	18.5	1132	16.0
Breech and other Malpresentations	282	7.8	485	14.0	767	10.8
Previous Caesarean Section or other uterine surgery	297	8.2	1293	37.4	1590	22.4
Fetal Distress	823	22.7	100	2.9	923	13.0
Pregnancy Induced Disorders	527	14.5	386	11.2	913	12.9
Obstruction or delayed labour	262	7.2	6	0.2	268	3.8
Abnormal Forces of Labour	605	16.7	1	-	606	8.6
Placental Disorders/Haemorrhage	368	10.1	212	6.1	580	8.2
Medical/Physiological	49	1.4	139	4.0	188	2.7
Other	136	3.8	178	5.1	314	4.4
TOTAL	3626	100.0	3459	100.0	7085	100.0

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

Of those women confined by caesarean section in Western Australia during 1992, the highest proportion were at metropolitan obstetric teaching and private hospitals. Overall, elective caesarean sections comprised 10.3% and emergency caesarean section 9.0% of women confined (Table 20).

TABLE 20:

PLACE OF CONFINEMENT AND CAESAREAN SECTION FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

Place of Birth	Caesarean Section						Total		
	Elective			Emergency					
	No.	women confined	%	No.	women confined	%	No.	women confined	%
Metropolitan									
Teaching	420	4263	9.9	559	4263	13.1	979	4263	23.0
Departmental	657	7503	8.8	597	7503	8.0	1254	7503	16.7
Private	985	6672	14.8	675	6672	10.1	1660	6672	24.9
Country									
Regional	288	3086	9.3	261	3086	8.5	549	3086	17.8
Private	65	538	12.1	58	538	10.8	123	538	22.9
Other	144	2671	5.4	103	2671	3.9	247	2671	9.3
Non Hospital	-	184	-	-	184	-	-	184	-
TOTAL	2559	24918	10.3	2253	24918	9.0	4812	24918	19.3

Excludes births less than 500 grams birthweight.

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

5.5 Anaesthesia/analgesia

There were 5373 (21.6%) women confined who received no pharmacological anaesthesia/analgesia during labour and delivery. Of these 95.6% had a spontaneous vaginal delivery.

An epidural was administered to 7994 (32.1%) of women confined.

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

In 1992, 2253 women had an emergency caesarean section and of these 1486 (66.0%) women had an epidural anaesthetic alone, and 91 (4.0%) had both an epidural and a general anaesthetic. Of the women delivering by elective caesarean section, 2070 (80.9%) had an epidural anaesthetic alone.

Epidurals were administered to 2370 women whose labour resulted in an assisted vaginal delivery and to 2068 women having a spontaneous vaginal delivery. A total of 1355 (5.4%) women received a general anaesthetic at some time during labour and delivery.

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

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

TABLE 21:

ANAESTHESIA/ANALGESIA AND TYPE OF DELIVERY FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

Type of Anaesthesia/ Analgesia	Type of Delivery								Total	
	Emergency Caesarean		Elective Caesarean		Assisted Vaginal		Spontaneous Vaginal			
	No.	%	No.	%	No.	%	No.	%	No.	%
None	-	-	-	-	234	0.9	5139	20.6	5373	21.6
Epidural	1486	6.0	2070	8.3	2370	9.5	2068	8.3	7994	32.1
General	676	2.7	441	17.2	20	0.1	68	0.4	1205	4.8
Epidural and General	91	0.4	48	1.9	8	-	3	-	150	0.6
Other	-	-	-	-	1487	6.0	8709	35.0	10196	40.9
TOTAL	2253	9.0	2559	10.3	4119	16.5	15987	64.2	24918	100.0

Excludes births less than 500 grams birthweight.

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

5.6 Hours of Established Labour

The recorded length of labour varied amongst those women who had a spontaneous onset and those whose labour was induced. Almost half (45.6%) of the women who had an induction of labour experienced between five and twelve hours of labour and more than half (52.1%) of the women with a spontaneous onset had between 5 and 12 hours of labour. There were 75 women (0.3%) of the total whose labour was recorded as more than 24 hours duration (Table 22).

TABLE 22:**HOURS OF ESTABLISHED LABOUR AND ONSET OF LABOUR OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1992**

Hours of Labour	Onset of Labour			
	Spontaneous		Induction	
	No.	%	No.	%
<1	234	1.5	181	2.8
1-4	5648	36.4	3121	47.9
5-12	8082	52.1	2976	45.6
13-18	1193	7.7	208	3.2
19-24	266	1.7	28	0.4
>24	68	0.4	7	0.1
TOTAL	15509	100.0	6521	100.0

Excludes births less than 500 grams birthweight, 2888 (11.6%) women who did not experience labour, and 18 women for whom hours of established labour was not known.

Examination of type of delivery and hours of established labour showed that almost half (44.4%) of women confined had a labour lasting between 5 and 12 hours and of these 68.3% resulted in spontaneous delivery. Eleven percent of women did not establish in labour being confined by either elective or emergency caesarean section (Table 23).

5.7 Complications of Labour and Delivery

There were no complications of labour or delivery recorded for one third (34.5%) of the women confined in 1992. However, for women with multiple pregnancies only 24.1% of women were reported to have had no complications.

Among those women identified as having had a complication, fetal distress was recorded for 16.5% of singleton pregnancies and 7.4% of multiple pregnancies. Cephalopelvic disproportion was identified for 5.2% of all women confined (Table 24).

Other complications included 359 (1.4%) women with hypertension and 162 (0.7%) women with severe pre-eclampsia.

Prolonged first stage of labour was identified in 59 women (0.3% of those women who established labour or 0.2% of total women confined).

The second stage of labour was reported to be prolonged for 771 women (3.5% of women with established labour or 3.1% of total women confined). There were 52 additional women reported to have had prolonged labour with unspecified stage (0.2% of women with established labour or 0.2% of total women confined).

TABLE 23:

TYPE OF DELIVERY AND HOURS OF ESTABLISHED LABOUR FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

Type of Delivery	Hours of Established Labour															
	No Labour		<1		1-4		5-12		13-18		19-24		>24		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Normal	-	-	-	-	7606	86.7	7557	68.3	657	46.9	121	41.2	30	40.0	15971	64.1
Vacuum	-	-	-	-	390	4.5	1402	12.7	254	18.1	47	15.1	15	20.0	2108	8.5
Forceps	-	-	-	-	339	3.9	1198	10.8	249	17.8	38	12.9	11	14.7	1835	7.4
Breech Manoeuvre	-	-	-	-	71	0.8	96	0.9	8	0.6	-	-	-	-	175	0.7
Elective Caesarean	2559	88.7	-	-	-	-	-	-	-	-	-	-	-	-	2559	10.3
Emergency Caesarean	326	11.3	415	100.0	364	4.2	807	7.3	233	16.6	88	29.9	19	25.3	2252	9.0
TOTAL	2885	100.0	415	100.0	8770	100.0	11060	100.0	1401	100.0	294	100.0	75	100.0	24900	100.0

Excludes births less than 500 grams birthweight.

Excludes 18 women for whom the length of labour was unknown.

These data suggest significant morbidity in child bearing women. Furthermore, the Validation Study of the Midwives' Notification System⁴ data indicated that complications of labour and delivery tend to be under-reported.

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

TABLE 24:

SELECTED COMPLICATIONS OF LABOUR AND DELIVERY AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1992

	Plurality				Total	
	Singleton		Multiple			
	No.	% ¹	No.	% ²	No.	% ³
<u>Complications of Labour and Delivery</u> <i>(NB a woman may have >1 complication)</i>						
Precipitate Delivery	1390	5.7	11	3.3	1401	5.6
Fetal Distress	4052	16.5	25	7.4	4077	16.4
Prolapsed Cord	67	0.3	5	1.5	72	0.3
Cord Tightly Around Neck	1811	7.4	3	0.9	1814	7.3
Cephalopelvic Disproportion	1285	5.2	8	2.4	1293	5.2
Other	11941	48.6	242	72.0	12183	48.9
<u>No Complications of Labour and Delivery</u>	8510	34.6	81	24.1	8591	34.5

Excludes births less than 500 grams birthweight.

¹ Percentage of women with a singleton pregnancy.

² Percentage of women with a multiple pregnancy.

³ Percentage of total women.

Perineal damage was identified as a first degree tear in the case of 1421 women confined (6.5% of women with vaginal delivery or 5.7% of total women) and as a second degree tear for 1467 women (6.7% of women with vaginal delivery or 5.9% of total women).

There were 179 women (0.8% of women with vaginal delivery or 0.7% of total women confined) who had a third or fourth degree tear.

The increased reported incidence of perineal tears correlates with a decrease in the number of elective episiotomies performed.

Primary postpartum haemorrhage was recorded for 1205 women of whom 96 had a retained placenta. An additional 312 (1.3%) women were reported to have had a retained placenta without primary postpartum haemorrhage.

6. BABY CHARACTERISTICS

6.1 Births

A Notification of Case Attended Form 2 (Appendix A) was received for 25,258 births of 500 grams birthweight or more in 1992.

Singleton births numbered 24,582 (97.3%) and multiple births 676 (2.7%). The 676 multiple births comprised 644 twins, (including six twins whose siblings' birthweight was <500 grams), and 32 triplets (including two triplets whose siblings' birthweight was <500 grams) (Tree Diagram 1).

The rates for high order multiple births gradually increased this decade until 1989 and then declined. For example, the rate of triplet births increased from 15 (0.06%) babies in 1983 to 54 (0.21%) in 1989. The percentage decreased to 18 (0.07%) in 1991 and was 32 (0.12%) in 1992. Much of the variation in the multiple birth rates has been due to infertility treatments. Further information on trends in multiple births over the past 10 years is provided in section 7 (Table 49).

6.2 Livebirths

The number of livebirths in Western Australia increased gradually over the ten year period from 1981-1990⁵. In 1991 there was a 4.0% decrease in the actual number from the 1990 figure followed by a 1.4% increase in the 1991 actual number for 1992 (Table 49, Figure VIII).

6.3 Crude Birth Rate

The crude birth rate was 15.1/1000 population in 1992. 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 (Table 49, Figure IX).

6.4 Sex

There were 13,038 (51.6%) male births and 12,218 (48.4%) female births during 1992. (A male:female ratio of 1.07)

The assessment of condition at birth showed that 46.1% of stillbirths and 51.7% of livebirths were male.

6.5 Condition at Birth

Of the total 25,258 births, 25,143 were liveborn and 115 were stillborn (Table 25).

There were significant racial differences in stillbirth rates. (Caucasian 3.9/1000 total Caucasian births, Aboriginal 11.9/1000 total Aboriginal births and for babies of women of 'Other' races 6.7/1000 total births. See Table 25). Trend data for stillbirth rates and maternal race are provided in section 7 (Table 49).

TABLE 25:

CONDITION AT BIRTH AND MATERNAL RACE OF BIRTHS IN WESTERN AUSTRALIA, 1992

Race	Condition at Birth				Total Births		Stillbirth Proportion/1000 Total Births
	Stillbirth		Livebirth				
	No.	%	No.	%	No.	%	
Caucasian	87	75.7	22100	87.9	22187	87.8	3.9
Aboriginal	17	14.8	1409	5.6	1426	5.6	11.9
Other	11	9.6	1634	6.5	1645	6.5	6.7
TOTAL	115	100.0	25143	100.0	25258	100.0	4.6

Excludes births less than 500 grams birthweight.

The majority of stillbirths (80.9%) were delivered in metropolitan hospitals and more than a half (52.2%) in a metropolitan obstetric teaching hospital. This reflects the referral for delivery to a tertiary centre of mothers with high risk pregnancies or with fetal death in utero (Table 26).

TABLE 26:

PLACE OF BIRTH AND CONDITION AT BIRTH IN WESTERN AUSTRALIA, 1992

Place of Birth	Condition at Birth				Stillbirth Rate/1000 Total Births	Total	
	Livebirth		Stillbirth				
	No.	%	No.	%	No.	%	
<u>Metropolitan</u>							
¹ Teaching	4350	17.3	60	52.2	13.6	4410	17.5
Department	7538	30.0	18	15.7	2.4	7556	29.9
Private	6756	26.9	15	13.0	2.2	6771	26.8
<u>Country</u>							
² Regional	2791	11.1	10	8.7	3.6	2801	11.1
Private	542	2.2	2	1.7	3.7	544	2.2
³ Other	2983	11.9	9	7.8	3.0	2992	11.9
<u>Non-Hospital</u>							
⁴ BBA	76	0.3	1	0.9	13.0	77	0.3
Homebirths	107	0.4	-	-	-	107	0.4
TOTAL	25143	100.0	115	100.0	4.6	25258	100.0

Excludes births less than 500 grams birthweight.

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

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

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

⁴ BBA (born before arrival at hospital).

6.6 Apgar Score at One Minute and Five Minutes

More than two thirds of livebirths (72.6%) had a recorded Apgar Score at one minute of 8-10, while 605 (2.4%) livebirths had an Apgar Score of three or less at one minute of life (Table 27).

TABLE 27:

APGAR SCORE AT ONE MINUTE AND TIME TO SPONTANEOUS RESPIRATION OF LIVEBIRTHS IN WESTERN AUSTRALIA, 1992

Time to Spontaneous Respiration	Apgar Score at 1 Minute								Total	
	0		1-3		4-7		8-10			
	No.	%	No.	%	No.	%	No.	%	No.	%
≤1	-	-	9	1.5	3748	59.7	17635	96.9	21389	85.3
2-3	-	-	87	14.4	1771	28.2	09	2.8	2367	9.4
4-6	-	-	117	19.4	283	4.5	22	0.1	422	1.7
7-10	-	-	20	3.3	40	0.6	-	-	60	0.2
>10	-	-	4	0.7	2	-	1	-	7	-
Intubation ¹	1	100.0	367	60.8	435	6.9	37	0.2	840	3.3
TOTAL	1	100.0	604	100.0	6279	100.0	18201	100.0	25085	100.0

Excludes births less than 500 grams birthweight.

Excludes 58 liveborn babies for whom Apgar Score at 1 minute and/or T.S.R. was unknown.

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

The majority of livebirths, (96.2%) had a recorded Apgar Score at five minutes of 8-10, and 965 (3.8%) livebirths had an Apgar Score of seven or less at five minutes of life (Table 28).

TABLE 28:

APGAR SCORE AT FIVE MINUTES AND TIME TO SPONTANEOUS RESPIRATION OF LIVEBIRTHS IN WESTERN AUSTRALIA, 1992

Time to Spontaneous Respiration	Apgar Score at 5 Minutes								Total	
	0		1-3		4-7		8-10			
	No.	%	No.	%	No.	%	No.	%	No.	%
≤1	-	-	-	-	124	13.7	21268	88.2	21392	85.3
2-3	-	-	-	-	169	18.7	2198	9.1	2367	9.4
4-6	-	-	2	3.4	172	19.1	248	1.0	422	1.7
7-10	-	-	3	5.1	55	6.1	2	-	60	0.2
>10	-	-	1	1.7	4	0.4	2	-	7	-
Intubation ¹	3	100.0	53	89.8	379	42.0	405	1.7	840	3.3
TOTAL	3	100.0	59	100.0	903	100.0	24123	100.0	25088	100.0

Excludes births less than 500 grams birthweight.

Excludes 55 liveborn babies for whom Apgar Score at 5 minutes and/or T.S.R. was unknown.

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

6.7 Time to Spontaneous Respiration

Eighty five percent of all livebirths were recorded as having established spontaneous respiration within the first minute of life. Eleven percent of livebirths required between two and six minutes to establish respirations and 67 babies (1.1%) needed seven minutes or more. There were 840 (3.3%) livebirths who were intubated following delivery and for these the time to establish spontaneous respiration is unknown (Table 28).

6.8 Resuscitation

Almost one third (32.4%) of the 25,143 liveborn babies in 1992 received some form of resuscitation at birth. Those babies who received no resuscitation numbered 16970 (67.6%). Resuscitation procedures such as intubation or bag and mask were used for 2044 (8.1%) of births and another 5241 (20.9%) babies received oxygen only.

When resuscitation and Apgar Scores at 5 minutes were examined it was found that 89.8% of the babies with an Apgar Score of 1-3 and 42.0% of those with an Apgar Score of 4-7 were intubated (Table 29).

TABLE 29:

RESUSCITATION METHODS AND FIVE MINUTE APGAR SCORE OF LIVEBIRTHS IN WESTERN AUSTRALIA, 1992

Resuscitation	Apgar Score at 5 Minutes								Total	
	0		1-3		4-7		8-10			
	No.	%	No.	%	No.	%	No.	%	No.	%
None	4	57.1	-	-	16	1.8	16950	70.3	16970	67.6
Oxygen Only	-	-	2	3.4	189	20.9	5050	20.9	5241	20.9
Intubation	3	42.9	53	89.8	379	42.0	405	1.7	840	3.3
Bag and Mask	-	-	4	6.8	257	28.5	891	3.7	1152	4.6
Other	-	-	-	-	62	6.9	830	3.4	892	3.6
TOTAL	7	100.0	59	100.0	903	100.0	24126	100.0	25095	100.0

Excludes births less than 500 grams birthweight.

Excludes 48 babies for whom Apgar Score at 5 minutes was unknown.

6.9 Birthweight

Over two thirds (67.6) of all babies born weighed between 3000 and 3999 grams at birth and the average birthweight was 3351 grams. The percentage of low birthweight babies (less than 2500 grams) was 6.3% and very low birthweight (less than 1500 grams) was 1.1% of the total births. Information on low birthweight trends for the past 10 years is provided in section 7 (Table 49).

Low birthweight among Aboriginal births was 11.3%, more than twice that of Caucasian births of whom only 5.9% were low birthweight (Table 30).

TABLE 30:

BIRTHWEIGHT DISTRIBUTION AND MATERNAL RACE OF BIRTHS IN WESTERN AUSTRALIA, 1992

Birthweight (Grams)	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
500 - 999	93	0.4	14	1.0	8	0.5	115	0.5
1000 - 1499	141	0.6	11	0.8	9	0.6	161	0.6
1500 - 1999	242	1.1	30	2.1	17	1.0	289	1.1
2000 - 2499	833	3.8	106	7.4	80	4.9	1019	4.0
<2500	1309	5.9	161	11.3	114	6.9	1584	6.3
2500 - 2999	3255	14.7	320	22.4	335	20.4	3910	15.5
3000 - 3499	8251	37.2	529	37.1	677	41.2	9457	37.4
3500 - 3999	6888	31.1	323	22.7	403	24.5	7614	30.1
4000 - 4499	2158	9.3	76	5.3	110	6.7	2344	9.3
≥4500	326	1.5	17	1.2	6	0.4	349	1.4
TOTAL	22187	100.0	1426	100.0	1645	100.0	25258	100.0

Excludes births less than 500 grams birthweight.
Mean = 3351 grams. Standard Deviation = 575 grams.

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

Among the 1584 low birthweight babies (less than 2500 grams birthweight), 1511 (95.4%) were liveborn and 73 (4.6%) were stillborn. This meant that while 63.5% of stillbirths were of low birthweight only 6.0% of livebirths were in the low birthweight category (Table 31).

Singleton births showed similar percentages to total births. Among low birthweight babies there were 1152 livebirths and 65 stillbirths. For stillbirths 60.7% were low birthweight and among livebirths 5.0% were in this category (Table 32).

For multiple births, there were 359 liveborn and 8 stillborn in the low birthweight group. All stillborn multiple births were of low birthweight (Table 33).

When categories of low birthweight were examined from 1983 to 1992 it was apparent that during this time births less than 1000 grams represented 0.3% to 0.7% of the total births. For those babies whose birthweight was less than 1500 grams the percentage varied from 0.9% to 1.3% of the total births. Those babies who weighed less than 2500 grams accounted for between 6.0% and 6.3% of the total births, the exception being an increase in 1989 to 6.6%, largely due to the increased number of multiple births during that year (section 7, Table 49).

TABLE 31:

BIRTHWEIGHT DISTRIBUTION AND CONDITION AT BIRTH OF TOTAL BIRTHS IN WESTERN AUSTRALIA, 1992

Birthweight (Grams)	Condition at Birth				Total	
	Livebirths		Stillbirths			
	No.	%	No.	%	No.	%
500 - 999	89	0.4	26	22.6	115	0.5
1000 - 1499	145	0.6	16	13.9	161	0.6
1500 - 1999	273	1.1	16	13.9	289	1.1
2000 - 2499	1004	4.0	15	13.0	1019	4.0
<2500	1511	6.0	73	63.5	1584	6.3
2500 - 2999	3896	15.5	14	12.2	3910	15.5
3000 - 3499	9440	37.6	17	14.8	9457	37.4
3500 - 3999	7605	30.3	9	7.8	7614	30.1
4000 - 4499	2343	9.3	1	0.9	2344	9.3
≥4500	348	1.4	1	0.9	349	1.4
TOTAL	25143	100.0	115	100.0	25258	100.0

Excludes births less than 500 grams birthweight

TABLE 32:

SINGLETON BIRTHS IN WESTERN AUSTRALIA, 1992

Birthweight (Grams)	Condition at Birth				Total	
	Livebirths		Stillbirths			
	No.	%	No.	%	No.	%
500 - 999	68	0.3	25	23.4	93	0.4
1000 - 1499	102	0.4	15	14.0	117	0.5
1500 - 1999	190	0.8	12	11.2	202	0.8
2000 - 2499	792	3.2	13	12.2	805	3.3
<2500	1152	5.0	65	60.7	1217	5.0
2500 - 2999	3677	15.0	14	13.1	3691	15.0
3000 - 3499	9365	38.3	17	15.9	9382	38.2
3500 - 3999	7590	31.0	9	8.4	7599	30.9
4000 - 4499	2343	9.6	1	0.9	2344	9.5
≥4500	348	1.4	1	0.9	349	1.4
TOTAL	24475	100.0	107	100.0	24582	100.0

Excludes births less than 500 grams birthweight

TABLE 33:**MULTIPLE BIRTHS IN WESTERN AUSTRALIA, 1992**

Birthweight (Grams)	Condition at Birth				Total	
	Livebirths		Stillbirths			
	No.	%	No.	%	No.	%
500 - 999	21	3.1	1	12.5	22	3.3
1000 - 1499	43	6.4	1	12.5	44	6.5
1500 - 1999	83	12.4	4	50.0	87	12.9
2000 - 2499	212	31.7	2	25.0	214	31.7
<2500	359	53.7	8	100.0	367	54.3
2500 - 2999	219	32.8	-	-	219	32.4
3000 - 3499	75	11.2	-	-	75	11.1
3500 - 3999	15	2.3	-	-	15	2.2
4000 - 4499	-	-	-	-	-	-
≥4500	-	-	-	-	-	-
TOTAL	668	100.0	8	100.0	676	100.0

Excludes births less than 500 grams birthweight

Trend data on low birthweight for babies of Aboriginal and non-Aboriginal women from 1983 to 1992 are provided in section 7. These indicate that although the percentages have been reasonably stable, Aboriginal low birthweight is on average more than twice that for babies of non-Aboriginal women (Table 49, Figure VII).

6.10 Gestation

Preterm birth (less than 37 weeks gestation) occurred for 1,710 (6.8%) of the total births in 1992 (Table 34). When examined for singleton births only, 1371 (5.6%) babies were preterm (Table 35). Of the 676 multiple births, half (339, 50.1%) were preterm (Table 36).

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

TABLE 34:

GESTATION AND BIRTHWEIGHT OF TOTAL BIRTHS IN WESTERN AUSTRALIA, 1992

Birthweight (Grams)	Gestation Weeks										Total	
	22 - 27		28 - 32		33 - 36		37 - 42		≥ 43			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
500 - 999	89	84.0	25	9.4	1	0.1	-	-	-	-	115	0.4
1000 - 1499	16	15.1	122	45.9	18	1.3	5	-	-	-	161	0.6
1500 - 1999	1	0.9	96	36.1	162	12.1	30	0.1	-	-	289	1.1
2000 - 2499	-	-	23	8.6	491	36.7	505	2.2	-	-	1019	4.0
<2500	106	100.0	266	100.0	672	50.2	540	2.3	-	-	1584	6.3
2500 - 2999	-	-	-	-	480	35.9	3430	14.6	-	-	3910	15.5
3000 - 3499	-	-	-	-	155	11.6	9299	39.5	3	30.0	9457	37.4
3500 - 3999	-	-	-	-	28	2.1	7580	32.2	6	60.0	7614	30.1
4000 - 4499	-	-	-	-	3	0.2	2341	10.0	-	-	2344	9.3
≥4500	-	-	-	-	-	-	348	1.5	1	10.0	349	1.4
TOTAL	106	100.0	266	100.0	1338	100.0	23538	100.0	10	100.0	25258	100.0

Excludes births < 500 grams birthweight.

TABLE 35:

GESTATION AND BIRTHWEIGHT OF SINGLETON BIRTHS IN WESTERN AUSTRALIA, 1992

Birthweight (Grams)	Gestation Weeks										Total	
	22 - 27		28 - 32		33 - 36		37 - 42		≥ 43			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
500 - 999	72	82.8	20	10.0	1	0.1	-	-	-	-	93	0.4
1000 - 1499	15	17.3	83	41.0	15	1.4	4	-	-	-	117	0.5
1500 - 1999	-	-	75	37.5	106	9.8	21	0.1	-	-	202	0.8
2000 - 2499	-	-	22	11.0	360	33.2	423	1.8	-	-	805	3.3
<2500	87	100.0	200	98.0	482	44.5	448	1.9	-	-	1217	5.0
2500 - 2999	-	-	-	-	424	39.1	3267	14.1	-	-	3691	15.0
3000 - 3499	-	-	-	-	148	13.7	9231	39.8	3	30.0	9382	38.2
3500 - 3999	-	-	-	-	27	2.5	7566	32.6	6	60.0	7599	30.9
4000 - 4499	-	-	-	-	3	0.3	2341	10.1	-	-	2344	9.5
≥4500	-	-	-	-	-	-	348	1.5	1	10.0	349	1.4
Total	87	100.0	200	100.0	1084	100.0	23201	100.0	10	100.0	24582	100.0

Excludes births < 500 grams birthweight.

TABLE 36:

GESTATION AND BIRTHWEIGHT OF MULTIPLE BIRTHS IN WESTERN AUSTRALIA, 1992

Birthweight (Grams)	Gestation Weeks										Total	
	22 - 27		28 - 32		33 - 36		37 - 42		≥ 43			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
500 - 999	17	89.5	5	7.6	-	-	-	-	-	-	22	3.3
1000 - 1499	1	5.3	39	59.1	3	1.2	1	0.3	-	-	44	6.5
1500 - 1999	1	5.3	21	31.8	56	22.1	9	2.7	-	-	87	12.9
2000 - 2499	-	-	1	1.5	131	51.6	82	24.3	-	-	214	31.7
<2500	19	100.0	66	100.0	190	74.8	92	27.3	-	-	367	54.3
2500 - 2999	-	-	-	-	56	22.1	163	48.4	-	-	219	32.4
3000 - 3499	-	-	-	-	7	2.8	68	20.2	-	-	75	11.1
3500 - 3999	-	-	-	-	1	0.4	14	4.2	-	-	15	2.2
4000 - 4499	-	-	-	-	-	-	-	-	-	-	-	-
≥4500	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	19	100.0	66	100.0	254	100.0	337	100.0	-	-	676	100.0

Excludes births < 500 grams birthweight.

6.11 Birth Defects

Data on selected birth defects included in this report are made available by the Western Australian Birth Defects Registry¹³ (Table 37).

Recording of a birth defects on the Notification of Case Attended (Midwives') Form 2, provides an initial data source for the Birth Defects Registry.

Reports and further details on birth defects in Western Australia are available upon request to the Registry.

TABLE 37:

BIRTHS IDENTIFIED WITH BIRTH DEFECTS IN WESTERN AUSTRALIA, 1988-1992

Diagnostic Category (and British Paediatric Association Code)	1988		1989		1990		1991		1992	
	No.	¹ Rate	No.	¹ Rate	No.	¹ Rate	No.	¹ Rate	No.	¹ Rate
NERVOUS SYSTEM DEFECTS (74000-74299)	79	3.1	96	3.8	85	3.3	95	3.8	81	3.2
CARDIOVASCULAR DEFECTS (74500-74799)	220	8.7	239	9.4	286	11.0	244	9.8	249	9.8
RESPIRATORY SYSTEM DEFECTS (74800-74899)	19	0.8	22	0.9	12	-	22	0.9	14	0.6
GASTRO-INTESTINAL DEFECTS (74900-75199)	148	5.9	174	6.8	158	6.1	125	5.0	141	5.6
URO-GENITAL DEFECTS (75200-75399)	321	12.8	327	12.8	306	11.8	262	10.5	208	8.2
MUSCULO-SKELETAL DEFECTS (75400-75699)	320	12.7	327	12.8	319	12.3	354	14.2	329	13.0
CHROMOSOME DEFECTS (75800-75899)	58	2.3	53	2.1	65	2.5	76	3.0	75	3.0

¹ Rate per 1000 total births. (Preliminary data).

Rates have not been calculated where number of cases with defect is less than 13.

SOURCE: Birth Defects Registry.

6.12 Birth Trauma

There were very few reported incidences of major birth trauma. The most common birth trauma identified was injuries to the scalp (7.0% of all livebirths) and this included cephalhaematoma and chignon from vacuum extraction.

6.13 Special Care

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

Among the 25,143 livebirths, a total of 941 (3.7%) babies were reported to have received special care for one day or more. Of these 750 were singleton births (79.7%) and 191 (20.3%) were multiple births. The rates for these babies were singleton births 30.6/1000 singleton livebirths and multiple births 285.9/1000 multiple livebirths.

Twenty percent of babies admitted to special care nurseries stayed more than 28 days and 80 (8.5%) babies stayed longer than 60 days. Multiple birth babies stayed longer in special care units, with 63.4% staying 8 days or more. Babies whose length of stay in Special Care Nurseries was less than one day are not recorded (Table 38).

TABLE 38:

PLURALITY AND LENGTH OF STAY IN SPECIAL CARE OF LIVEBIRTHS IN WESTERN AUSTRALIA, 1992

Length ¹ of Stay (Days)	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
1	196	26.1	22	11.5	218	23.2
2	74	9.9	10	5.2	84	8.9
3	33	4.4	5	2.6	38	4.0
4	25	3.3	9	4.7	34	3.6
5	27	3.6	4	2.1	31	3.3
6	27	3.6	10	5.2	37	3.9
7	21	2.8	10	5.2	31	3.3
8-14	104	13.9	36	18.9	140	14.9
15-20	60	8.0	18	9.4	78	8.3
21-28	42	5.6	16	8.4	58	6.2
29-60	88	11.7	31	16.2	119	12.6
61-90	33	4.4	14	7.3	47	5.0
91-180	24	3.2	7	3.7	31	3.3
>180	2	0.3	-	-	2	0.2
TOTAL	750	100.0	191	100.0	941	100.0

Excludes births less than 500 grams birthweight.

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

6.14 Neonatal Transfers

Among the 25,143 livebirths, 1094 (4.4%) 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 immediately following birth and those babies who were transferred to another hospital prior to being discharged home.

6.15 Length of Stay

The majority of babies (20118, 80.0%) stayed in their hospital of birth from two to seven days and another 3341 (13.3%) stayed between 8 and 28 days. A further 210 (0.8%) babies stayed longer than 28 days (Table 39).

The length of stay of those babies who were neither transferred nor died in the hospital of birth is shown on Table 39. Among these surviving liveborn babies, 3150 (13.1%) stayed 8 to 28 days and 139 (0.6%) stayed for longer than 28 days.

TABLE 39:

LENGTH OF STAY IN HOSPITAL OF BIRTH AND BIRTHWEIGHT DISTRIBUTION OF LIVEBIRTHS IN WESTERN AUSTRALIA, 1992

Birthweight (Grams)	Length of Stay (Days)												Total	
	≤1		2-7		8-14		15-20		21-28		>28		No.	%
500 - 999	20	1.4	4	-	3	0.1	3	1.5	1	1.0	58	27.6	89	0.4
1000 - 1499	15	1.0	8	-	2	0.1	7	3.4	15	15.3	98	46.7	145	0.6
1500 - 1999	22	1.5	48	0.2	64	2.1	47	22.8	55	56.1	37	17.6	273	1.1
2000 - 2499	53	3.6	547	2.7	302	9.4	76	36.9	20	20.4	6	2.9	1004	4.0
<2500	110	7.5	607	3.0	371	12.2	133	64.6	91	92.9	199	94.8	1511	6.0
2500 - 2999	238	16.2	3071	15.3	547	18.0	33	16.0	3	3.1	4	1.9	3896	15.5
3000 - 3499	566	38.4	7842	39.0	1005	33.1	21	10.2	2	2.0	4	1.9	9440	37.6
3500 - 3999	431	29.2	6376	31.7	778	25.6	15	7.3	2	2.0	3	1.4	7605	30.3
4000 - 4499	110	7.5	1947	9.7	282	9.3	4	1.9	-	-	-	-	2343	9.3
>4500	19	1.3	275	1.4	54	1.8	-	-	-	-	-	-	348	1.4
TOTAL	1474	100.0	20118	100.0	3037	100.0	206	100.0	98	100.0	210	100.0	25143	100.0

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

TABLE 40:

**LENGTH OF STAY IN HOSPITAL OF BIRTH AND BIRTHWEIGHT DISTRIBUTION OF SURVIVING LIVEBIRTHS IN WESTERN AUSTRALIA,
1992**

Birthweight (Grams)	Length of Stay (Days)										Total	
	≤1	2-7	8-14	15-20	21-28	>28	No.	%	No.	%	No.	%
500 - 999	-	-	-	-	-	-	43	30.9	43	30.9	43	0.2
1000 - 1499	-	-	-	2	4	6.0	54	38.9	54	38.9	61	0.3
1500 - 1999	-	29	36	30	38	56.7	26	18.7	26	18.7	158	0.7
2000 - 2499	13	487	257	61	19	28.4	6	4.3	6	4.3	843	3.5
<2500	13	516	293	93	61	91.0	129	92.8	129	92.8	1105	4.6
2500 - 2999	151	2993	525	29	3	4.5	4	2.9	4	2.9	3705	15.5
3000 - 3499	428	7700	997	20	2	3.0	4	2.9	4	2.9	9151	38.2
3500 - 3999	340	6275	772	14	1	1.5	2	1.4	2	1.4	7404	30.9
4000 - 4499	88	1913	282	4	-	-	-	-	-	-	2287	9.5
>4500	11	271	54	-	-	-	-	-	-	-	336	1.4
TOTAL	1031	19668	2923	160	67	100.0	139	100.0	139	100.0	23988	100.0

Excludes births less than 500 grams birthweight
 Excludes inter-hospital transfers and deaths in hospital of birth.
 Includes homebirths in midwives' care

6.16 Perinatal Mortality

There were 115 stillbirths and 96 neonatal deaths of babies born during 1992. The perinatal mortality rate for Western Australia was 8.4/1000 total births.

Perinatal mortality calculations in recent reports are based on the year of birth whereas prior to 1984 they were based on the year of death. Trend data for perinatal mortality over the last 10 years are provided in section 7 (Table 49, Figure X).

Tables 41 and 42 give perinatal mortality rates using World Health Organisation definitions.

The perinatal mortality rate in 1992 for babies of Aboriginal women (21.7/1000) was almost three times that for babies born to non-Aboriginal women (7.6/1000) (Table 43 and Table 49, Figure XI).

TABLE 41:

WESTERN AUSTRALIAN PERINATAL MORTALITY USING BIRTHWEIGHT CRITERIA, 1992

Birthweight	Stillbirth Rate/1000 Total Births	Neonatal Death Rate/1000 Livebirths	Perinatal Death Rate/1000 Total Births
≥400 grams*	5.3	4.8	10.1
≥500 grams*	4.6	3.8	8.4

* International Definition of World Health Organisation

TABLE 42:

WESTERN AUSTRALIAN PERINATAL MORTALITY USING GESTATION CRITERIA, 1992

Gestation	Stillbirth Rate/1000 Total Births	Neonatal Death Rate/1000 Livebirths	Perinatal Death Rate/1000 Total Births
≥20 weeks*	6.5	4.4	10.9
≥22 weeks*	5.5	4.0	9.4

*International Definition of World Health Organisation

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

TABLE 43:

STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY RATES BY MATERNAL RACE IN WESTERN AUSTRALIA, 1992

Type of Death	Maternal Race			Total
	Caucasian	Aboriginal	Other	
Stillbirth/1000 total births	3.9	11.9	6.7	4.6
Neonatal/1000 livebirths	3.5	9.9	3.1	3.8
Perinatal/1000 total births	7.4	21.7	9.7	8.4

Excludes births less than 500 grams birthweight

Data from 1976 to 1992 on stillbirth, neonatal and perinatal mortality rates in Western Australia shows there has been an overall decline during this decade. Aboriginal rates have declined but remain approximately double the non-Aboriginal figures (Table 49).

More than one quarter (25.6%) of perinatal deaths had a birthweight of less than 1000 grams. Overall 63.5% of stillbirths and 59.4% of neonatal deaths weighed less than 2500 grams at birth (Table 44).

TABLE 44:

BIRTHWEIGHT DISTRIBUTION OF STILLBIRTHS, NEONATAL AND PERINATAL DEATHS IN WESTERN AUSTRALIA, 1992

Birthweight (grams)	Stillbirths		Neonatal Deaths		Perinatal Deaths	
	No.	%	No.	%	No.	%
500 - 999	26	22.6	28	29.2	54	25.6
1000 - 1499	16	13.9	13	13.5	29	13.7
1500 - 1999	16	13.9	6	6.3	22	10.4
2000 - 2499	15	13.0	10	10.4	25	11.8
<2500	73	63.5	57	59.4	130	61.6
2500 - 2999	14	12.2	16	16.7	30	14.2
3000 - 3499	17	14.8	17	17.7	34	16.1
3500 - 3999	9	7.8	3	3.1	12	5.7
≥4000	2	1.7	3	3.1	5	2.4
Total	115	100.0	96	100.0	211	100.0

Excludes births less than 500 grams birthweight.

Amongst the 676 multiple births, there were 23 perinatal deaths. Of these, 8 were stillborn and 15 were neonatal deaths (Table 45).

The stillbirth rate for multiple births (11.8/1000) was almost three times that for singleton births (4.4/1000).

The neonatal mortality rate for multiple births (22.5/1000) was six times that for singleton births (3.3/1000) (Table 45).

TABLE 45:

PLURALITY OF STILLBIRTHS, NEONATAL AND PERINATAL DEATHS AMONGST BIRTHS IN WESTERN AUSTRALIA, 1992

Plurality	Stillbirths		Neonatal Deaths		Perinatal Deaths	
	No.	Rate ¹	No.	Rate ²	No.	Rate ¹
Singleton	107	4.4	81	3.3	188	7.6
Multiple	8	11.8	15	22.5	23	34.0
TOTAL	115	4.6	96	3.8	211	8.4

Excludes births less than 500 grams birthweight.

¹ Stillbirth/Perinatal mortality rates:

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

² Neonatal mortality rates:

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

When stillbirths were examined by time of death, 71.3% occurred antepartum, 19.1% were intrapartum and timing of stillbirth was unknown in 9.6% of cases.

Almost one half (43.8%) of the neonatal deaths occurred within the first day of life (Table 46).

The causes of death of stillborn babies are largely unknown (20.9%). Extremely low birthweight (less than 1000 grams birthweight) contributed in 14.8% of cases and 20.0% resulted from lethal congenital malformations.

The principal causes of death of neonates are reported to be low birthweight 30.2% and lethal congenital malformations 38.5% (Table 47).

TABLE 46:

AGE AT DEATH FOR NEONATAL DEATHS IN WESTERN AUSTRALIA, 1992

Age at Neonatal Death	No.	% of Neonatal Deaths
< Day 1	42	43.8
Day 1	7	7.3
Day 2	5	5.2
Day 3	6	6.3
Day 4	5	5.2
Day 5	2	2.1
Day 6	3	3.1
Day 7	3	3.1
Day 8-14	16	16.7
Day 15-21	5	5.2
Day 22-28	2	2.1
TOTAL	96	100.0

Excludes births less than 500 grams birthweight.

TABLE 47:

CAUSES OF STILLBIRTHS AND NEONATAL MORTALITY IN WESTERN AUSTRALIA, 1992

Causes of Death	¹ Stillbirths		² Neonatal Deaths	
	No.	%	No.	%
Lethal Congenital Malformations	23	20.0	37	38.5
Extremely low birthweight (<1000 grams)	17	14.8	28	29.2
Low birthweight (1000-2499 grams)	6	5.2	1	1.0
Asphyxia	20	17.4	13	13.5
Maternal- Obstetric	-	-	4	4.2
Maternal - Medical	2	1.7	-	-
Maternal - Hypertension	-	-	-	-
Placenta & Cord	17	14.8	-	-
Hydrops fetalis	-	-	-	-
Infection	2	1.7	5	5.2
S.I.D.S.	-	-	3	3.1
Other	-	-	4	4.2
Unknown	24	20.9	1	1.0
TOTAL	115	100.0	96	100.0

Excludes births less than 500 grams birthweight.

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

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

It is known that autopsies were requested for 64.3% of stillbirths and 51.0% of neonatal deaths. In the case of 25 (11.8%) perinatal deaths it is unknown whether an autopsy was requested (Table 48).

TABLE 48:

AUTOPSY REQUESTS FOR STILLBIRTHS AND NEONATAL DEATHS IN WESTERN AUSTRALIA, 1992

	Stillbirths		Neonatal Deaths		Perinatal Deaths	
	No.	%	No.	%	No.	%
Yes	74	64.3	49	51.0	123	58.3
No	29	25.2	34	35.4	63	29.9
Unknown	12	10.4	13	13.5	25	11.8
TOTAL	115	100.0	96	100.0	211	100.0

Excludes births less than 500 grams birthweight.

7. BIRTH TRENDS 1983 - 1992

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

7.1 Maternal Age

The majority of women bearing children are aged 20-34 years. Over the past 10 years, this percentage showed a steady decline from 87.4% in 1983 to 83.1% in 1992.

A corresponding increase is evident among women aged 35 years or more with the percentage rising from 5.7% in 1983 to 10.6% in 1992 (Table 49).

7.2 Primiparous Women

Women having their first baby represented 38.7% of all women confined in 1992. This percentage has remained stable over the past 10 years with the highest percentage 39.7% in 1991 and the lowest percentage 38.1% in 1985 (Table 49).

7.3 Conjugal State of Women

The majority of women are reported to be in a married or defacto relationship at time of confinement. This percentage has remained relatively stable ranging between 90.0% in 1984 and 87.7% in 1987. The percentage of women recorded as single rose slightly from 8.5% in 1983 to 9.5% in 1992. A few women each year identify as widowed/divorced or separated. The percentage for this group has reduced from 1.8% in 1983 to 0.8% over the past ten years (Table 49).

7.4 Fertility Rates

The fertility rate of women aged between 15-44 years has reduced from 71.4/1000 in 1983 to 64.0/1000 in 1992.

Evaluation of different age groups show that among women aged between 20-34 years, the group with highest fertility rates, the rate decreased from 113.2/1000 in 1983 to 104.1/1000 in 1992. Another group showing a less significant reduction in fertility rate were those women aged 15-19 years, where the rate declined from 27.2/1000 in 1983 to 25.3/1000 in 1992.

Examination of differences in race for fertility rates show that over a ten year period, the fertility rate among non-Aboriginal women declined from 69.7/1000 in 1983 to 62.2/1000 in 1992. The rate for women identified as Aboriginal, although much higher, also reduced over the same ten year period from 147.2/1000 in 1983 to 128.8/1000 in 1992 (Table 49).

7.5 Type of Delivery

The percentage of spontaneous vaginal deliveries changed very little over the past ten years from 63.3% in 1983 to 64.2% in 1992. A more pronounced change is the reduction in assisted vaginal deliveries from 23.4% in 1983 to 16.5% in 1992, and the corresponding continual rise in the percentage of caesarean sections from 6.5% elective and 6.7% emergency in 1983 to 10.3% elective and 9.0% emergency in 1992 (Table 49).

7.6 Place of Confinement

The majority of confinements take place at hospitals within the metropolitan region. Over the past decade, the percentage of these births rose gradually from 71.9% in 1983 to 74.0% in 1992.

Non-hospital births, either planned or unplanned, remain few in number with the percentage of 0.7% in 1983 rising gradually to 1.0% in 1988 and declining again to 0.7% in 1992 (Table 49).

7.7 Planned Homebirths

The percentage showed little change, ranging between 0.4% and 0.7% per year over the past decade (Table 49).

7.8 Crude Birth Rate

The crude birth rate for Western Australia shows a consistent downward trend from 16.9/1000 in 1983 to 15.1/1000 in 1992. This decline reflects a similar reduction in the National Crude Birth Rate (Table 49, Figure IX).

7.9 Plurality of Births

Multiple birth percentages rose over the ten year period from 2.1% in 1983 to 2.7% in 1992. Percentages peaked for the years 1988 (2.7%) and 1989 (2.9%) with increased numbers of high order multiple births due to the influence of reproductive technology practice at that time. Increased plurality of births also impacted on percentages of low birthweight babies and perinatal mortality rates (Table 49).

7.10 Low Birthweight

The percentage of low birthweight babies showed little change between 1983 and 1992, being about 6.0%. However, in 1989 the percentage of 6.6% was influenced by the high percentage of multiple birth babies.

The differences between racial groups was influential on the low birthweight percentages. Among babies of women identified as non-Aboriginal the percentage of low birthweight remained stable with 6.0% in 1983 and 6.0% in 1992 and was in accord with the overall trend.

TABLE 49: BIRTH TRENDS IN WESTERN AUSTRALIA - 1983 TO 1992

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
WOMEN CONFINED										
Maternal Age (%)										
12-17 years	2.3	2.3	2.1	2.3	2.0	2.2	2.2	2.0	2.1	2.1
12-19 years	6.9	6.7	6.7	6.5	6.2	6.6	6.3	6.5	6.6	6.3
20-34 years	87.4	87.3	86.9	86.2	86.2	85.0	85.0	84.1	83.5	83.1
35+ years	5.7	6.0	6.8	7.3	7.5	8.4	8.7	9.4	9.9	10.6
Primiparous Women (%)	39.3	38.7	38.1	38.9	38.9	38.6	39.5	39.0	39.7	38.7
Conjugal State of Women (%)										
Single	8.5	8.5	9.0	10.0	10.6	10.5	10.0	10.0	10.0	9.5
Married/Defacto	89.7	90.0	89.4	88.3	87.7	88.3	89.1	88.9	89.2	89.7
Other	1.8	1.6	1.6	1.7	1.7	1.2	0.9	1.1	0.8	0.8
Fertility Rate/1000 Women - Years										
Women Aged: 15-19 years	27.2	26.4	24.5	25.1	23.4	24.9	24.1	25.3	25.5	25.3
20-34 years	113.2	111.5	113.7	114.9	110.0	110.1	108.2	106.8	100.3	104.1
35-44 years	14.4	14.4	16.2	17.3	16.8	18.4	18.5	19.5	18.9	20.3
Aboriginal Women	147.2	139.2	145.4	138.9	136.6	149.7	138.4	144.3	132.7	128.8
Non-Aboriginal Women	69.7	67.4	67.7	68.3	64.9	65.0	64.0	63.4	60.0	62.2
Total	71.4	69.3	69.7	70.1	66.8	67.2	66.0	65.6	62.0	64.0
Type of Delivery (%)										
Spontaneous Vaginal	63.3	63.0	62.7	63.3	63.3	65.1	64.1	64.0	64.7	64.2
Assisted Vaginal	23.4	23.1	22.2	21.1	19.8	17.9	17.8	17.2	16.9	16.5
Caesarean Elective	6.5	6.9	7.8	7.9	8.7	8.9	9.4	9.7	9.6	10.3
Caesarean Emergency	6.7	7.0	7.3	7.8	8.2	8.1	8.7	9.1	8.9	9.0
Place of Confinement (%)										
Metropolitan Hospital	71.9	72.1	72.5	72.9	73.5	73.6	73.9	73.2	73.5	74.0
Country Hospital	27.4	27.1	26.5	26.2	25.6	25.4	25.1	25.8	25.6	25.3
Non Hospital	0.7	0.7	0.9	0.9	0.9	1.0	1.0	1.0	1.0	0.7
Planned Homebirths (%)	0.4	0.4	0.6	0.7	0.6	0.7	0.7	0.6	0.6	0.4

TABLE 49: BIRTH TRENDS IN WESTERN AUSTRALIA - 1983 TO 1992 (Continued)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
BIRTHS										
Livebirths (Number)	22868	22783	23138	23692	24005	24961	25344	25826	24801	25143
Crude Birth Rate/1000 Persons-Years	16.9	15.6	16.4	16.6	15.4	16.3	15.7	15.8	15.2	15.1
Plurality (%)										
Single births	97.9	97.8	97.7	97.7	97.5	97.3	97.1	97.6	97.4	97.3
Multiple births	2.1	2.2	2.3	2.3	2.5	2.7	2.9	2.4	2.6	2.7
Low Birthweight (%)										
Aboriginal	13.1	13.2	13.6	11.7	10.5	13.1	10.8	10.8	14.4	11.3
Non-Aboriginal	6.0	5.6	5.8	5.7	5.9	5.7	6.3	5.7	5.7	6.0
Total	6.3	6.0	6.3	6.0	6.2	6.1	6.6	6.0	6.2	6.3
Very Low Birthweight (%)										
Aboriginal	1.7	2.9	3.2	2.2	1.9	2.4	2.2	1.5	2.8	1.8
Non-Aboriginal	1.2	1.1	1.2	1.2	1.1	1.1	1.2	0.9	1.0	1.1
Total	1.2	1.2	1.3	1.2	1.1	1.2	1.3	0.9	1.1	1.1
MORTALITY										
Maternal/1000 livebirths	0.04	0.04	0.04	0.04	0.08	0.04	0.04	0.12	0.04	0.04
Perinatal/1000 births										
Aboriginal	21.7	26.0	21.7	23.3	15.7	20.1	23.5	13.6	15.6	21.7
Non-Aboriginal	11.0	10.1	10.6	10.8	9.5	8.1	9.4	7.5	7.6	7.6
Total	11.5	10.9	11.1	11.5	9.8	8.8	10.2	7.9	8.1	8.4
Stillbirths/1000 births										
Aboriginal	12.2	13.4	11.2	12.8	9.7	8.3	11.7	7.7	11.5	11.9
Non-Aboriginal	6.5	5.4	5.7	5.7	5.3	4.4	5.0	4.3	5.0	4.1
Total	6.8	5.8	6.4	6.1	5.5	4.7	5.4	4.5	5.4	4.6
Neonatal/1000 livebirths										
Aboriginal	9.7	11.9	10.5	10.6	6.0	11.9	11.9	5.9	4.1	9.9
Non-Aboriginal	4.4	3.5	4.4	5.2	4.2	3.7	4.3	3.2	2.6	3.5
Total	4.7	5.1	4.7	5.4	4.3	4.2	4.8	3.4	2.7	3.8

Excludes births less than 500 grams birthweight.

SOURCES: MIDWIVES' NOTIFICATION SYSTEM
 Population Denominators: AUSTRALIAN BUREAU OF STATISTICS Catalogue No.3101.0
 Maternal Mortality Rates: Annual Report of the Maternal Mortality Committee

The low birthweight percentage among babies of Aboriginal mothers showed less consistency and remained far greater (13.1% in 1983 to peak at 14.4% in 1991) than for other groups (Table 49, Figure VII).

7.11 Maternal Mortality

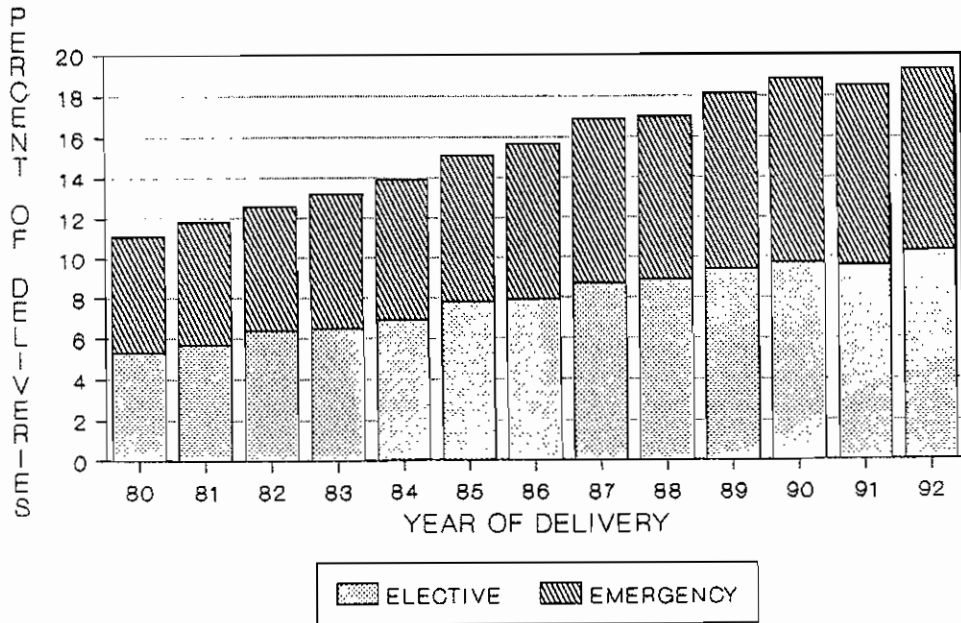
The maternal mortality rate in Western Australia is extremely low, with only 13 maternal deaths occurring during the past decade, giving an average rate of 0.06 per 1000 livebirths (Table 49).

7.12 Perinatal Mortality

There has been a most favourable reduction in the rates of perinatal deaths over the past decade. These reduced from 11.5/1000 in 1983 to 8.4/1000 in 1992. Neonatal mortality rates declined more than stillbirth rates (Table 49, Figure X).

FIGURE VI

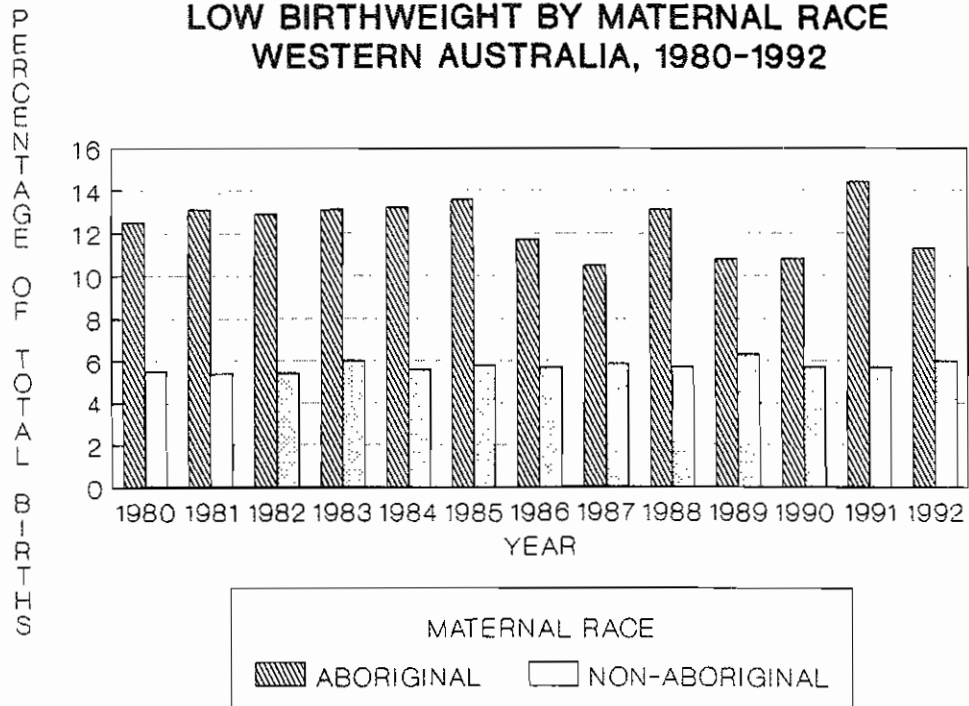
CAESAREAN SECTIONS IN WESTERN AUSTRALIA 1980-1992



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

FIGURE VII

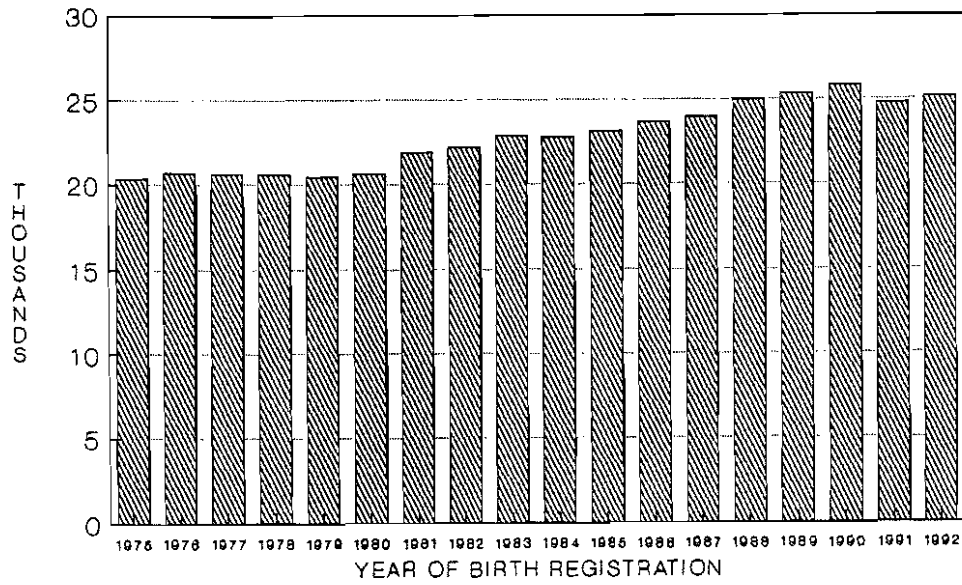
LOW BIRTHWEIGHT BY MATERNAL RACE WESTERN AUSTRALIA, 1980-1992



Excludes births <500 grams birthweight.
Low Birthweight <2500 grams birthweight.
SOURCE: MIDWIVES' NOTIFICATION SYSTEM

FIGURE VIII

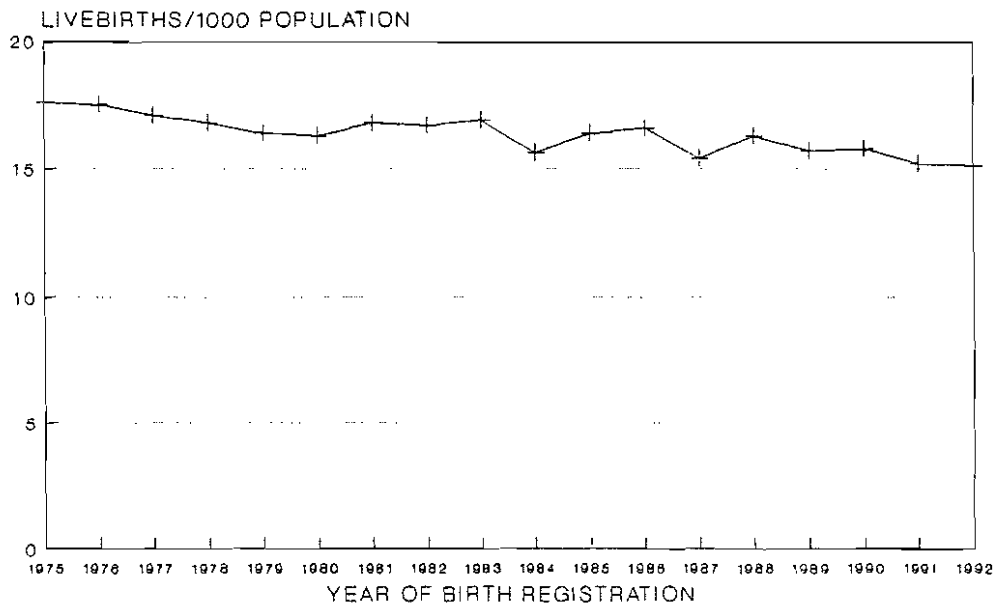
LIVEBIRTHS IN WESTERN AUSTRALIA 1975-1992



1975-1992
Numbers based on State of residence.
SOURCE: AUSTRALIAN BUREAU OF STATISTICS

FIGURE IX

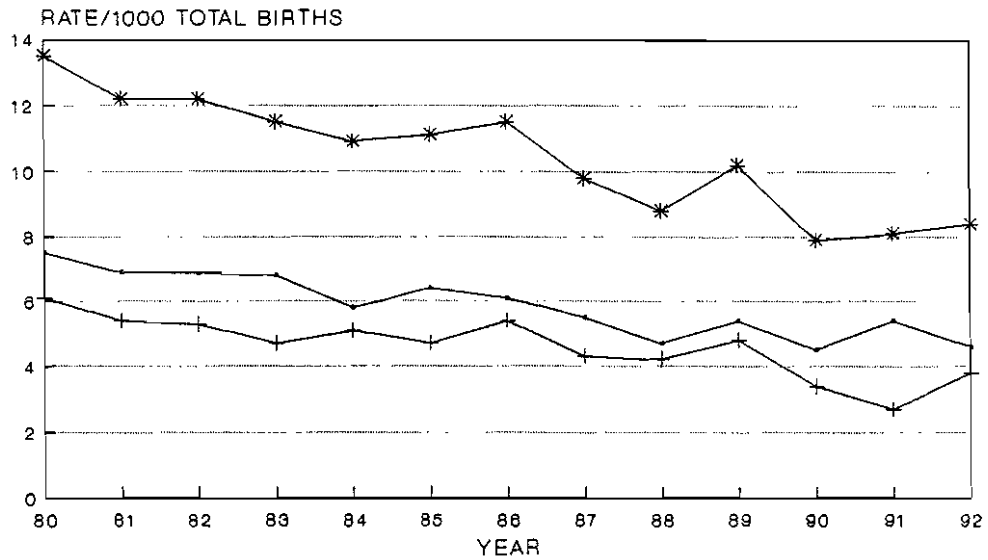
CRUDE BIRTH RATE IN WESTERN AUSTRALIA 1975-1992



Crude Birth Rate:
Livebirths per 1000 total population.
SOURCE: AUSTRALIAN BUREAU OF STATISTICS

FIGURE X

PERINATAL MORTALITY RATES WESTERN AUSTRALIA 1980-1992



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

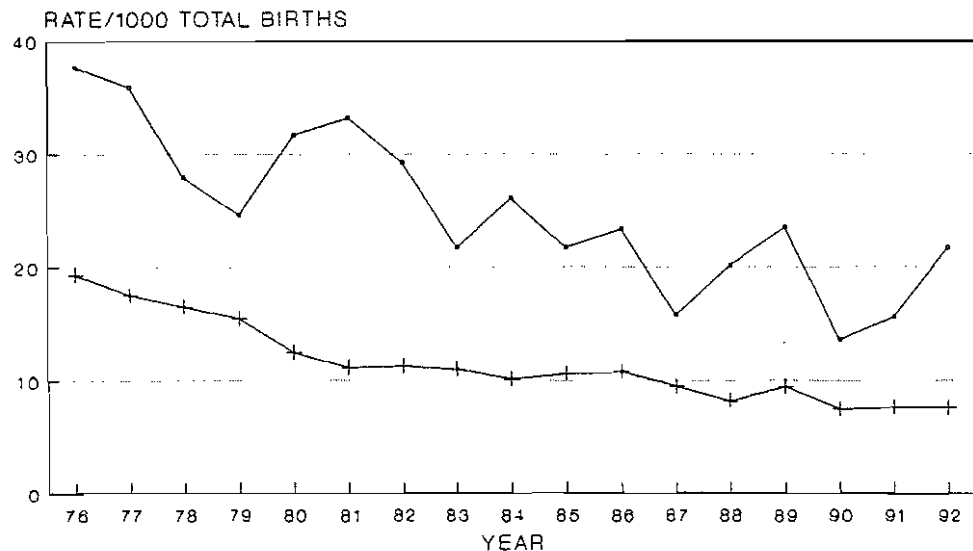
PERINATAL MORTALITY
— STILLBIRTHS + NEONATAL DEATHS * PERINATAL DEATHS

Note: 1980-1983 data based on year of death.
1984-1992 data based on year of birth.

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

FIGURE XI

PERINATAL MORTALITY BY MATERNAL RACE IN WESTERN AUSTRALIA 1976-1992



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

Note: 1980-1983 data based on year of death.
1984-1992 data based on year of birth.

RACE
— ABORIGINAL + NON ABORIGINAL

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

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APPENDIX 'A'

DEFINITIONS

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

Livebirth 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.

Mortality Rates **Maternal Mortality** - the number of maternal deaths per 1000 livebirths in a year.

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.

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

Parity 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.

Perinatal Death A stillbirth or neonatal death.

Plurality The number of fetuses or babies resulting from the pregnancy. On this basis pregnancy may be classified as singleton or multiple.

Race Refers to mother's racial group

Caucasian - includes all persons of caucasoid (European) heritage.

Aboriginal - includes persons of Australian Aboriginal heritage (Australoid) or of mixed Aboriginal caucasian heritage or of mixed Aboriginal and other heritage.

Other - includes Asian, Indian, Polynesian, etc.

Stillbirth 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.

NOTIFICATION OF CASE ATTENDED

PARTICULARS RELATING TO MOTHER

Hospital

PRINT
IN
BLOCK
LETTERS

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

Current Conjugal State:

single () 1
 married (incl. de facto) () 2
 other ()

Race: (please specify)

Caucasian () 1
 Aboriginal (full or part) () 2
 Other () 3
 (please specify)

Height (cms) [] [] [] []

PREGNANCY

PREVIOUS PREGNANCIES (excluding this pregnancy)

Total number of [] []

Previous Pregnancies [] []

Previous children now living [] []

born alive, now dead [] []

stillborn [] []

THIS PREGNANCY

Date of LMP [] [] [] [] [] []

This date - certain () 1
 not certain ()

Expected due date [] [] [] [] [] []

Complications of Pregnancy:

Threatened abortion (under 20 weeks) () A
 urinary tract infection () B
 pre eclampsia () C
 APH - placenta praevia () D
 - abruptio () E
 - other () F
 prem. rupture of membranes () G
 other H

Medical Conditions:

LABOUR AND DELIVERY

Onset of Labour:

spontaneous [] A
 induced [] B
 no labour [] D

Augmentation of Labour no () 1
 yes () 2

Presentation:

vertex () 1
 breech () 2
 other () 3

Type of Delivery:

normal [] A
 vacuum - successful [] B
 - failed [] C
 forceps - successful [] D
 - failed [] E
 breech manoeuvre [] F
 caesarean - elective [] G
 - emergency [] H

Anaesthesia/Analgesia:

none [] Z
 general [] A
 epidural/spinal [] B
 other [] C

Hours of established labour: [] []

Complications of Labour, Delivery: (include reason for Caesarean)

precipitate delivery [] A
 fetal distress [] B
 prolapsed cord [] C
 cord tight around neck [] D
 cephalopelvic disproportion [] E
 other F

BABY

Separate Form for each Baby

Adoption Yes () No ()

Birth Date: [] [] [] [] [] []

Time (24 hr. clock) [] [] [] [] [] []

Plurality:

single birth () 1
 first twin () 2
 second twin () 3
 other multiple birth: () 4
 (specify baby number ___ of ___)

Sex: male () 1
 female () 2

Condition: liveborn () 1
 stillborn () 2

Birthweight (grams) [] [] [] [] [] []

Length (cms) [] [] [] [] [] []

Head circumference (cms) [] [] [] [] [] []

Time to establish unassisted regular breathing (mins) [] [] [] [] [] []

Resuscitation:

none [] 0
 intubation [] 3
 oxygen only [] 8
 other

Apgar Score

1 min [] [] [] [] [] []

5 mins [] [] [] [] [] []

Estimated Gestation (weeks) [] [] [] [] [] []

Birth Defects

Birth Trauma (Eg.cephalhaematoma)

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

MIDWIFE

Name

Signature

Reg. No. Date

BABY'S SEPARATION DETAILS

Date of Discharge/Transfer or Death [] [] [] [] [] []

Type of Separation:

Discharged home () 1
 Died () 2
 Transferred to () 3

Special Care (wholedays only) [] [] [] [] [] []

Separate HA22 for baby: yes, attached () 2

Birth Defects

Birth Trauma (Eg.cephalhaematoma)

