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PERINATAL STATISTICS IN WESTERN AUSTRALIA

Sixth Annual Report
of the Western Australian Midwives'
Notification System
1988

VIVIEN GEE
BAppSc. (Nursing Admin.), RN, RM, CHN
Epidemiology and Research Branch

APRIL 1990

 *Western Australia*
Health Department of Western Australia

Statistical Series/20

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

CLERICAL STAFF: Mrs Colleen Kontor
Mrs Catherine Johnston
Mrs Annette Cuenca

CO-ORDINATOR: Mrs Vivien Gee

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1. INTRODUCTION

Given current awareness of quality assurance I note that practitioners of obstetrics have always been renowned for the recording, and review of their activities. In WA, the actual recording is predominantly performed by midwives and the duties of midwives are specified in regulations contained in the Health Act of 1911-1982.

The release of the Sixth Annual Report of the Western Australian Midwives' Notification System highlights a valued contribution of the midwives of Western Australia to the surveillance of obstetric practice in our State.

The complete report makes for easy reading and contains details of interest for those in the health industry, its consumers and the general public. Some of the significant factors for me are:

the fertility rate of Aboriginal women (nearly twice as much as non-Aboriginal women), the rising age of recorded primiparous women at birth, the percentage of women who have a normal delivery (65.1%), the rising plurality of births in WA especially triplet births, the caesarean section rate (16.9%), the combined forceps and vacuum delivery rate (17%), the Apgar and Times to Spontaneous Respiration data, the preterm birth rate (6.5% of total births).

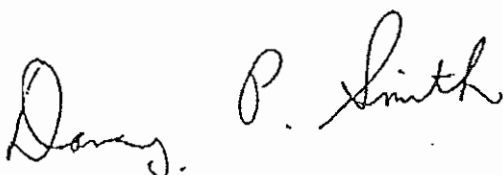
The Aboriginal low birthweight rate is more than twice that of non-Aboriginal women. There may be a variety of determinants to explain this but it also indicates the need for a renewed effort to improve safety for all WA mothers and their babies.

The data showing maternal residence by Health Department of Western Australia management regions reflects the introduction into WA of regional management. I note that number of births for the following:

KEMH (tertiary obstetric hospital)	4824
Private hospitals	7502
Metropolitan hospitals	18413
Country hospitals	6300

Analysis of regional data will contribute to an understanding of the variances, uniformity, needs and problems of each and every region of our large State.

The statistics focus on the striving in a socially acceptable way to improve obstetric and neonatal services and the benefits of this to all Western Australians.



Darcy P Smith MBBS, DRACOG, FRACGP, BHA, FRACMA
REGIONAL DIRECTOR
GREAT SOUTHERN HEALTH REGION

2. SUMMARY

Midwives' forms received by this Department indicate that 25,078 babies with birthweight \geq 500 grams were born during 1988 in Western Australia.

This represents an increase of 3.9% in total birth numbers from the previous twelve months. The crude birth rate of 16.2 per 1000 population has increased by 0.6/1000 from the 1987 statistic (Table 24).

This report includes statistics on only those babies whose birthweight is equal to or greater than 500 grams. There were an additional 79 babies recorded with birthweight $<$ 500 grams.

Of the 24,736 women confined, 24,405 (98.7%) were of singleton pregnancy with the remaining 331 (1.3%) women having multiple pregnancies. Multiple births included 315 twin and 16 triplet pregnancies. (Tree Diagram 1). Although the percentage of multiple births remained unchanged (1.3%) triplet pregnancies doubled from 8 (24 babies) in 1987, to 16 (48 babies) in 1988.

The average age of women at confinement was 27.3 years, with a range of 13 years to 46 years.

Two maternal deaths during 1988 gave a maternal mortality proportion of 0.08/1000 livebirths.

Most confinements (99.0%) occurred in hospital. Babies born before arrival for planned hospital confinements occurred in 77 cases representing 0.3% of overall births. There were 175 (0.7%) planned home confinements during 1988 (Tree Diagram 3).

The overall fertility rate for women of Aboriginal race was more than double that of non-Aboriginal women. The fertility rate of teenage Aboriginal women was more than nine times greater than that of non-Aboriginal women of the same age (Table 14).

More than two thirds of the total women confined had no complication of pregnancy recorded. Pre-eclampsia was recorded for 1772 (7.2%) of women which indicates a significant level of morbidity (Table 15).

Induction of labour was performed for 25.9% of women confined while 10.3% were confined without establishing labour (Table 16).

Of those women whose pregnancy was of breech presentation prior to delivery 72.8% were confined by caesarean section (Table 17).

The incidence of spontaneous vaginal birth has increased from 63.3% in 1987 to 65.1% in 1988.

A corresponding decrease (of almost two percent) was recorded for instrumental/assisted vaginal births over the same period (Table 18).

The caesarean section proportion remained stable overall with a minimal increase in elective procedures.

Six percent of all babies weighed less than 2500 grams at birth. When examined by maternal race 13.1% of babies born to Aboriginal women were of low birthweight (Table 32). More than two thirds of stillbirths were of low birthweight. (Table 33.1).

Preterm birth (less than 37 weeks gestation) occurred for 1637 (6.5%) of the total births (Table 36.1). Of the multiple birth, 48.4% were preterm (Table 36.3).

Special neonatal care was required for 7.1% of total births during 1988. Of those admitted 11% stayed more than 28 days in special care. (Table 39).

The majority of babies (78.9%) stayed in hospital between two and seven days after birth and another 7.7% stayed eight days or longer (Table 40.1).

Among the 25,078 births, 117 were stillborn and 104 of those liveborn died within the first twenty eight days of life. (Table 41). Almost two thirds (62.5%) of the neonatal deaths occurred during the first day of life (Table 49).

Among multiple births, the stillbirth proportion decreased from 25.6/1000 in 1987 to 8.9/1000 in 1988. Conversely the neonatal death proportion among multiple births doubled from 20.5/1000 to 40.5/1000 over the same period.

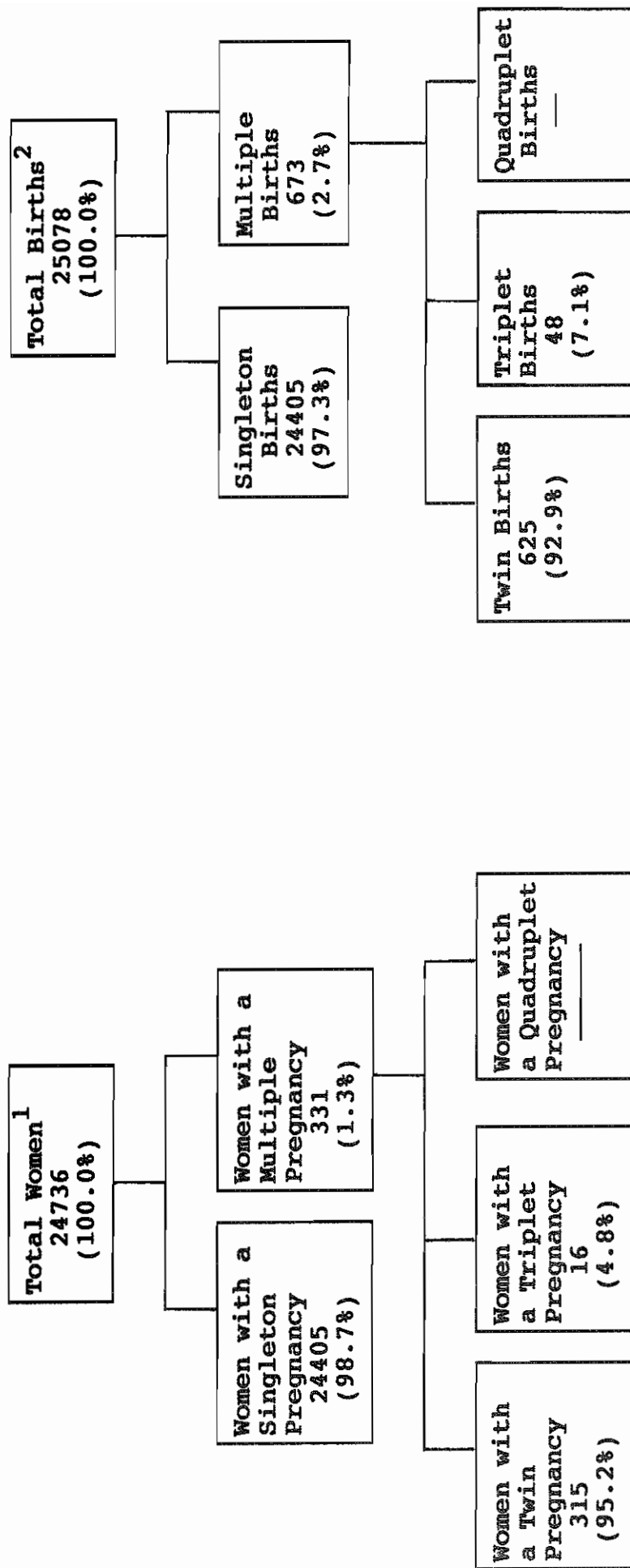
Causes of stillbirth included extremely low birthweight (25.6%) and lethal congenital malformations (14.5%). Stillbirths of unknown cause represented 36.8% of the total. For neonatal deaths, the major cause of death was low birthweight (less than 2500 grams) (44.2%) and lethal congenital malformations (36.5%) (Table 50).

Autopsies were requested for 59.8% of stillbirths and 51.9% of neonatal deaths (Table 51).

Mortality proportions were identified by plurality for the 1988 birth cohort. The overall perinatal mortality for multiple births (49.0/1000) was almost seven times greater than for singleton births (7.7/1000). The stillbirth proportion for multiple births was (8.9/1000) compared with (4.6/1000) for singleton births. For neonatal deaths the proportion for multiple births (40.5/1000) was thirteen times that of singleton births (3.2/1000) (Tree Diagram 2).

TREE DIAGRAM 1

PREGNANCIES AND BIRTHS IN WESTERN AUSTRALIA, 1988



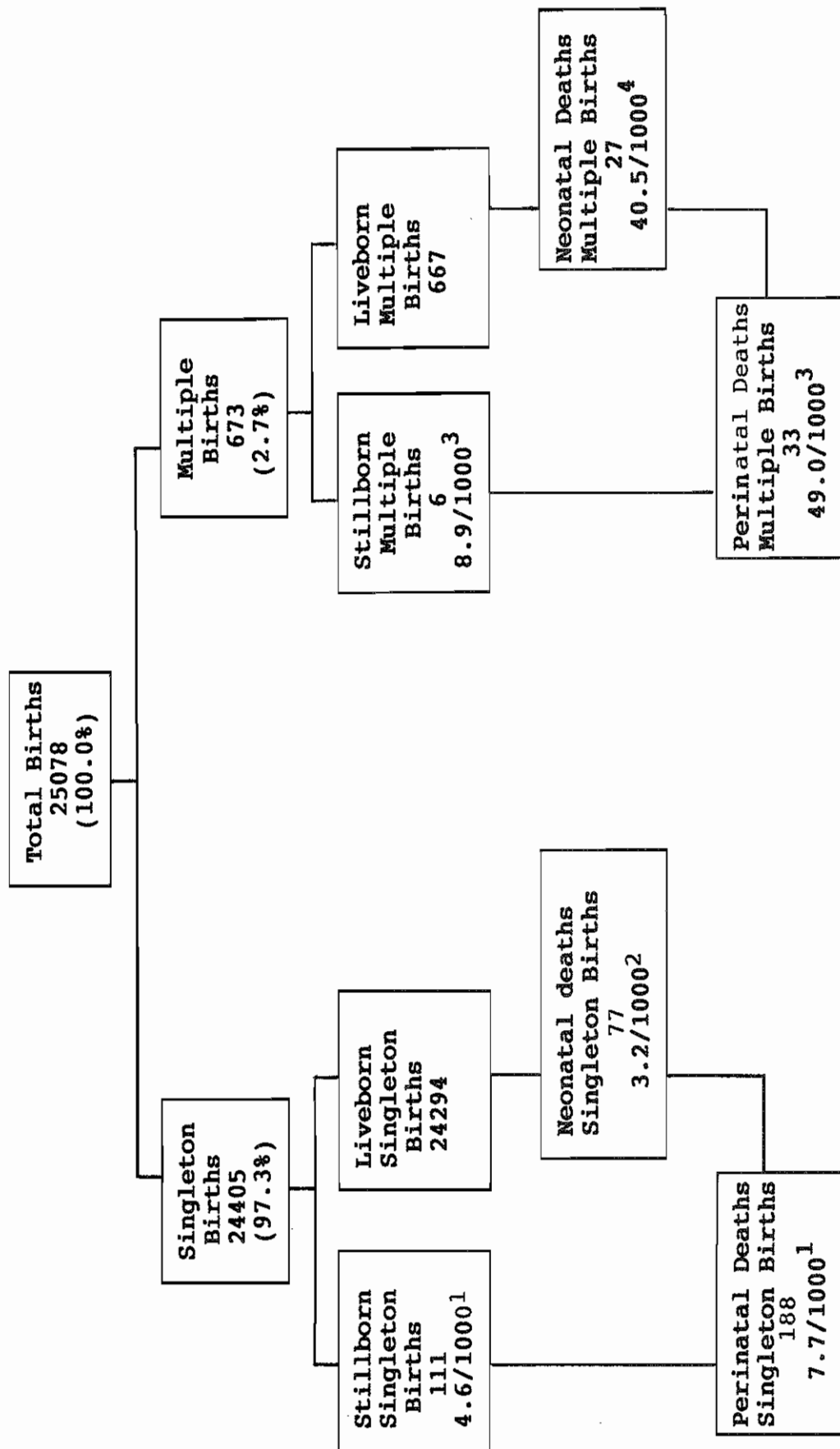
Excludes births less than 500 grams birthweight

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

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

SOURCE: MIDWIVES' NOTIFICATION SYSTEM

TREE DIAGRAM 2
 PLURALITY OF BIRTHS AND PERINATAL DEATHS IN WESTERN AUSTRALIA, 1988

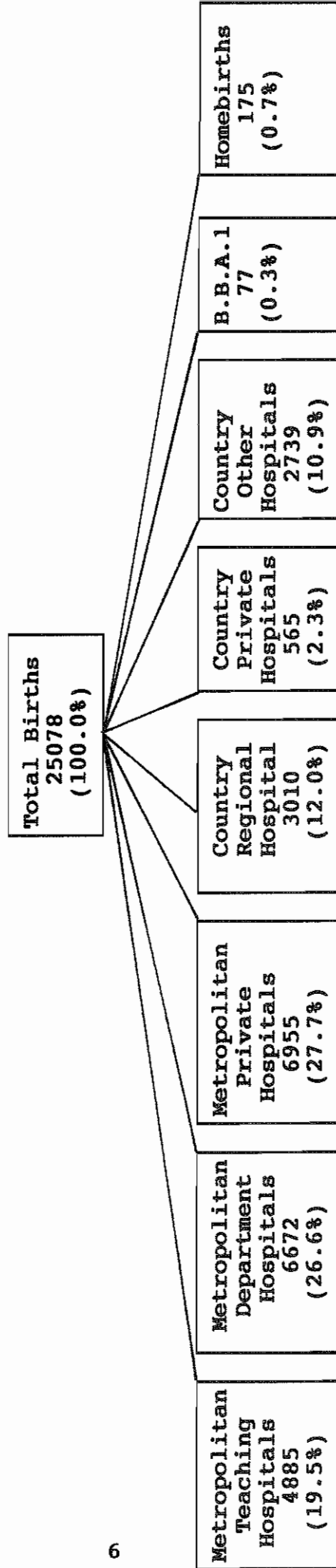


Excludes births less than 500 grams birthweight
 1 /1000 total singleton births 2 /1000 singleton livebirths
 3 /1000 total multiple births 4 /1000 multiple livebirths

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

TREE DIAGRAM 3

PLACE OF DELIVERY FOR ALL BIRTHS IN WESTERN AUSTRALIA, 1988



6

Excludes births less than 500 grams birthweight

1 B.B.A. (born before arrival).

SOURCE: MIDWIVES' NOTIFICATION SYSTEM

3. DEFINITIONS

Apgar Score

A numerical scoring system applied after birth to evaluate the conditions of the baby. It is based on the heart rate, respiration, muscle tone, reflexes and colour. Low scores indicate poor condition. The five minute score only is recorded on the Midwives' Form 2.

Birthweight

The first weight, measured to the nearest five grams, of the newborn which is usually obtained within the first hour of birth.

Low Birthweight - A birthweight of less than 2500 grams.

Very Low Birthweight - A birthweight less than 1500 grams.

Caesarean Section

A delivery of the fetus through an incision in the abdominal wall.

Elective Caesarean Section - Is a planned procedure prior to onset of labour and before spontaneous rupture of membranes or without any induction procedure.

Emergency Caesarean Section - The decision to perform a caesarean section, for a complication either before the onset of labour or during labour, whether the onset of labour was spontaneous or following induction.

Congenital Malformation

Any defect present at birth, probably of developmental origin.

Crude Birth Rate

The number of livebirths per 1000 person-years of total population.

Fertility Rate

The total confinements per 1000 women-years to women aged between 15-44 years.

Length of Stay

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 Proportions

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

Stillbirth - is the number of stillbirths per 1000 total births in a year.

Neonatal Mortality - is the number of neonatal deaths per 1000 livebirths in a year.

Perinatal Mortality - is 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 - is never having completed a pregnancy beyond viable age.

Perinatal Death

Is 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.

Other - includes Asian, Indian, Polynesian, etc.

Stillbirth

Is 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.

4. DATA COLLECTION

This is the Sixth 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 1988 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 79 babies whose birthweight was less than 500 grams.

To assist with standardisation of the information collected on the Midwives' Form 2, guidelines for the completion of Case Attended From 2 (Midwives' Form) were distributed in late 1985 to midwives and all Western Australian hospitals with obstetric beds. The guidelines have been updated and reprinted for use in collection of 1990 data.

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 Revision² (ICD-9) to code morbidity and once this is complete the forms are sent for data processing 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
Epidemiology and Research Branch
Health Department of Western Australia
189 Royal Street
EAST PERTH 6004
Telephone 222 4262

5. SELECTED WESTERN AUSTRALIAN STATISTICS, 1983-1988

<u>Obstetric Intervention Proportions</u> (based on all confinements)	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Induction/1000 Confinements	256.9	245.5	257.9	269.4	262.2	258.9
Caesarean Section/1000 Confinements	132.7	138.6	151.7	156.4	169.0	169.4
Elective Caesarean/1000 Confinements	65.3	68.8	78.4	78.6	86.5	88.8
Emergency Casesarean/1000 Confinements	67.4	69.8	73.3	77.9	82.5	80.6
<u>Fertility Rate</u>						
Confinements/1000 Women-Years	71.4	69.3	69.7	70.1	66.8	66.3
Aboriginal Women/1000 Aboriginal Women-Years	147.2	139.2	145.4	138.9	136.6	148.5
Non-Aboriginal Women/1000 Non-Aboriginal Women-Years	69.7	67.4	67.7	68.3	64.9	64.1
<u>Crude Birth Rate/1000 Person-Years</u>	16.9	15.6	16.4	16.6	15.6	16.2
<u>Low Birthweight</u> (less than 2500 grams birthweight)						
Low Birthweight Births/1000 Total Births	63.4	68.3	62.6	60.0	61.6	61.3
Low Birthweight Singleton Births/ 1000 Singleton Births	53.2	49.4	51.0	49.0	49.8	48.8
Low Birthweight Multiple Births/ 1000 Multiple Births	542.0	457.4	549.2	530.1	523.3	515.6
<u>Maternal Mortality/1000 Livebirths</u>	0.04	0.04	0.04	0.04	0.08	0.04
<u>Perinatal Mortality</u>						
<u>Stillbirths</u>						
stillbirths/1000 births			6.4	6.1	5.5	4.7
singleton stillbirths/1000 singleton births			6.1	5.8	5.0	4.6
multiple stillbirths/1000 multiple births			22.3	20.0	25.0	8.9
<u>Neonatal Mortality</u>						
neonatal deaths/1000 livebirths			4.7	5.4	4.3	4.2
singleton neonatal deaths/1000 singleton livebirths			4.1	4.7	3.9	3.2
multiple neonatal deaths/1000 multiple livebirths			33.8	37.2	20.5	40.5
<u>Perinatal Mortality</u>						
perinatal deaths/1000 births			11.1	11.5	9.8	8.8
singleton perinatal deaths/1000 singleton births			10.1	10.5	8.9	7.7
multiple perinatal deaths/1000 multiple births			53.8	56.5	46.1	49.0

6. MATERNAL DEMOGRAPHIC INFORMATION

6.1 Age

There were 24,736 women confined in Western Australia during 1988. The range of maternal age for these women was 13 years to 46 years with a mean age of 27.3 years. Women aged between 20 and 34 years represented 85.0% of all women confined. Young women aged 19 years or less represented 6.6% of total women confined with the 35 year and older group increasing to 8.4% from 7.5% in 1987. Of the women with multiple pregnancies 8 (2.4%) were less than 20 years of age and 31 (9.4%) were 35 years or older (Table 1).

The ages of younger women have been reported in individual years due to interest in teenage confinements.

TABLE 1: AGE AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1988.

Maternal Age	Plurality				Total	
	Singleton		Multiple		No.	%
	No.	%	No.	%		
≤13	3	-	1	0.3	4	--
14	20	0.1	--	--	20	0.1
15	51	0.2	--	--	51	0.2
16	156	0.6	--	--	156	0.6
17	317	1.3	1	0.3	318	1.3
18	435	1.8	3	0.9	438	1.8
19	638	2.6	3	0.9	641	2.6
20-24	5467	22.4	61	18.4	5528	22.4
25-29	9360	38.4	137	41.4	9497	38.4
30-34	5914	24.2	94	28.4	6008	24.3
35-39	1817	7.5	27	8.2	1844	7.5
40-44	223	0.9	4	1.2	227	0.9
≥45	4	--	--	--	4	--
Total	24405	100.0	331	100.0	24736	100.0

Excludes births less than 500 grams birthweight.
Mean = 27.3 years. Standard Deviation = 5.1 years

6.2 Race

Ethnic grouping of women identified the majority (88.1%) of women confined as caucasian. The remaining twelve percent were comprised of Aboriginal women (5.8%) and women of "other" races (6.2%).

Among multiple birth confinements 91.8% were to caucasian women, 3.9% to Aboriginal women and 4.2% to women of "other" racial classification (Table 2).

TABLE 2: RACE AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA 1988.

Maternal	Plurality				Total	
	Singleton		Multiple		No.	%
	No.	%	No.	%		
Caucasian	21477	88.0	304	91.8	21781	88.0
Aboriginal	1414	5.8	13	3.9	1427	5.8
Other	1514	6.2	14	4.2	1528	6.2
Total	24405	100.0	331	100.0	24736	100.0

Excludes births less than 500 grams birthweight.
Other races include Indian, Asian, Polynesian, etc.

6.3 Conjugal State

Almost twelve percent of all women confined in Western Australia during 1988 were reported to be socially unsupported, being either single, widowed or separated. Single women represented the largest unsupported group (10.5%). For women with multiple pregnancy 8.8% were unsupported (Table 3, Figure I).

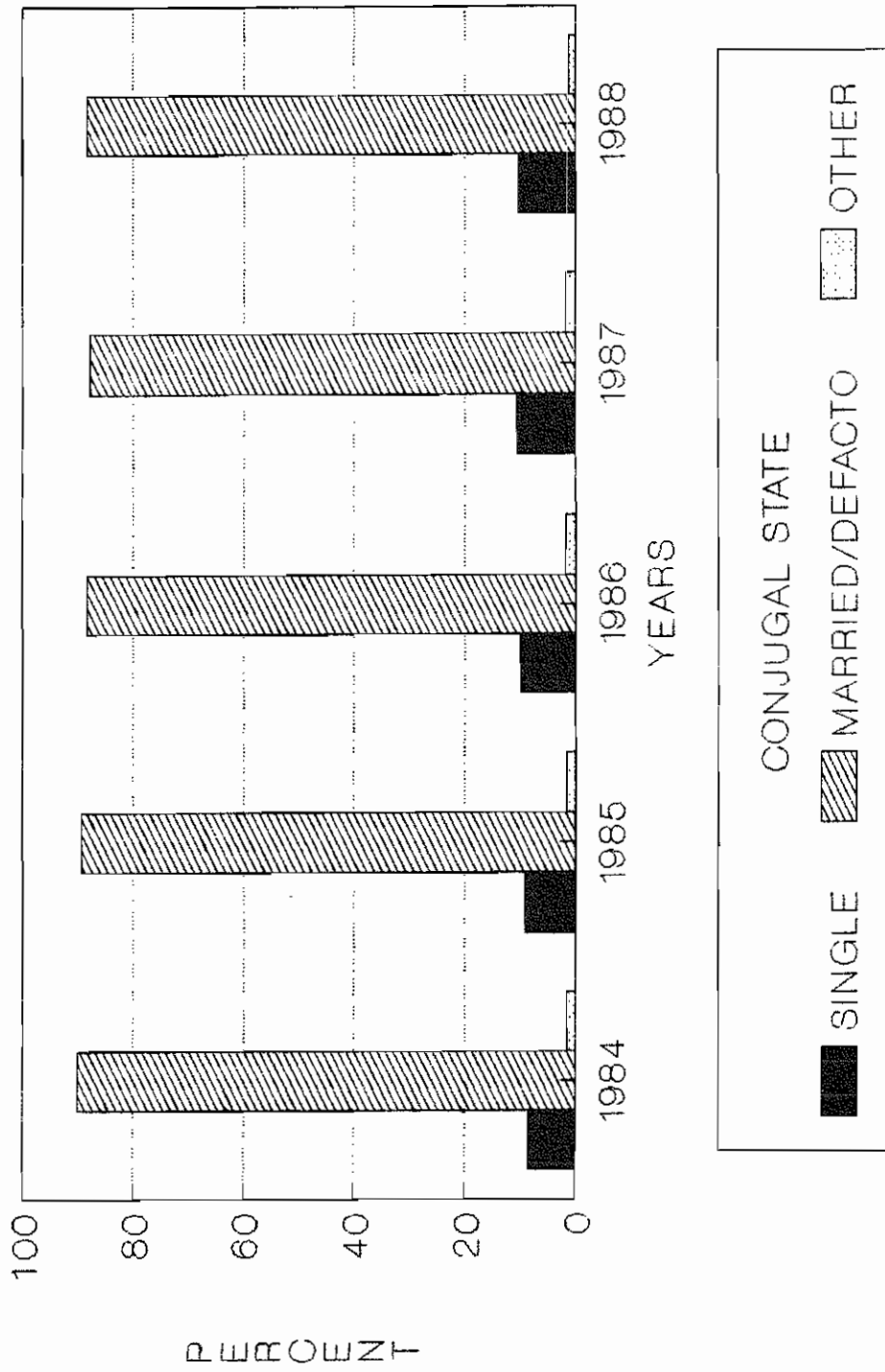
TABLE 3: CONJUGAL STATE AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1988.

Conjugal State	Plurality				Total	
	Singleton		Multiple		No.	%
	No.	%	No.	%		
Single	2582	10.6	23	7.0	2605	10.5
Married/defacto	21531	88.2	302	91.2	21833	88.3
Other ¹	292	1.2	6	1.8	298	1.2
Total	24405	100.0	331	100.0	24736	100.0

Excludes births less than 500 grams birthweight
¹ Other includes separated, divorced and widowed.

FIGURE I

CONJUGAL STATE OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1984-88



Excludes births less than 500 grams birthweight.
Source: Midwives' Notification System.

6.4 Statistical Division of Residence

More than two thirds (67.9%) of all women confined in 1988 lived in the Perth Statistical Division. The numbers of women living in rural areas are shown on Table 4. Of those women who had a multiple pregnancy 75.5% lived in the Perth Statistical Division, 4.5% in the Midlands, 2.1% in the Kimberley and 7.9% in the South West Division (Table 4, Figure II).

The highest proportions of multiple pregnancies were to women living in the Midlands (16.9/1000) and Perth metropolitan (14.9/1000) Statistical Divisions.

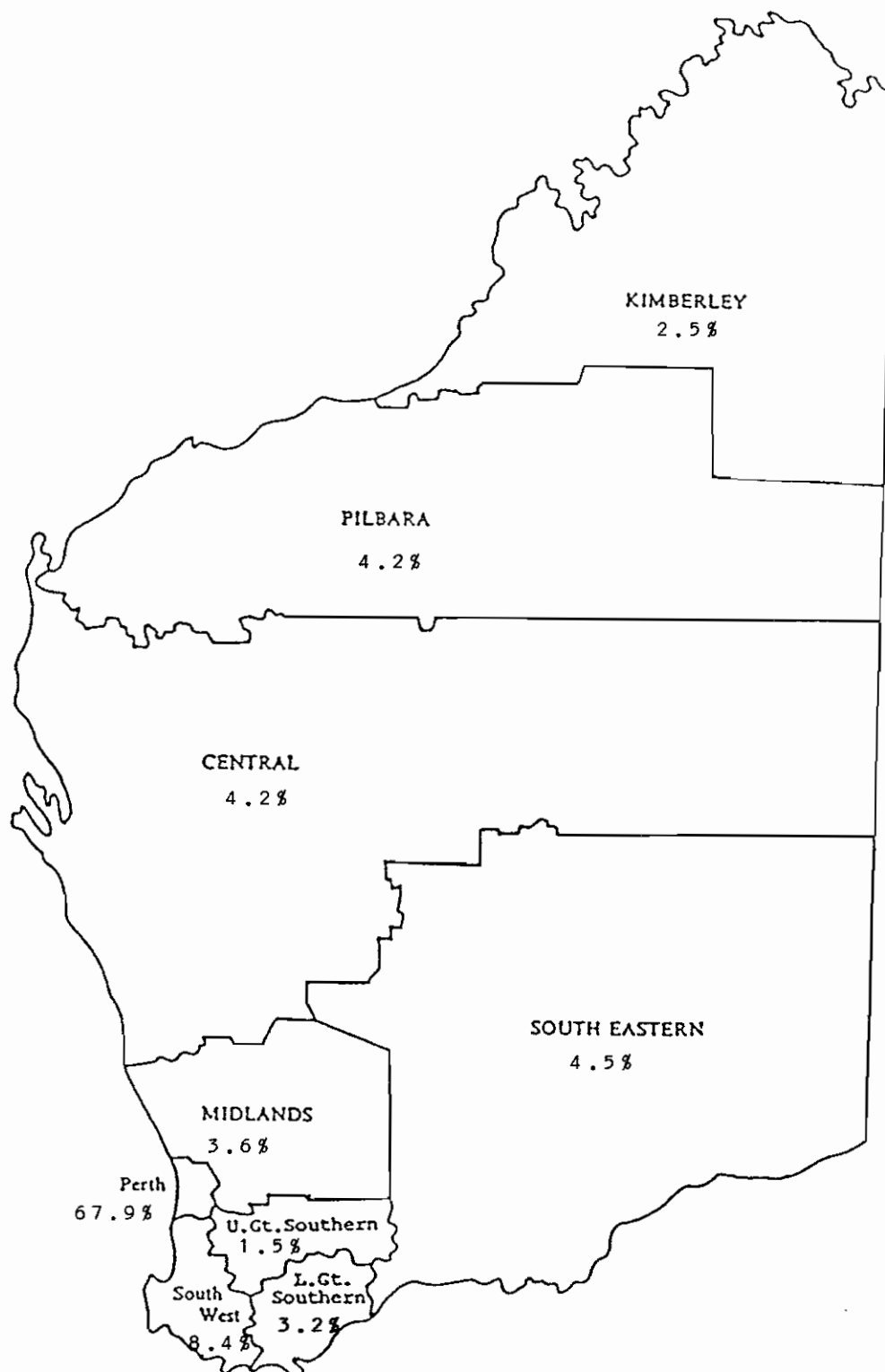
Information on Western Australian women confined during 1988 in other States and outside Australia is not included in this report. Confinements in 1988 of twenty seven women whose usual place of residence was given as outside Western Australia have been included.

TABLE 4: STATISTICAL DIVISION OF RESIDENCE AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1988.

Statistical Division of Residence	Plurality				Total	
	Singleton No.	%	Multiple No.	%	No.	%
Perth	16545	67.8	250	75.5	16795	67.9
South West	2049	8.4	26	7.9	2075	8.4
Lower Great South.	772	3.2	9	2.7	781	3.2
Upper Great South.	364	1.5	3	0.9	367	1.5
Midlands	873	3.6	15	4.5	888	3.6
South Eastern	1099	4.5	7	2.1	1106	4.5
Central	1041	4.3	9	2.7	1050	4.2
Pilbara	1028	4.2	5	1.5	1033	4.2
Kimberley	607	2.5	7	2.1	614	2.5
Outside W.A.	27	0.1	--	--	27	0.1
Total:	24405	100.0	331	100.0	24736	100.0

Excludes births less than 500 grams birthweight.

STATISTICAL DIVISION OF RESIDENCE OF WOMEN CONFINED
IN WESTERN AUSTRALIA, 1988



Excludes births less than 500 grams birthweight and those 27(0.1%) mothers resident outside Western Australia.
Source: Midwives' Notification System.

6.5 Place of Confinement

During 1988 there were 25078 total births in Western Australia. Of these, 99.0% occurred in metropolitan or country hospitals. Non-hospital births included 77 babies born before arrival at hospital (BBA) and 175 babies born at home as planned.

Almost 74% of total births were in metropolitan hospitals. These included 19.5% occurring in a metropolitan obstetric teaching hospital, 26.6% in metropolitan departmental (Government) hospitals and 27.7% in private metropolitan hospitals. The majority (91.1%) of the multiple births in 1988 occurred in metropolitan hospitals, with 45.0% being delivered in a teaching hospital, (Table 5, Figure III).

TABLE 5: PLACE OF CONFINEMENT AND PLURALITY OF BIRTHS IN WESTERN AUSTRALIA 1988.

Place of birth	Plurality				Total	
	Singleton No.	%	Multiple No.	%	No.	%
<u>Metropolitan</u>						
¹ Teaching	4582	18.8	303	45.0	4885	19.5
Department	6564	26.9	108	16.1	6672	26.6
Private	6753	27.7	202	30.0	6955	27.7
<u>Country</u>						
² Regional	2970	12.2	40	5.9	3010	12.0
³ Private	557	2.3	8	1.2	565	2.3
Other	2727	11.2	12	1.8	2739	10.9
<u>Non-Hospital</u>						
⁴ Homebirths	175	0.7	--	--	175	0.7
BBA	77	0.3	--	--	77	0.3
Total	24405	100.0	673	100.0	25078	100.0

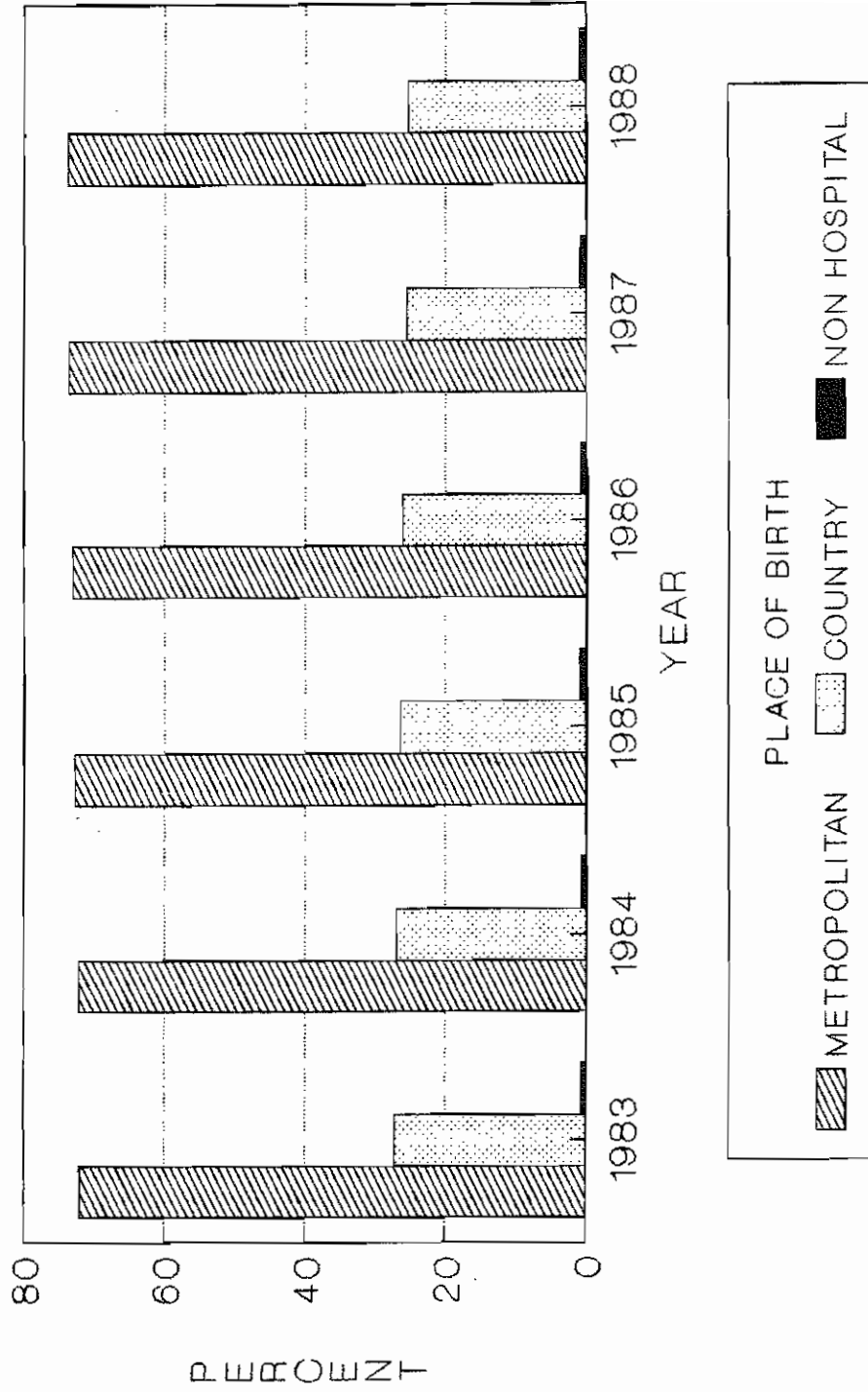
Excludes births less than 500 grams birthweight

- 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)

Homebirths increased by 21.5% from the previous twelve months and represented 0.7% of total births (Table 6, Figure IV).

FIGURE III

PLACE OF CONFINEMENT BIRTHS IN W.A. 1983-1988



Excludes births less than 500 grams birthweight.
Source: Midwives' Notification System.

TABLE 6: HOME BIRTHS IN WESTERN AUSTRALIA 1980-1987

Year	No. ¹	% of Total Births in W.A.
1980	61	0.3
1981	59	0.3
1982	94	0.4
1983	101	0.4
1984	96	0.4
1985	147	0.6
1986	174	0.7
1987	144	0.6
1988	175	0.7

¹ Excludes planned homebirths transferred either antepartum or intrapartum to hospital.

In 1988 there were 40 women who had planned a homebirth but because of complications were either referred or transferred during pregnancy (32.5%) or during labour, (67.5%) (Table 7). These women and their babies are included in hospital birth statistics (Table 7).

TABLE 7: REFERRAL/TRANSFER OF WOMEN WHO PLANNED A HOME BIRTH IN WESTERN AUSTRALIA IN 1988

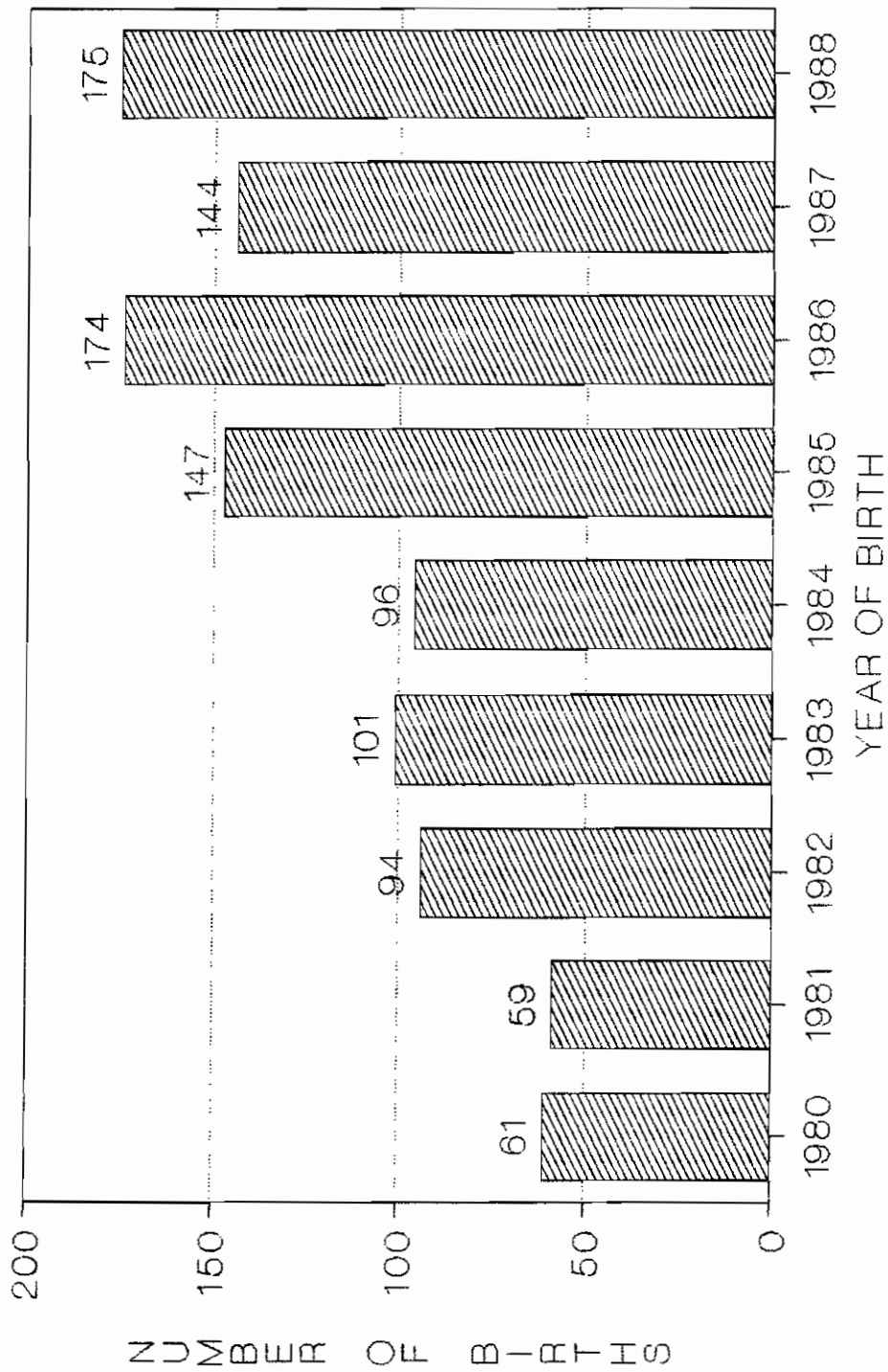
Time of Referral/Transfer	No.	%
Antepartum	13	32.5
Intrapartum	27	67.5
Total	40	100

Postpartum medical assistance was provided to two other women who required manual removal of retained placenta under general anaesthesia. The babies of seven other women were admitted to hospital following homebirth with suspected cardiac disorders and/or respiratory distress.

An epidemiological comparison of home and hospital births in Western Australia is currently being conducted.

FIGURE IV

HOMEBIRTHS IN WESTERN AUSTRALIA 1980-1988



Excludes births less than 500 grams birthweight.
Source: Midwives' Notification System.

6.6 Health Service Management Regions

Metropolitan

Of the 24,736 women confined in Western Australia in 1988, 73.8% were confined in hospitals within the metropolitan area.

Consideration of the maternal usual place of residence within Health Service Management 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 94.8% were confined at hospitals within the region. Of these 23.7% were confined at a metropolitan teaching hospital and 71.1% at other hospitals in the region.

In the North East Metropolitan Region, half (50.0%) of women were confined in the region, 26.1% in a metropolitan teaching hospital and a further 18.5% in the North Metropolitan Region.

For women residing in the South Metropolitan Region 72.2% were confined in hospitals within the region with a further 17.9% confined in a metropolitan teaching hospital.

Among women resident in the South East Metropolitan Region, 42.7% were confined within the region, 26.8% at a metropolitan teaching hospital and another 15.0% were confined at hospitals in the South Metropolitan Region (Table 8, Figure V).

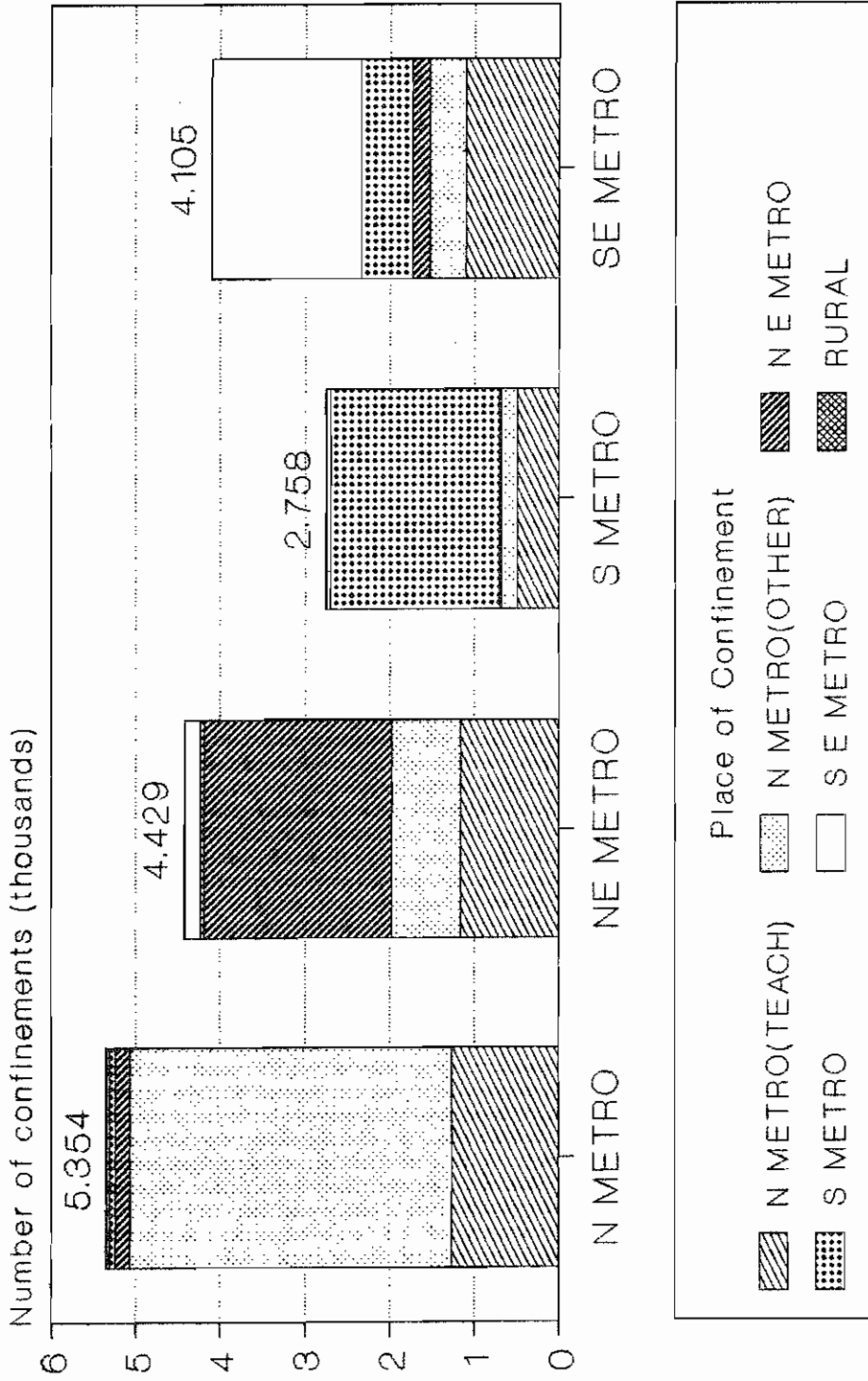
TABLE 8: MATERNAL RESIDENCE AND BIRTH HOSPITAL IN MANAGEMENT REGIONS FOR WOMEN CONFINED IN METROPOLITAN AREAS OF WESTERN AUSTRALIA - 1988

MATERNAL RESIDENCE MANAGEMENT REGIONS	BIRTH HOSPITALS IN MANAGEMENT REGIONS											TOTAL		
	NORTH METRO				NE METRO		SOUTH METRO		SE METRO		RURAL		No.	%
	Teaching		Other		No.	%	No.	%	No.	%	No.	%		
	No.	%	No.	%									No.	%
North Metro	1269	23.7	3807	71.1	172	3.2	70	1.3	31	0.6	5	0.1	5354	100.0
North East Metro	1155	26.1	818	18.5	2214	50.0	45	1.0	192	4.3	5	0.1	4429	100.0
South Metro	494	17.9	188	6.8	24	0.9	1992	72.2	51	1.8	9	0.3	2758	100.0
South East Metro	1099	26.8	428	10.4	203	4.9	615	15.0	1752	42.7	8	0.2	4105	100.0

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

FIGURE V

NUMBER OF HOSPITAL CONFINEMENTS AND MATERNAL RES METRO MANAGEMENT REGIONS



All women confined in hospital WA 1988

Excludes births less than 500 grams birthweight.
Source: Midwives' Notification System.

Rural

One quarter, (25.2%) of women confined in Western Australia during 1988 were confined in country hospitals.

With the exception of the Central and Geraldton/Mid West Health Service Management Regions more than 80% of women were confined at a hospital within the management region of their residence.

For the 2030 women residing in the South West Region, 85.1% were confined in the region and 14.4% in the metropolitan area.

In the Great Southern Region, 81.6% were confined locally and 17.4% were confined in the metropolitan area.

Among women resident in the Goldfields 82.1% were confined in the Region and 16.3% in the metropolitan area.

Approximately half (53.8%) of women resident in the Central Region were confined in a hospital in that region while 43.2% were confined in the metropolitan area and 3.0% in other regions.

Of women confined in the Geraldton/Mid West Region 73.3% were confined in the region and 25.9% in the metropolitan area.

For women resident in the Pilbara Region 87.2% were confined at hospitals within the region and 11.7% were in the metropolitan regions for confinement.

Among those women whose residence was in the Kimberley Region, 88.9% were confined in hospitals within the region and only 10.8% were confined in the metropolitan area. (Table 9, Figure VI)

The geographical location of Health Service Management Regions is reflected by the movement of women to the metropolitan area for confinement.

TABLE 9:

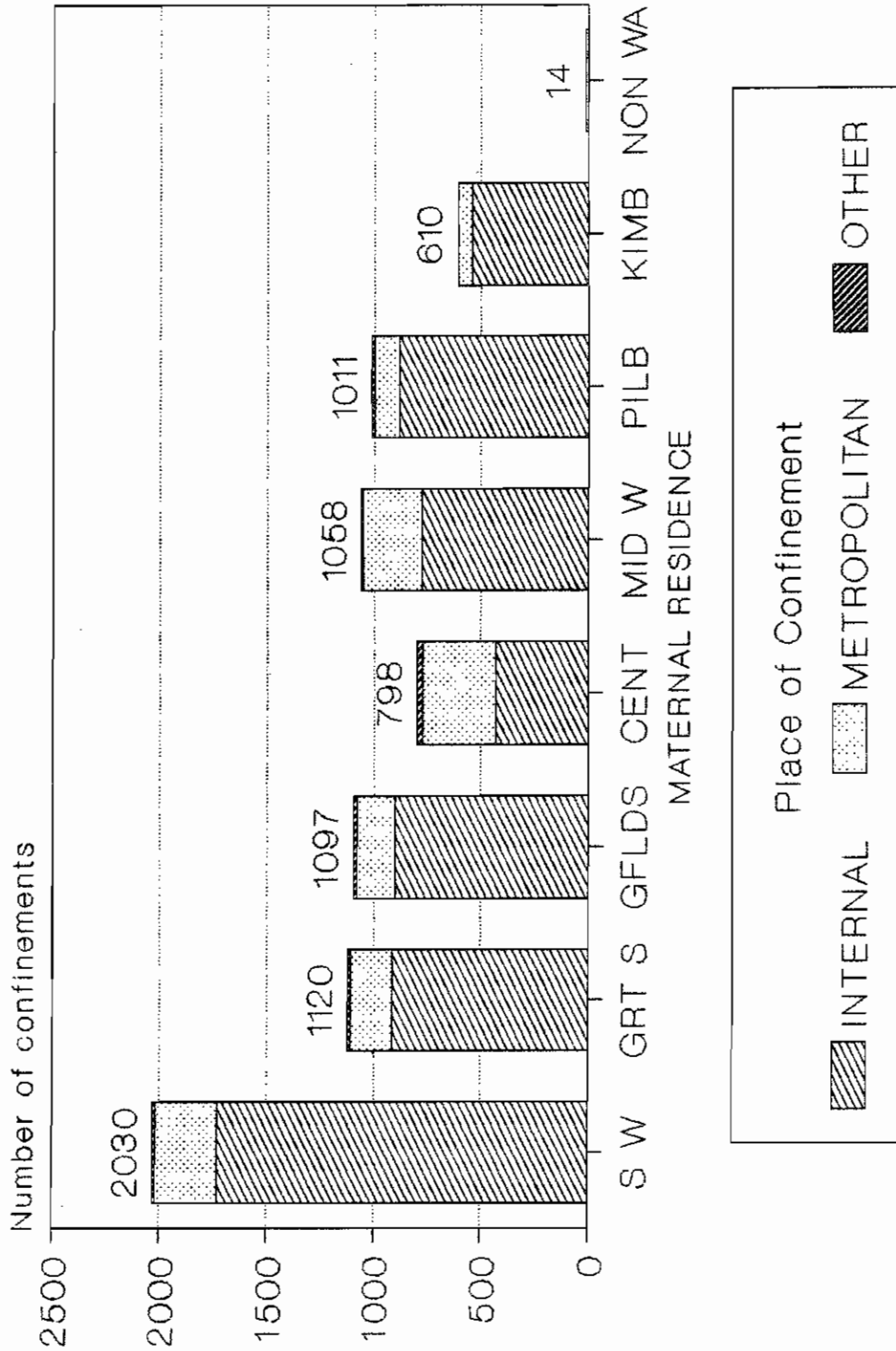
**MATERNAL RESIDENCE AND BIRTH HOSPITAL IN
MANAGEMENT REGIONS FOR WOMEN CONFINED IN
RURAL AREAS OF WESTERN AUSTRALIA - 1988**

MATERNAL RESIDENCE MANAGEMENT REGION	BIRTH HOSPITALS IN MANAGEMENT REGIONS						TOTAL	
	INTERNAL		METROPOLITAN		OTHER			
	No.	%	No.	%	No.	%	No.	%
South West	1727	85.1	292	14.4	11	0.5	2030	100.0
Grt Southern	914	81.6	195	17.4	11	1.0	1120	100.0
Goldfields	901	82.1	179	16.3	17	1.5	1097	100.0
Central	429	53.8	345	43.2	24	3.0	798	100.0
Mid West	775	73.3	274	25.9	9	0.9	1058	100.0
Pilbara	882	87.2	118	11.7	11	1.1	1011	100.0
Kimberley	542	88.9	66	10.8	2	0.2	610	100.0
Non W.A.	-		12	85.7	2	14.3	14	100.0

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

FIGURE VI

NUMBER OF HOSPITAL CONFINEMENTS AND MATERNAL RES IN RURAL MANAGEMENT REGIONS



All women confined in hospital in 1988

Excludes births less than 500 grams birthweight.

Source: Midwives' Notification System.

7. PREGNANCY PROFILE

7.1 Previous Pregnancies

More than a third of the total women confined were confined for the first time. The range of previous confinements extended to eleven with a mean parity of 1.04. Of those women with a multiple pregnancy 39.6% were identified as nulliparous. Only 10.0% had a parity of three or more. (Table 10)

Previous pregnancies ranged between 0-18 in number with a mean of 1.4.

TABLE 10: PARITY AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1987

Parity	Plurality				Total	
	Singleton		Multiple		No.	%
	No.	%	No.	%		
0	9408	38.6	131	39.6	9539	38.6
1 - 2	12563	51.5	167	50.5	12730	51.5
3 - 4	2119	8.7	28	8.5	2147	8.7
≥ 5	315	1.3	5	1.5	320	1.3
Total	24405	100.0	331	100.0	24736	100.0

Excludes births less than 500 grams birthweight.

Mean = 1.04

Standard Deviation = 1.14

Of the 9539 nulliparous women, 1281 (13.4%) were identified as teenagers (19 years or less), 82.5% were aged 20 to 34 years. Amongst the 231 women aged forty or more, 39 were having their first baby. There were two teenagers who had a parity of three or more (Table 11).

Teenage mothers were 78.7% nulliparous and 21.3% had a parity of 1-4. Women aged 40 years or more were 16.9% nulliparous, 41.1% with parity of 1-2, 29.4% with parity 3-4 and 12.6% with parity of 5 or more.

TABLE 11: PARITY AND AGE OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1988

Maternal Age	Parity								Total	
	0		1 - 2		3 - 4		5			
	No.	%	No.	%	No.	%	No.	%	No.	%
≤ 14	23	0.2	1	-	-	-	-	-	24	0.1
15 - 19	1258	13.2	344	2.7	2	0.1	-	-	1604	6.5
20 - 24	2888	30.3	2425	19.1	209	9.7	6	1.9	5528	22.4
25 - 29	3536	37.1	5240	41.2	657	30.6	64	20.0	9497	38.4
30 - 34	1444	15.1	3603	28.3	824	38.4	137	42.8	6008	24.3
35 - 39	351	3.7	1022	8.0	387	18.0	84	26.3	1844	7.5
40 - 44	39	0.4	92	0.7	68	3.2	28	8.8	227	0.9
≥ 45	-	-	3	-	-	-	1	0.3	4	-
Total	9539	100.0	12730	100.0	2147	100.0	320	100.0	24736	100.0

Excludes births less than 500 grams birthweight.

When maternal age was examined for primiparous women confined during 1983-1988, an obvious change in age of women having their first pregnancies was discernible. Among teenage primiparous women the percentage of confinements decreased from 17.3% in 1980 to 13.5% in 1988. For primiparous women aged 30 years or more there was a marked increase from 10.3% in 1980 to 19.2% in 1988. (Table 12, Figure VII)

Aboriginal women had a much higher parity than non-Aboriginal women (Table 13). Almost 40% of caucasian women and those of "other" races were experiencing their first confinement compared with only 30% of Aboriginal women.

TABLE 13: PARITY AND RACE OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1988

Parity	Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
0	8529	39.2	427	29.9	583	38.2	9539	38.6
1-2	11327	52.0	622	43.6	781	51.1	12730	51.5
3-4	1745	8.0	266	18.6	136	8.9	2147	8.7
≥ 5	180	0.8	112	7.9	28	1.8	320	1.3
Total	21781	100.0	1427	100.0	1528	100.0	24736	100.0

Excludes births less than 500 grams birthweight.

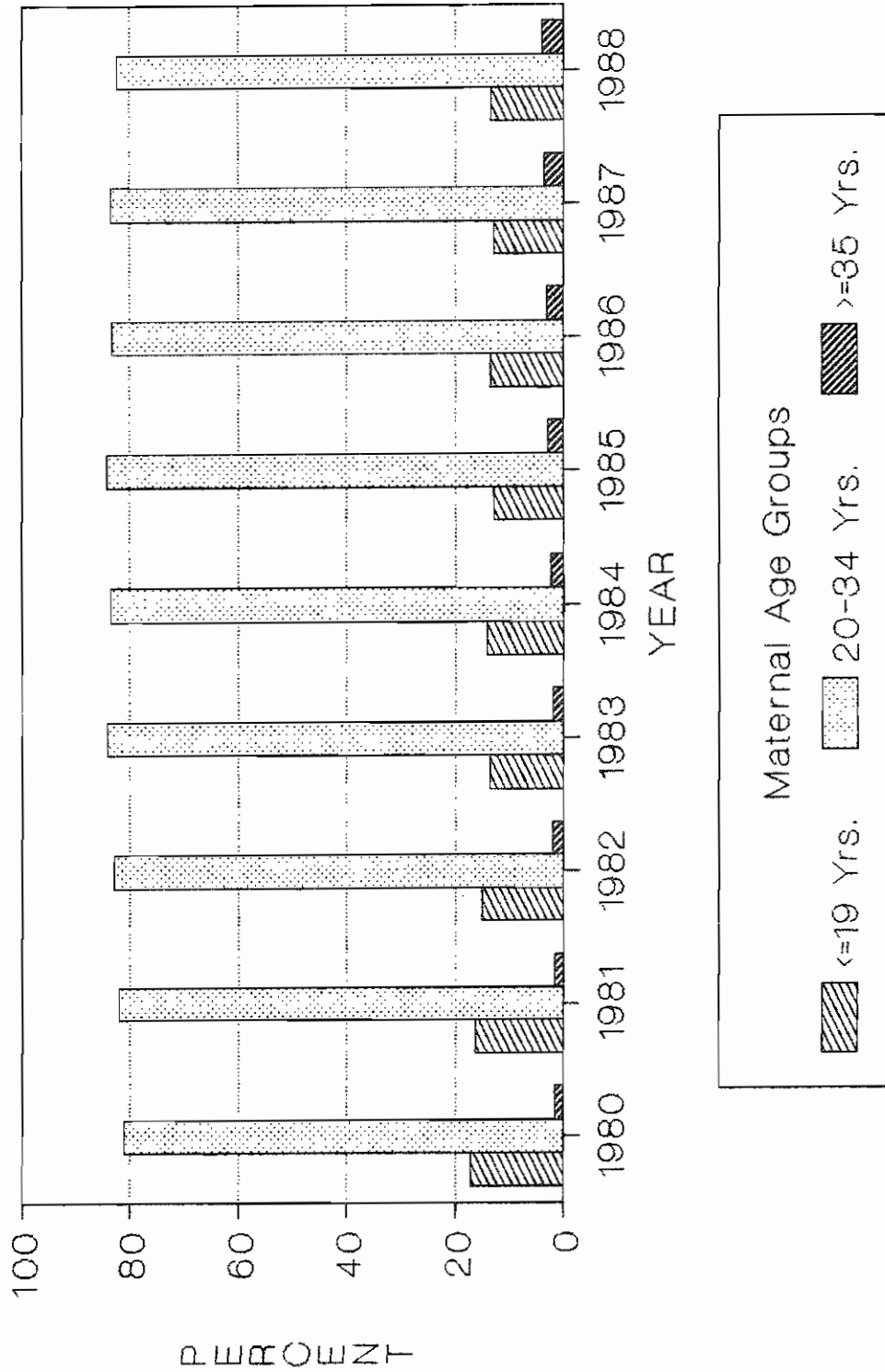
TABLE 12: AGE OF PRIMIPAROUS WOMEN AT CONFINEMENT IN WESTERN AUSTRALIA 1980-1988

Maternal Age	1980		1981		1982		1983		1984		1985		1986		1987		1988	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
< 15	17	0.2	24	0.3	20	0.2	22	0.2	14	0.1	24	0.3	21	0.2	19	0.2	23	0.2
15	49	0.7	50	0.6	47	0.5	51	0.6	42	0.5	48	0.6	57	0.6	58	0.6	47	0.5
16	148	2.0	161	1.9	140	1.6	136	1.5	151	1.7	142	1.6	151	1.7	125	1.4	149	1.6
17	248	3.4	292	3.4	275	3.2	271	3.0	272	3.1	233	2.7	260	2.8	225	2.4	274	2.9
18	356	4.9	381	4.5	361	4.1	308	3.4	338	3.9	289	3.3	320	3.5	343	3.7	341	3.6
19	444	6.1	492	5.8	468	5.4	435	4.9	422	4.8	398	4.5	419	4.6	420	4.5	447	4.7
20-24	3035	41.4	3551	41.6	3470	39.7	3547	39.6	3323	37.9	3155	36.0	3081	33.6	3002	32.4	2888	30.3
25-29	2286	31.2	2684	31.4	2906	33.2	3081	34.4	3059	34.7	3124	35.6	3395	37.0	3444	37.2	3536	37.1
30-34	634	8.6	773	9.1	876	10.0	925	10.3	958	10.9	1104	12.6	1169	12.8	1286	13.9	1444	15.1
35-39	101	1.4	123	1.4	167	1.9	167	1.9	191	2.2	235	2.7	276	3.0	303	3.3	351	3.7
40-44	18	0.3	11	0.1	13	0.2	17	0.2	16	0.2	20	0.2	17	0.2	35	0.4	39	0.4
≥ 45	3	--	--	--	--	--	2	--	3	--	--	--	1	--	--	--	--	--
TOTAL:	7339	100.0	8542	100.0	8743	100.0	8962	100.0	8779	100.0	8772	100.0	9167	100.0	9260	100.0	9539	100.0

Excludes births less than 500 grams birthweight.

FIGURE VII

MATERNAL AGE OF PRIMIPAROUS WOMEN CONFINED IN WESTERN AUSTRALIA 1980-1988



Excludes births less than 500 grams birthweight.
Source: Midwives' Notification System.

7.2 Fertility Rates

Age-specific fertility rates in the Aboriginal and non-Aboriginal sub-populations and the total population are shown in Table 14. The population estimates used were projections from the 1986 census data. Difficulties in estimation of Aboriginal populations are recognised where underenumeration may occur. Therefore the reader may wish to³ adjust the denominators in accord with the directive of Hicks.

Overall, the fertility rate amongst Aboriginal women is more than double that of non-Aboriginal women. Among the 15 to 19 year age group, Aboriginal fertility is more than nine times greater, while for the 20 to 34 year group it is one and one half times greater. The rates of both groups in the 35 to 44 year age group are more equitable. (Table 14, Figure VIII)

TABLE 14: FERTILITY RATES¹ OF ABORIGINAL, NON-ABORIGINAL AND TOTAL WOMEN CONFINED IN WESTERN AUSTRALIA, 1988

Maternal Age	Aboriginal			Non-Aboriginal			Total		
	Births	Popu- lation	Fertility Rate ¹	Births	Popu- lation	Fertility Rate ¹	Births	Popu- lation	Fertility Rate ¹
15 - 19	449	2500	179.6	1155	62091	18.6	1604	64591	24.8
20 - 24	514	2059	249.6	5014	60160	83.3	5528	62219	88.9
25 - 29	268	1697	157.9	9229	65115	141.7	9497	66812	142.2
30 - 34	140	1313	106.6	5868	63365	92.6	6008	64678	92.9
35 - 39	37	1007	36.7	1807	60755	29.7	1844	61762	29.9
40 - 44	1	914	1.1	226	51891	4.4	227	52805	4.3
Total	1409	9490	148.5	23299	363377	64.1	24708	372867	66.3

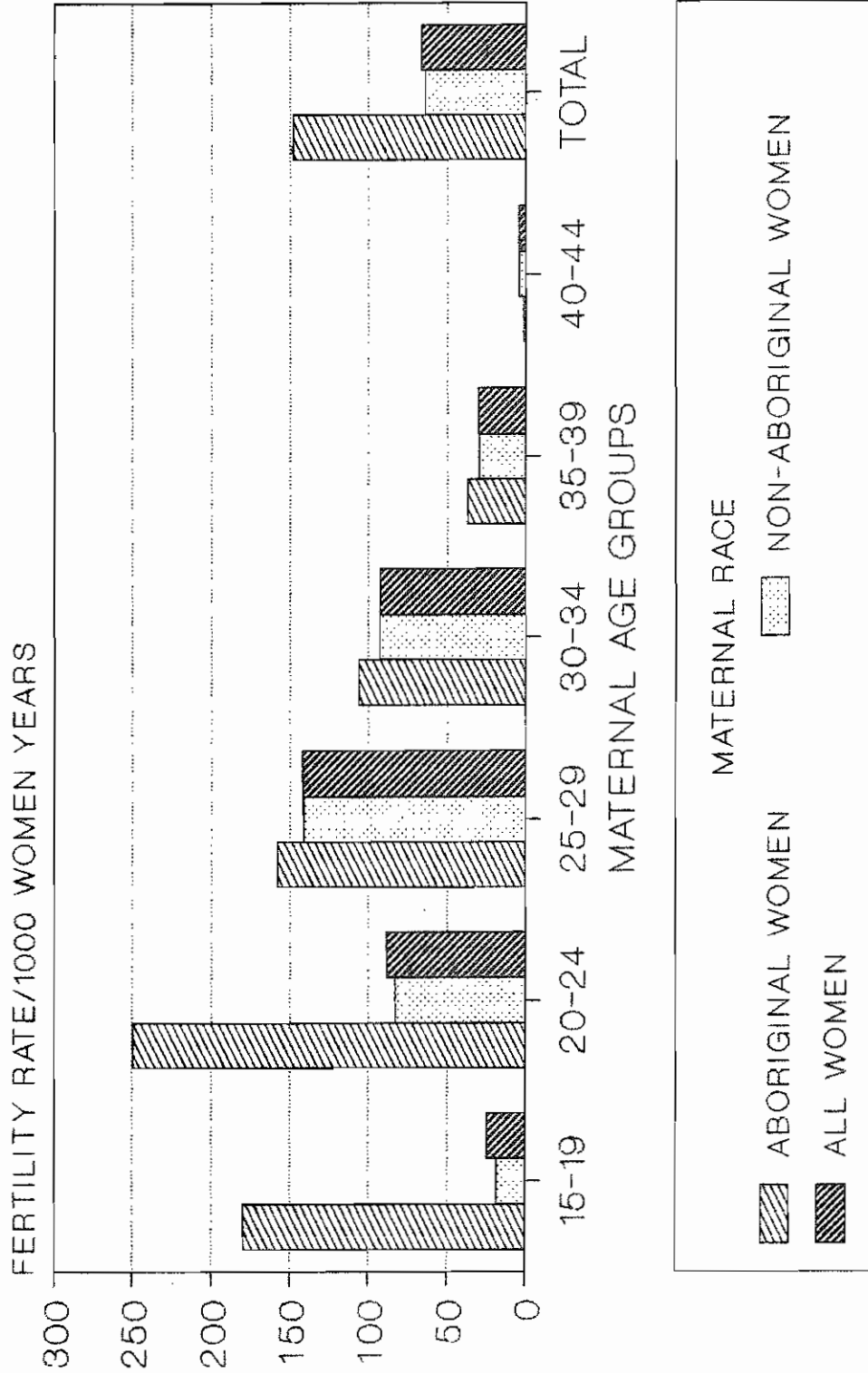
Excludes births less than 500 grams birthweight

¹ Fertility Rate: Total births/1000 women-years

SOURCE: AUSTRALIAN BUREAU OF STATISTICS - Cat. No. 3203.5. and 1986 Census of Population and Housing. COMMUNITY AND CHILD HEALTH SERVICES.

FIGURE VIII

**FERTILITY RATES OF ABORIGINAL AND
NON-ABORIGINAL WOMEN IN W.A. 1988.**



Excludes births less than 500 grams birthweight.

Fertility Rate: Total Births/1000 Women Years

Source: Midwives' Notification System, Australian Bureau of Statistics.

7.3 Complications of Pregnancy

More than two thirds of all women confined during 1988 were recorded as having no complications of pregnancy.

Pre-eclampsia was reported in 1772 (7.2%) of women. Of the 53 (16.0%) women with multiple pregnancy, the reported incidence of complication was almost double that of singleton pregnancies (7.0%). Also there were 880 (3.6%) women recorded as having unspecified hypertension, 266 (1.1%) with anaemia of pregnancy, 496 (2.0%) women had an unspecified genito-urinary tract infection, 315 (1.3%) had retarded fetal growth and 190 (0.8%) showed symptoms of gestational diabetes (Table 15).

TABLE 15: SELECTED COMPLICATIONS OF PREGNANCY AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1988

	Plurality				Total	
	Singleton		Multiple		No.	%
	No.	% ¹	No.	% ²		
No Complications	16459	67.4	84	25.4	16543	66.9
<u>Complication</u>						
Threatened Abortion	830	3.4	16	4.8	846	3.4
Urinary Tract Infection	769	3.2	8	2.4	777	3.1
Pre-eclampsia	1719	7.0	53	16.0	1772	7.2
A.P.H. - placenta praevia	174	0.7	2	0.6	176	0.7
- abruptio	172	0.7	6	1.8	178	0.7
- other	591	2.4	10	3.0	601	2.4
Premature Rupture of Membranes	833	3.4	35	10.6	868	3.5
Other	2864	11.7	117	35.4	2981	12.1

Excludes births less than 500 grams birthweight

¹ Percentage of women with a singleton pregnancy

² Percentage of women with a multiple pregnancy

Although it was thought that complications of pregnancy may be under reported by midwives, the validation study undertaken in 1987 showed that they were well reported, except for premature rupture of the membranes (less than 95% accurate). This was due to confusion between definitions of premature and preterm rupture of membranes.⁴

7.4 Medical Conditions

Amongst the women confined during 1988, there were 3850 reported instances of pre-existing medical complications. Of these 903 (3.7%) of women confined were reported as asthmatic, 119 (0.5%) as epileptic, 53 (0.2%) as having pre-existing diabetes and 73 (0.3%) with thyroid disorders.

8. LABOUR AND DELIVERY

8.1 Onset of Labour

Almost two thirds (63.8%) of total women confined during 1988 established labour spontaneously. Among women with multiple pregnancy 39.3% had a spontaneous onset of labour.

Induction of labour occurred for 25.9% of total women confined. Ninety seven (29.3%) women with multiple pregnancy underwent induction of labour. Of those women who did not establish labour, 10.0% were singleton and 31.4% were multiple pregnancies (Table 16).

TABLE 16: ONSET OF LABOUR AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1988

Onset of Labour	Plurality				Total	
	Singleton		Multiple		No.	%
	No.	%	No.	%		
Spontaneous	15654	64.1	130	39.3	15784	63.8
Induced	6307	25.8	97	29.3	6404	25.9
No labour	2444	10.0	104	31.4	2548	10.3
Total	24405	100.0	331	100.0	24736	100.0

Excludes births less than 500 grams birthweight.

There were 71 (0.3%) women identified as having had a failed induction of labour during 1988.

From 1981 to 1988 the number of women in Western Australia having an induction of labour has remained between 25-27% of total confinements.

8.2 Presentation (singleton births only)

The presentation for the 24,405 singleton births was identified as 23,354 (95.7%) vertex, 901 (3.7%) breech, and 150 (0.6%) "other" presentations (Table 17).

Cephalic presentations were delivered vaginally in 85.9% of cases during 1988.

Almost three quarters (72.8%) of total births presenting by the breech were delivered by caesarean section (46.1% elective and 26.8% emergency caesarean section) (Table 17).

TABLE 17: PRESENTATION AND TYPE OF DELIVERY FOR SINGLETON BIRTHS IN WESTERN AUSTRALIA, 1988

Type of Delivery	Presentation						Total	
	Cephalic		Breech		Other		No.	%
	No.	%	No.	%	No.	%		
Normal	15958	68.3	19	2.1	35	23.3	16012	65.6
Vacuum	1781	7.6	-	-	5	3.3	1786	7.3
Forceps	2325	10.0	9	1.0	7	4.7	2341	9.6
Breech Manoeuvre	-		217	24.1	-		217	0.9
Elective Caesarean	1666	7.1	415	46.1	33	22.0	2114	8.7
Emergency Caesarean	1624	7.0	241	26.8	70	46.7	1935	7.9
Total	23354	100.0	901	100.0	150	100.0	24405	100.0

Excludes births less than 500 grams birthweight.

8.3 Type of Delivery

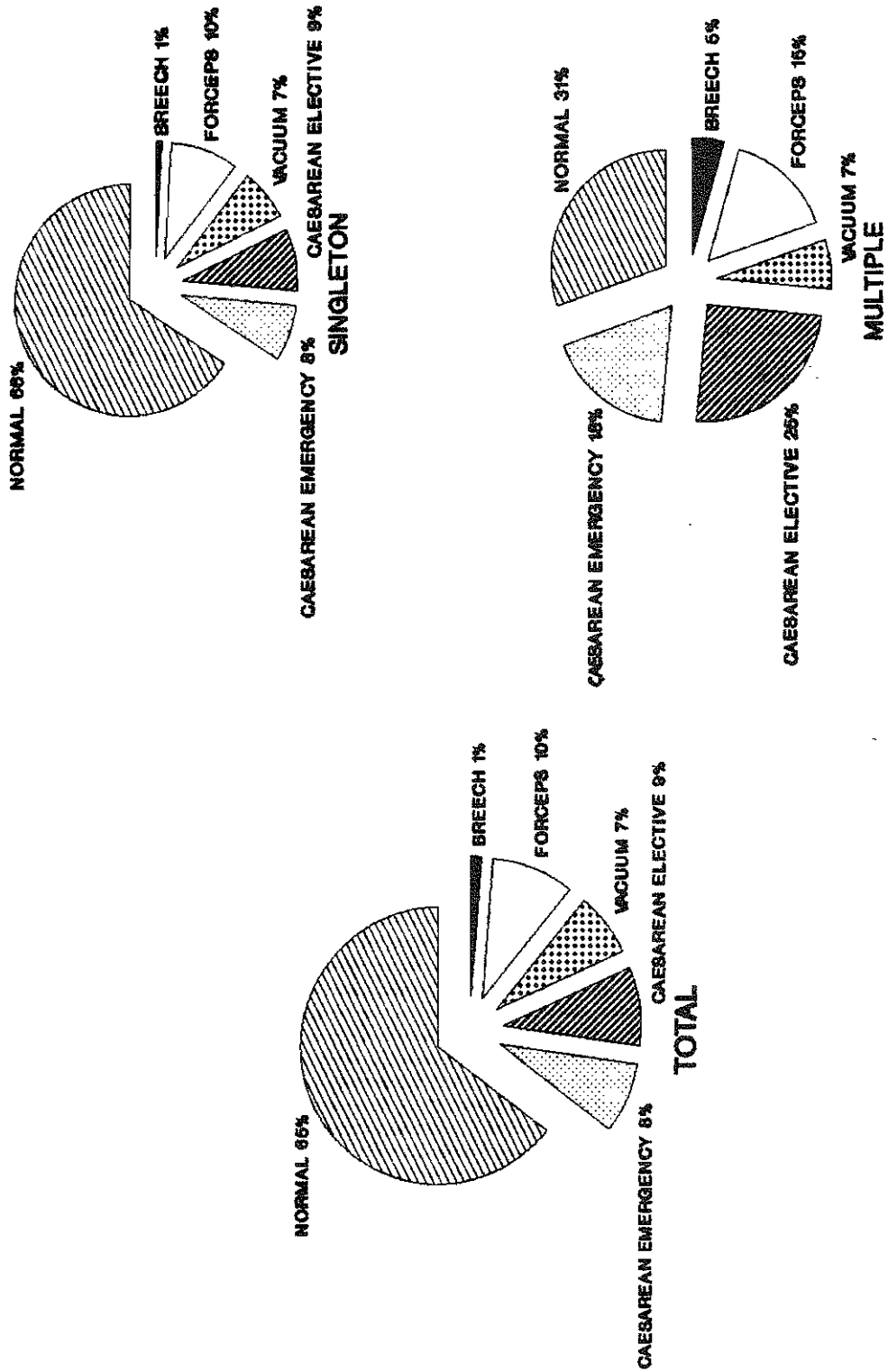
Less than two thirds (65.6%) of the total women confined in 1988 had a spontaneous vaginal delivery. Vaginal instrumental deliveries occurred in approximately one in five of total confinements with 7.3% of women having a vacuum extraction and 9.6% a forcep delivery.

Vaginal instrumental deliveries have reduced by 1.7% from 18.6% to 16.9% over the past twelve months.

Among women with a multiple pregnancy, 142 (42.9%) were delivered by caesarean section. Spontaneous vaginal deliveries occurred for 101 (30.5%) multiple pregnancies (Table 18, Figure IX).

Of the women who were delivered by caesarean section during 1988, 34.8% had had a previous caesarean section delivery.

FIGURE IX
TYPE OF DELIVERY AND PLURALITY OF WOMEN
CONFINED IN WESTERN AUSTRALIA, 1988.



Excludes births less than 500 grams birthweight.
 Source: Midwives' Notification System.

TABLE 18: TYPE OF DELIVERY AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1988

Type of Delivery	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
Normal	16012	65.6	101	30.5	16113	65.1
Vacuum	1786	7.3	23	7.0	1809	7.3
Forceps	2341	9.6	50	15.1	2391	9.7
Breech Manoeuvre	217	0.9	15	4.5	232	0.9
Elective Caesarean	2114	8.7	82	24.8	2196	8.9
Emergency Caesarean	1935	7.9	60	18.1	1995	8.1
Total	24405	100.0	331	100.0	24736	100.0

Excludes births less than 500 grams birthweight.

The incidence of caesarean section in Western Australia has gradually increased over the past decade. In 1988, 16.9% of women were delivered by this method. (Table 19, Figure X). This increase reflects both national and international trends. Data from South Australia in 1987 reported caesarean section proportions of 19.9%⁷, Victoria in 1987, 16.4%⁸, NSW in 1987 15.9%⁹, and Tasmania 12.9% in 1988¹⁰.

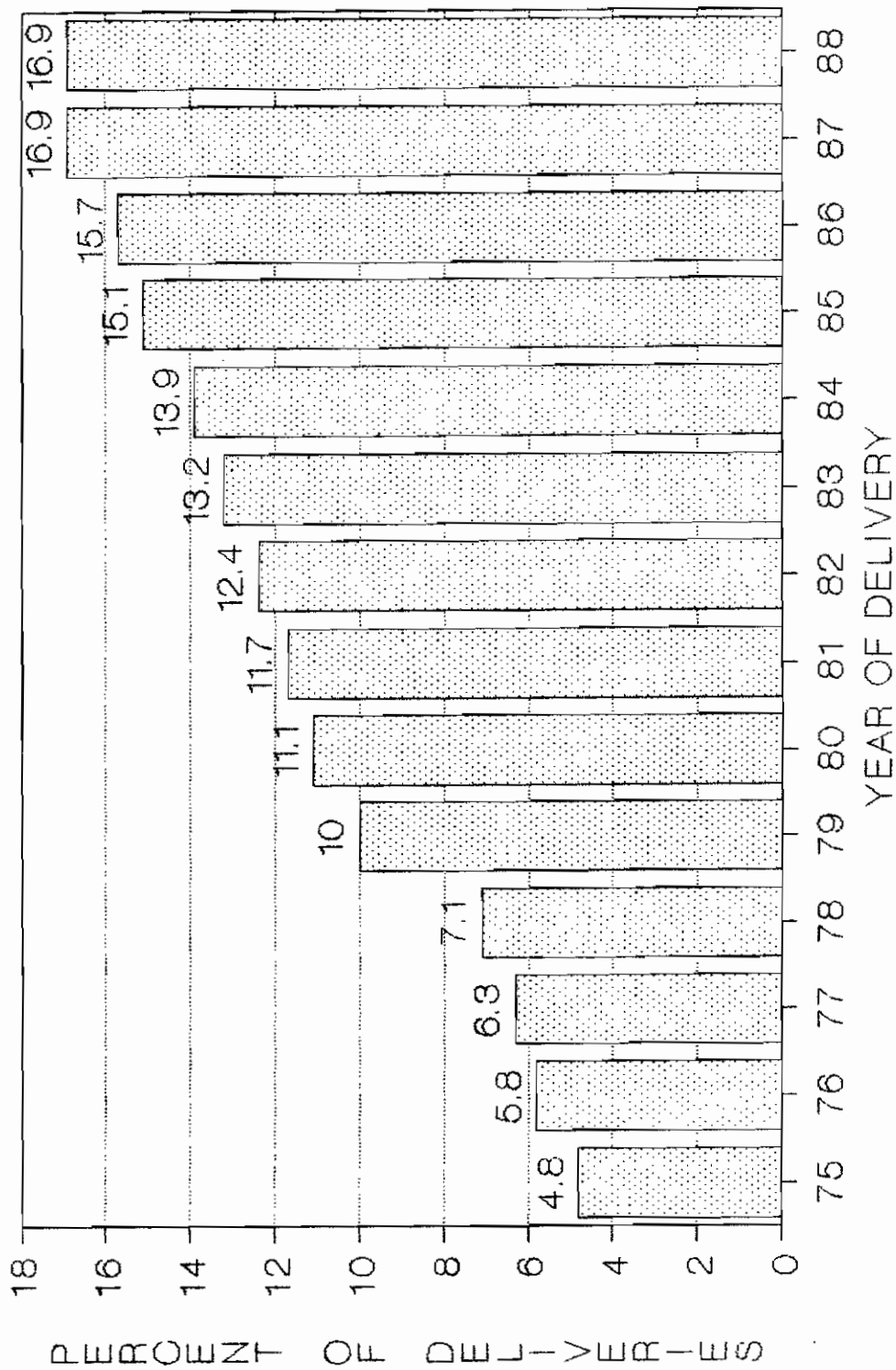
TABLE 19: CAESAREAN SECTION IN WOMEN CONFINED IN WESTERN AUSTRALIA, 1975-1987

Year of Delivery	% of all Women
1975	4.8
1976	5.8
1977	6.3
1978	7.1
1979	10.0
1980	11.1
1981	11.7
1982	12.4
1983	13.2
1984	13.9
1985	15.1
1986	15.7
1987	16.9
1988	16.9

Excludes births less than 500 grams birthweight.

FIGURE X

CAESAREAN SECTIONS IN WESTERN AUSTRALIA 1975-1988



Excludes births less than 500 grams birthweight.
Source: Midwives' Notification System.

Of those women confined by caesarean section in Western Australia during 1988, the highest proportion were at metropolitan obstetric teaching and private hospitals. Overall, elective caesarean sections comprised 9.0% and emergency caesarean section 8.2% of women confined in hospital. (Table 20)

TABLE 20: PLACE OF CONFINEMENT AND CAESAREAN SECTION FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1988

Place of Birth	Caesarean Section						Total		
	Elective			Emergency					
	No.	women confined	%	No.	women confined	%	No.	women confined	%
Metropolitan									
Teaching	478	4729	10.1	572	4729	12.1	1050	4729	22.2
Departmental	487	6618	7.4	457	6618	6.9	944	6618	14.3
Private	804	6853	11.7	547	6853	8.0	1351	6853	19.7
Country									
Regional	249	2990	8.3	269	2990	9.0	518	2990	17.3
Private	70	561	12.5	45	561	8.0	115	561	20.3
Other	108	2733	4.0	105	2733	3.8	213	2733	7.8
Total	2196	24484	9.0	1995	24484	8.2	4191	24484	17.1

Excludes births less than 500 grams birthweight.
Excludes 175 homebirths and 77 BBA's.

Caesarean section confinements increased proportionally with maternal age. This trend was found in nearly all categories of hospitals (Table 21).

8.4 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 the women who had an induction of labour experienced between one to four hours of labour whereas slightly more than half the women with a spontaneous onset had between five to 12 hours of labour. There were 55 women or 0.2% of the total whose labour was recorded as more than 24 hours duration (Table 22).

TABLE 21: CAESAREAN SECTION CONFINEMENTS, MATERNAL AGE AND PLACE OF CONFINEMENT IN WESTERN AUSTRALIA, 1988

Maternal Age	Metropolitan				Country				Total					
	Teaching		Private		Regional		Private				Other			
	No.	Women %	No.	Women %	No.	Women %	No.	Women %	No.	Women %	No.	Women %		
≤ 19	47	437 10.8	60	497 12.1	9	36 25.0	67	403 16.6	3	7 42.9	16	234 6.8	202	1614 12.5
20 - 34	802	3671 21.9	797	5718 13.9	1141	6102 18.7	419	2445 17.1	106	522 20.3	186	2368 7.9	3451	20826 16.6
≥ 35	201	621 32.4	87	403 21.6	201	715 28.1	32	142 22.5	6	32 18.8	11	131 8.4	538	2044 26.3
	1050	4729 22.2	944	6618 14.3	1351	6853 19.7	518	2990 17.3	115	561 20.5	213	2733 7.8	4191	24484 17.1

Excludes births less than 500 grams birthweight.
Excludes 175 homebirths and 77 BAA's.

TABLE 22: HOURS OF ESTABLISHED LABOUR AND ONSET OF LABOUR OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1988

Hours of Labour	Onset of Labour			
	Spontaneous		Induction	
	No.	%	No.	%
<1	70	0.4	78	1.2
1-4	6086	38.6	3084	48.2
5-12	8382	53.1	2992	46.7
13-18	996	6.3	207	3.2
19-24	192	1.2	37	0.6
>24	49	0.3	6	0.1
unknown	12	0.1	--	--
Total	15787	100.0	6404	100.0

Excludes births less than 500 grams birthweight and 2545 (10.3%) women who did not experience labour.

Examination of type of delivery and hours of established labour showed that half (51.8%) of women confined had a labour lasting between 5 and 24 hours and of these 67.0% resulted in spontaneous delivery. Ten percent of women did not establish in labour being confined by either elective or emergency caesarean section. There were relatively few (1.1%) women whose labour was recorded as greater than 18 hours (Table 23).

8.5 Complications of Labour and Delivery

There were no complications of labour or delivery recorded for almost half (48.8%) of the women confined in 1988. However, only 31.7% of these women reported to have no complications had multiple pregnancies.

Of those women identified with a complication, fetal distress was recorded for 11.5% of singleton pregnancies and 7.9% of multiple pregnancies. Cephalopelvic disproportion was identified for 5.4% of all women confined (Table 24).

Other complications included; 264 (1.1%) women with hypertension; 111 (0.4%) women with severe pre-eclampsia and seven women were recorded as having had an eclamptic fit.

Prolonged first stage of labour was identified in 42 (0.2%) prolonged second stage in 329 (1.3%) women and unspecified prolonged labour occurred in 30 (0.1%) women. Perineal tears were identified as first degree in 189 (0.8%) cases, second degree in 170 (0.7%) cases and 74 (0.3%) women had a third degree tear.

Primary postpartum haemorrhage was recorded for 582 (2.4%) women and retained placenta in 286 (1.2%) women.

TABLE 23: TYPE OF DELIVERY AND HOURS OF ESTABLISHED LABOUR FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1988

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 %	No %			
Normal	---	---	7848 85.6	7625 67.0	518 43.1	90 39.3	20 36.4	16101 65.1				
Vacuum	---	---	367 4.0	1203 10.6	202 16.8	27 11.8	10 18.2	1809 7.2				
Forceps	---	---	486 5.3	1580 13.9	269 22.4	52 22.7	4 7.3	2391 9.7				
Breech Manoeuvre	---	---	95 1.0	122 1.1	13 1.1	2 0.9	---	232 0.9				
Elective Caesarean	2196 86.3	---	---	---	---	---	---	2196 8.9				
Emergency Caesarean	349 13.7	148 100.0	374 4.1	844 7.4	201 16.7	58 25.3	21 38.2	1995 8.1				
TOTAL:	2545 100.0	148 100.0	9170 100.0	11374 100.0	1203 100.0	229 100.0	55 100.0	24724 100.0				

Excludes births less than 500 grams birthweight

Excludes 12 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 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 Guidelines, and ongoing education and feedback to midwives.

TABLE 24: SELECTED COMPLICATIONS OF LABOUR AND DELIVERY AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1988

	Plurality				Total	
	Singleton		Multiple		No.	%
	No.	% ¹	No.	% ²		
<u>No Complication</u>	11976	49.1	105	31.7	12081	48.8
Precipitate Delivery	1481	6.1	7	2.1	1488	6.0
Fetal Distress	2828	11.5	26	7.9	2854	11.5
Prolapsed Cord	94	0.4	2	0.6	96	0.4
Cord Tightly Around Neck	1740	7.1	4	1.2	1744	7.1
Cephalopelvic Disproportion	1330	5.5	6	1.8	1336	5.4
Other	8394	34.4	203	61.3	8597	34.8

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

9. BABY CHARACTERISTICS

9.1 Births

Notification of Case Attended Form 2 (Appendix A) were received for 25,078 births of 500 grams birthweight or more in 1988.

Singleton births numbered 24,405 (97.3%) and multiple births 673 (2.7%). There were 625 multiple births, comprised of 310 sets of twins and 5 additional twins whose sibling birthweight was less than 500 grams, plus 16 sets of triplets (Tree Diagram 1).

Since 1980, the proportion of triplet births has increased from 0.1/1000 to 1.9/1000 total births. The proportion of twin births has also risen from 19.2/1000 to 24.9/1000 total births.¹¹ (Table 25).

TABLE 25: PLURALITY OF BIRTHS IN WESTERN AUSTRALIA, 1980 - 1988

Year of Birth	Plurality				Total
	Singleton	Twin	Triplet	Quadruplet	
1980	20380	399	2 ¹	-	20781
1981	21714	464	9	-	22187
1982	21869	458	12	-	22339
1983	22546	464 ²	15	-	23025
1984	22412	487 ³	18	-	22917
1985	22749	515 ⁴	24	-	23288
1986	23290	522	23 ¹	4	23839
1987	23538	576 ⁵	24	-	24138
1988	24405	625 ⁶	48	-	25078

Excludes births less than 500 grams birthweight

¹ Excludes one triplet less than 500 grams birthweight

² Includes four single twins whose birthweight was 500 grams or more

³ Includes three single twins whose birthweight was 500 grams or more

⁴ Includes one single twin whose birthweight was 500 grams or more

⁵ Includes two single twins whose birthweight was 500 grams or more

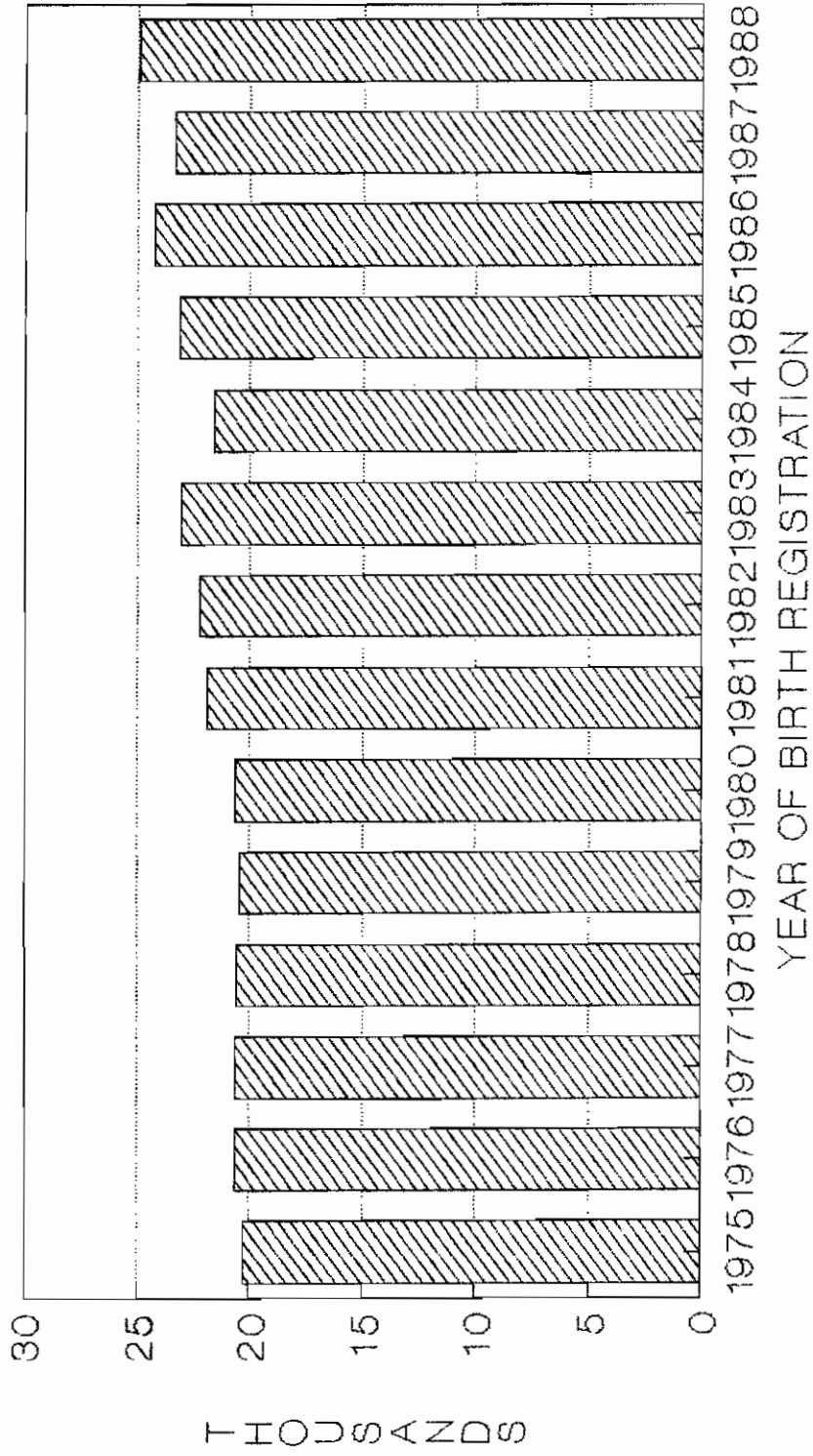
⁶ Includes five single twins whose birthweight was 500 grams or more

9.2 Livebirths

The Australian Bureau of Statistics record increasing numbers of livebirths in Western Australia over the past twelve years (Table 26, Figure XI).

FIGURE XI

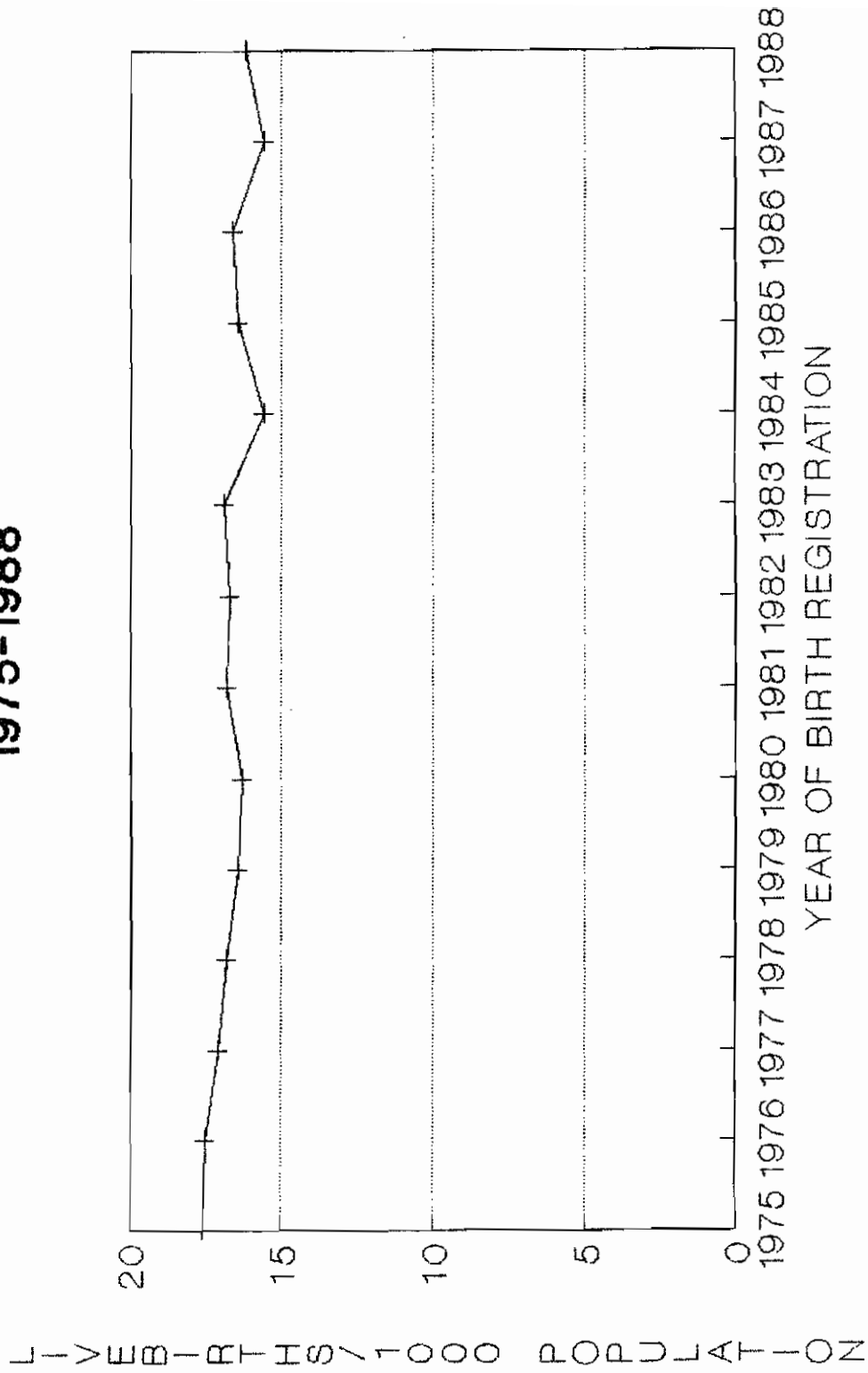
LIVEBIRTHS IN WESTERN AUSTRALIA 1975-1988.



1975-1988 Numbers based on State of residence.
Source: Australian Bureau of Statistics.

FIGURE XII

CRUDE BIRTH RATE IN WESTERN AUSTRALIA 1975-1988



¹ Crude Birth Rate: Livebirths per 1000 total population.
Source: Australian Bureau of Statistics.

9.3 Crude Birth Rate

The crude birth rate was 16.2/1000 population in 1988. This is based on birth registrations from the Australian Bureau of Statistics and Registrar Generals' Office. (Table 26, Figure XII).

TABLE 26: LIVEBIRTHS AND CRUDE BIRTH RATES IN WESTERN AUSTRALIA, 1975 - 1988

	Livebirths	Population ¹	Birth Rate ² / 1000
1975	20338	1155499	17.6
1976	20670	1178928	17.5
1977	20651	1204454	17.1
1978	20611	1227903	16.8
1979	20469	1246800	16.4
1980	20652	1269270	16.3
1981	21900	1301238	16.8
1982	22261	1336588	16.7
1983	23087	1363890	16.9
1984	21625	1384224	15.6
1985	23109	1407817	16.4
1986	24236	1457992	16.6
1987	23332	1500507	15.6
1988	24961	1544806	16.2

¹ Mean resident population

² Livebirths per 1000 total population

SOURCE: AUSTRALIAN BUREAU OF STATISTICS - Cat. No. 3203.5.

9.4 Sex

There were 12,930 (51.6%) male births and 12,148 (48.4%) female births during 1988. The sex ratio was 1.06 male per 1.00 female (Table 27).

TABLE 27: CONDITION AT BIRTH AND SEX OF BIRTHS IN WESTERN AUSTRALIA, 1987

Sex	Condition at Birth				Total	
	Stillbirth		Livebirth			
	No.	%	No.	%	No.	%
Male	70	59.8	12860	51.5	12930	51.6
Female	47	40.2	12101	48.5	12148	48.4
Total	117	100.0	24961	100.0	25078	100.0

Excludes births less than 500 grams birthweight.

9.5 Condition at Birth

Of the total 25,078 births, 24,961 were liveborn. There were 117 stillbirths and 104 livebirths who died within the first 28 days of life. (Table 28). When condition was examined by sex for all births it showed 59.8% of the stillbirths were male (Table 27).

Stillbirth proportions were Caucasian 4.6/1000 total Caucasian births, Aboriginal 8.3/1000 total Aboriginal births and for babies of women of "other" races 2.6/1000 total births (Table 28).

TABLE 28: CONDITION AT BIRTH AND MATERNAL RACE OF BIRTHS IN WESTERN AUSTRALIA, 1988

Race	Condition at Birth				Total Births		Stillbirth Proportion/1000 Total Births
	Stillbirth		Livebirth				
	No.	%	No.	%	No.	%	
Caucasian	101	86.3	21996	88.1	22097	88.1	4.6
Aboriginal	12	10.3	1428	5.7	1440	5.7	8.3
Other	4	3.4	1537	6.2	1541	6.1	2.6
Total	117	100.0	24961	100.0	25078	100.0	4.7

Excludes births less than 500 grams birthweight.

The majority of stillbirths (84.6%) were delivered in hospitals in the metropolitan area and more than half (52.1%) of all stillbirths were in the metropolitan obstetric teaching hospital. This reflects the referral of high risk mothers and mothers with fetal death in utero for delivery in the metropolitan area (Table 29).

TABLE 29: PLACE OF BIRTH AND CONDITION AT BIRTH IN WESTERN AUSTRALIA, 1988

Place of Birth	Condition at Birth				Proportion/ 1000 Total Births	Total	
	Livebirth		Stillbirth			No.	%
	No.	%	No.	%			
<u>Metropolitan</u>							
¹ Teaching	4824	19.3	61	52.1	12.5	4885	19.5
Department	6651	26.7	21	18.0	3.2	6672	26.6
Private	6938	27.8	17	14.5	2.4	6955	27.7
<u>Country</u>							
² Regional	3004	12.0	6	5.1	2.0	3010	12.0
Private	564	2.3	1	0.9	1.8	565	2.3
³ Other	2732	11.0	7	6.0	2.6	2739	10.9
<u>Non-Hospital</u>							
⁴ BBA	73	0.3	4	3.4	52.0	77	0.3
Homebirths	175	0.7	-	-	-	175	0.7
Total	24961	100.0	117	100.0	4.7	25078	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).

9.6 Apgar Score at Five Minutes

The majority of livebirths (95.7%) had a recorded Apgar Score at five minutes of 8-10, while 1044 (4.1%) livebirths had an Apgar Score of seven or less at five minutes of life (Table 30).

TABLE 30:

**APGAR SCORE AT FIVE MINUTES AND TIME TO
SPONTANEOUS RESPIRATION OF LIVEBIRTHS IN WESTERN
AUSTRALIA, 1988**

Apgar Score	Time to Spontaneous Respiration					Intubation ¹		Unknown		Total						
	< 1		2 - 3		4 - 6		7 - 10		> 10							
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%				
1-3	14	0.1	1	0.1	2	0.5	5	10.0	1	9.1	62	6.1	-	-	85	0.3
4-7	185	0.9	180	9.4	130	35.4	35	70.7	8	72.7	421	41.4	-	-	959	3.8
8-10	21368	99.1	1740	90.6	235	64.0	10	20.0	2	18.2	535	52.6	-	-	23890	95.7
Unknown	-	-	-	-	-	-	-	-	-	-	-	-	27	100.0	27	0.1
Total	21567	100.0	1921	100.0	367	100.0	50	100.0	11	100.0	1018	100.0	27	100.0	24961	100.0

Excludes births less than 500 grams birthweight and also stillbirths.

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

9.7 Time to Spontaneous Respiration

Eighty six percent of all livebirths were recorded as having established spontaneous respiration within the first minute of life. Nine percent of livebirths required two to six minutes to establish respirations and 61 babies (0.2%) took seven minutes or more. There were 1018 (4.1%) livebirths who were intubated immediately following delivery (Table 30).

9.8 Resuscitation

Less than one third (31.5%) of the 24961 liveborn babies in 1988 received some form of resuscitation at birth. Those babies who received no resuscitation numbered 16952 (67.9%). Resuscitation procedures such as intubation or bag and mask were used for 1618 (6.5%) of births and another 822 (3.3%) babies received oxygen only.

When resuscitation and Apgar Scores were examined it was found that 70.9% of the babies with an Apgar Score of 1-3 and 43.9% of those with an Apgar Score of 4-7 were intubated (Table 31).

TABLE 31: RESUSCITATION METHODS AND APGAR SCORE AT FIVE MINUTES OF LIVEBIRTHS IN WESTERN AUSTRALIA, 1988

Resuscitation	Apgar Score at 5 Minutes								Unknown		Total	
	0		1 - 3		4 - 7		8 - 10					
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
None	-	-	7	8.9	47	4.9	16898	70.7	-	-	16952	67.9
Oxygen Only	-	-	6	7.6	86	9.0	730	3.1	-	-	822	3.3
Intubation	3	50.0	56	70.9	421	43.9	535	2.2	-	-	1015	4.1
Bag and Mask	-	-	5	6.3	147	15.3	451	1.9	-	-	603	2.4
Other	3	50.0	5	6.3	258	26.9	5276	22.1	-	-	5542	22.2
Unknown	-	-	-	-	-	-	-	-	27	100.0	27	0.1
Total	6	100.0	79	100.0	959	100.0	23890	100.0	27	100.0	24961	100.0

Excludes births less than 500 grams birthweight and 117 stillbirths.

9.9 Birthweight

Over two thirds (67.8%) of all babies born weighed between 3000 and 3999 grams at birth. The percentage of low birthweight babies (less than 2500 grams) was 6.1% and for very low birthweight (less than 1500 grams) 1.2% of the total births.

Low birthweight among Aboriginal births was 13.1% more than that of Caucasian births where only 5.7% were of low birthweight (Table 32).

TABLE 32: BIRTHWEIGHT DISTRIBUTION AND MATERNAL RACE OF BIRTHS IN WESTERN AUSTRALIA, 1988

Birthweight (Grams)	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
500 - 999	103	0.5	16	1.1	6	0.4	125	0.5
1000 - 1499	146	0.7	19	1.3	14	0.9	179	0.7
1500 - 1999	252	1.1	38	2.6	12	0.8	302	1.2
2000 - 2499	751	3.4(5.7) ¹	115	8.0(13.1) ¹	65	4.2(6.3) ¹	931	3.7(6.1) ¹
2500 - 2999	3249	14.7	320	22.2	321	20.8	3890	15.5
3000 - 3499	8221	37.2	496	34.4	655	42.5	9372	37.4
3500 - 3999	6937	31.4	339	23.5	362	23.5	7638	30.5
4000 - 4499	2122	9.6	82	5.7	87	5.7	2291	9.1
≥ 4500	316	1.4	15	1.0	19	1.2	350	1.4
Total	22097	100.0	1440	100.0	1541	100.0	25078	100.0

Excludes births less than 500 grams birthweight.

¹ Low birthweight percentage

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

Among the 1537 low birthweight babies (less than 2500 grams birthweight), 1461 (95.1%) were liveborn and 76 (4.9%) were stillborn. This meant that while 65.0% of stillbirths were of low birthweight only 5.9% of livebirths were in the low birthweight category (Table 33.1).

Singleton births showed similar percentages to total births. Among low birthweight babies there were 1120 (94.1%) livebirths and 70 (5.9%) stillbirths. For stillbirths 63.1% were low birthweight and among livebirths 4.6% were in the category (Table 33.2).

For multiple births, there were 667 (99.1%) liveborn and 6 (0.9%) stillborn. All stillborn multiple births were also of low birthweight (Table 33.3).

When categories of low birthweight were examined from 1980 to 1988 it was apparent that during this time births less than 1000 grams represented 0.5% to 0.6% of the total births. For those babies whose birthweight was less than 1500 grams the percentage varied from 1.0% to 1.6% of the total births. Those babies who weighed less than 2500 grams accounted for between 5.8% and 6.3% of the total births (Table 34, Figure XIII).

TABLE 33.1: BIRTHWEIGHT DISTRIBUTION AND CONDITION AT BIRTH OF TOTAL BIRTHS IN WESTERN AUSTRALIA, 1988

Birthweight (Grams)	Condition at Birth				Total	
	Livebirths		Stillbirths		No.	%
	No.	%	No.	%		
500 - 999	92	0.4	33	28.2	125	0.5
1000 - 1499	163	0.7	16	13.7	179	0.7
1500 - 1999	286	1.2	16	13.7	302	1.2
2000 - 2499	920	3.7(5.9) ¹	11	9.4(65.0) ¹	931	3.7(6.1) ¹
2500 - 2999	3870	15.5	20	17.1	3890	15.5
3000 - 3499	9360	37.5	12	10.3	9372	37.4
3500 - 3999	7631	30.6	7	6.0	7638	30.5
4000 - 4499	2289	9.2	2	1.7	2291	9.1
≥ 4500	350	1.4	-	-	350	1.4
Total	24961	100.0	117	100.0	25078	100.0

Excludes births less than 500 grams birthweight

¹ Low birthweight percentage

TABLE 33.2:

SINGLETON BIRTHS IN WESTERN AUSTRALIA, 1988

Birthweight (Grams)	Condition at Birth				Total	
	Livebirths		Stillbirths			
	No.	%	No.	%	No.	%
500 - 999	63	0.3	32	28.8	95	0.4
1000 - 1499	133	0.6	14	12.6	147	0.6
1500 - 1999	197	0.8	15	13.5	212	0.9
2000 - 2499	727	3.0(4.6) ¹	9	8.1(63.1) ¹	736	3.0(4.9) ¹
2500 - 2999	3637	15.0	20	18.0	3657	15.0
3000 - 3499	9277	38.2	12	10.8	9289	38.1
3500 - 3999	7621	31.4	7	6.3	7628	31.3
4000 - 4499	2289	9.4	2	1.8	2291	9.4
≥ 4500	350	1.4	-	-	350	1.4
Total	24294	100.0	111	100.0	24405	100.0

Excludes births less than 500 grams birthweight

¹ Low birthweight percentage

TABLE 33.3:

MULTIPLE BIRTHS IN WESTERN AUSTRALIA, 1988

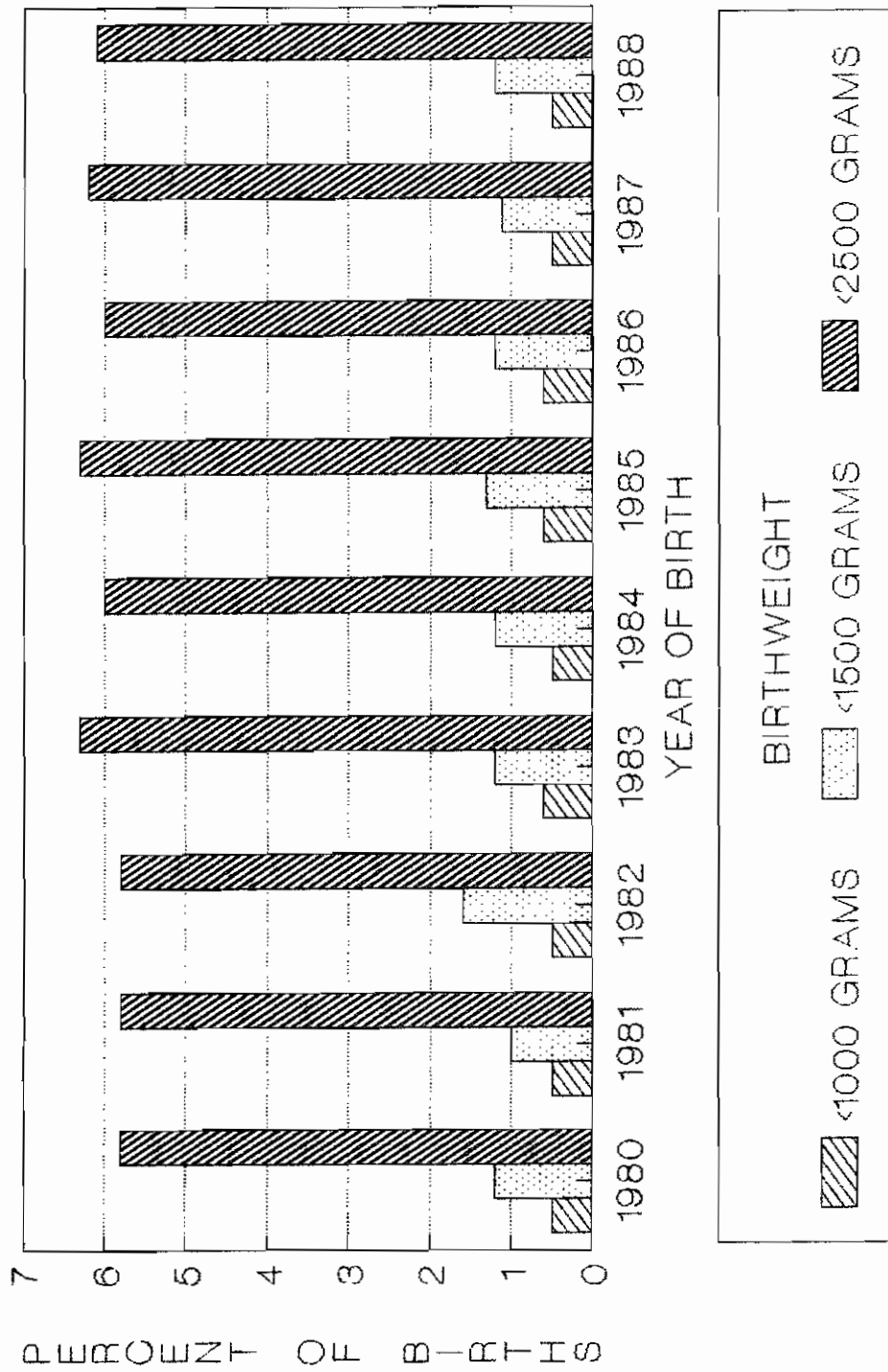
Birthweight (Grams)	Condition at Birth				Total	
	Livebirths		Stillbirths			
	No.	%	No.	%	No.	%
500 - 999	29	4.4	1	16.7	30	4.5
1000 - 1499	30	4.5	2	33.3	32	4.8
1500 - 1999	89	13.3	1	16.7	90	13.4
2000 - 2499	193	28.9(51.1) ¹	2	33.3(100.0) ¹	195	29.0(51.6) ¹
2500 - 2999	233	34.9	-	-	233	34.6
3000 - 3499	83	12.4	-	-	83	12.3
3500 - 3999	10	1.5	-	-	10	1.5
4000 - 4499	-	-	-	-	-	-
≥ 4500	-	-	-	-	-	-
Total	667	100.0	6	100.0	673	100.0

Excludes births less than 500 grams birthweight

¹ Low birthweight percentage

FIGURE XIII

LOW BIRTHWEIGHT¹ IDENTIFIED FOR TOTAL BIRTHS IN WESTERN AUSTRALIA 1980-1988.



Excludes births less than 500 grams birthweight.
¹ Low birthweight less than 2500 grams birthweight.
 Source: Midwives' Notification System.

TABLE 34: LOW BIRTHWEIGHT CATEGORIES IDENTIFIED AMONGST THE TOTAL BIRTHS IN WESTERN AUSTRALIA, 1980-1988

Year of Birth	Low Birthweight ¹ Categories (grams)						Total
	<1000		<1500		<2500		
	No.	% ²	No.	% ²	No.	% ²	
1980	105	0.5	242	1.2	1212	5.8	20770
1981	101	0.5	230	1.0	1289	5.8	22191
1982	115	0.5	353	1.6	1299	5.8	22343
1983	129	0.6	274	1.2	1461	6.3	23029
1984	105	0.5	266	1.2	1382	6.0	22917
1985	134	0.6	294	1.3	1457	6.3	23288
1986	137	0.6	288	1.2	1431	6.0	23839
1987	134	0.5	275	1.1	1486	6.2	24138
1988	125	0.5	304	1.2	1537	6.1	25078

Excludes births less than 500 grams birthweight.

¹ Low birthweight - births less than 2500 grams birthweight.

² Percentages of the total births.

Low birthweight was identified for babies of Aboriginal and non-Aboriginal women from 1980 to 1988. Although the percentages have been reasonably stable, the Aboriginal low birthweight is on average more than twice that of babies of non-Aboriginal women (Table 35, Figure XIV).

TABLE 35: LOW BIRTHWEIGHT¹ AMONG BABIES OF ABORIGINAL AND NON-ABORIGINAL WOMEN IN WESTERN AUSTRALIA, 1980-1988

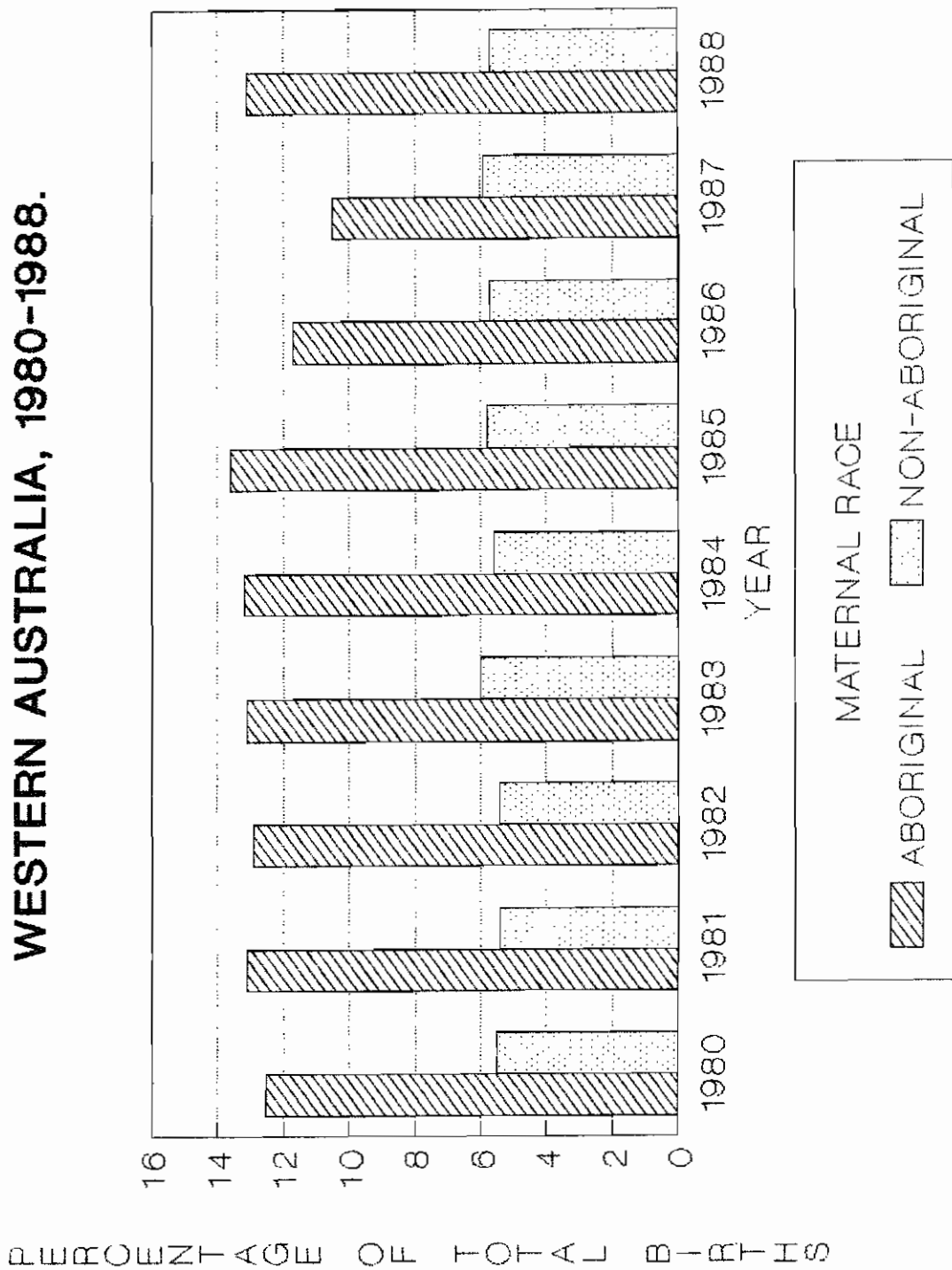
Year of Birth	Aboriginal			Non-Aboriginal		
	Total Births	LBW ¹ No.	%	Total Births	LBW ¹ No.	%
1980	1036	130	12.5	19734	1082	5.5
1981	1118	146	13.1	21073	1143	5.4
1982	1129	146	12.9	21214	1153	5.4
1983	1149	151	13.1	21880	1310	6.0
1984	1192	157	13.2	21725	1225	5.6
1985	1249	170	13.6	22039	1287	5.8
1986	1246	146	11.7	22593	1285	5.7
1987	1341	141	10.5	22797	1344	5.9
1988	1440	188	13.1	23638	1349	5.7

Excludes births less than 500 grams birthweight.

¹ Low birthweight - less than 2500 grams birthweight.

FIGURE XIV

**LOW BIRTHWEIGHT¹ IDENTIFIED BY RACE
WESTERN AUSTRALIA, 1980-1988.**



Excludes births less than 500 grams
¹ Low Birthweight - less than 2500 grams birthweight
 Source: Midwives' Notification System

9.10 Gestation

Preterm birth (less than 37 weeks gestation) occurred for 1,637 (6.5%) of the total births (Table 36.1). When examined for singleton births only, 1,311 (5.4%) babies were preterm (Table 36.2). Of the 673 multiple births, 326 (48.4%) were also preterm (Table 36.3).

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

9.11 Congenital Malformations

Data on selected congenital malformations included in this report are made available by the Western Australian Congenital Malformations Registry. ¹² (Table 37)

When a congenital malformation is recorded on the Notification of Case Attended (Midwives') Form 2, it provides the basic data source for the Congenital Malformations Registry.

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

TABLE 36.1: GESTATION AND BIRTHWEIGHT OF TOTAL BIRTHS IN WESTERN AUSTRALIA, 1988

Birthweight (Grams)	Gestation Weeks						TOTAL							
	< 22		22 - 27		28 - 32		33 - 36		37 - 42		< 43		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
500 - 999	1	100.0	99	82.5	23	7.7	2	0.2	-	-	-	-	125	0.5
1000 - 1499	-	-	20	16.7	126	42.1	33	2.7	-	-	-	-	179	0.7
1500 - 1999	-	-	1	0.8	118	39.5	144	11.8	38	0.2	-	-	301	1.2
2000 - 2499	-	-	-	-	25	8.4	441	36.2	465	2.0	-	-	931	3.7
2500 - 2999	-	-	-	-	6	2.0	447	36.7	3437	14.7	-	-	3890	15.5
3000 - 3499	-	-	-	-	1	0.3	118	9.7	9246	39.5	7	38.9	9372	37.4
3500 - 3999	-	-	-	-	-	-	23	1.9	7610	32.5	4	22.2	7637	30.5
4000 - 4499	-	-	-	-	-	-	9	0.7	2277	9.7	5	27.8	2291	9.1
≥ 4500	-	-	-	-	-	-	-	-	348	1.5	2	11.1	350	1.4
Total	1	100.0	120	100.0	299	100.0	1217	100.0	23421	100.0	18	100.0	25076	100.0

Excludes 2 singleton births of unknown gestation.

TABLE 36.2:

**GESTATION AND BIRTHWEIGHT OF SINGLETON BIRTHS
IN WESTERN AUSTRALIA, 1988**

Birthweight (Grams)	Gestation Weeks						TOTAL	
	< 22	22 - 27	28 - 32	33 - 36	37 - 42	< 43		
	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %
500 - 999	1 100.0	78 81.3	15 6.2	1 0.0	- -	- -	95	0.4
1000 - 1499	- -	17 17.7	104 43.0	26 2.7	- -	- -	147	0.6
1500 - 1999	- -	1 1.0	95 39.3	89 9.2	26 0.1	- -	211	0.9
2000 - 2499	- -	- -	21 8.7	330 34.0	385 1.7	- -	736	3.0
2500 - 2999	- -	- -	6 2.5	387 39.8	3264 14.2	- -	3657	15.0
3000 - 3499	- -	- -	1 0.4	107 11.0	9174 39.8	7 38.9	9289	38.1
3500 - 3999	- -	- -	- -	23 2.4	7600 32.9	4 22.2	7627	31.3
4000 - 4499	- -	- -	- -	9 0.9	2277 9.9	5 27.8	2291	9.4
≥ 4500	- -	- -	- -	- -	348 1.5	2 11.1	350	1.4
Total	1 100.0	96 100.0	242 100.0	972 100.0	23074 100.0	18 100.0	24403	100.0

Excludes 2 singleton births of unknown gestation.

TABLE 36.3:

**GESTATION AND BIRTHWEIGHT OF MULTIPLE BIRTHS
IN WESTERN AUSTRALIA, 1988**

Birthweight (Grams)	Gestation Weeks						TOTAL	
	< 22	22 - 27	28 - 32	33 - 36	37 - 42	< 43		
	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %
500 - 999	- -	21 87.5	8 14.0	1 0.4	- -	- -	30	4.5
1000 - 1499	- -	3 12.5	22 38.6	7 2.9	- -	- -	32	4.8
1500 - 1999	- -	- -	23 40.4	55 22.5	12 3.5	- -	90	13.4
2000 - 2499	- -	- -	4 7.0	111 45.3	80 23.0	- -	195	29.0
2500 - 2999	- -	- -	- -	60 24.5	173 49.9	- -	233	34.6
3000 - 3499	- -	- -	- -	11 4.5	72 20.8	- -	83	12.3
3500 - 3999	- -	- -	- -	- -	10 2.9	- -	10	1.5
4000 - 4499	- -	- -	- -	- -	- -	- -	-	-
≥ 4500	- -	- -	- -	- -	- -	- -	-	-
Total	- -	24 100.0	57 100.0	245 100.0	347 100.0	- -	673	100.0

9.12 Birth Trauma

There were very few reported incidences of major birth trauma. The most common birth trauma identified was injuries to the scalp (5.9% of all livebirths) and this included cephalhaematoma and chignon from vacuum extraction (Table 38).

TABLE 37:

**BIRTHS IDENTIFIED WITH CONGENITAL MALFORMATIONS
IN WESTERN AUSTRALIA, 1988**

Diagnostic Category (and B.P.A. Code)	1986		1987		1988	
	No.	¹ Rate	No.	¹ Rate	No.	¹ Rate
NERVOUS SYSTEM DEFECTS (7400 - 74299)	81	3.4	77	3.2	60	2.4
Neural Tube Defects (74000 - 74209)	46	1.9	46	1.9	43	1.7
Microcephaly (74210)	6	-	5	-	4	-
Congenital Hydrocephalus (74230 - 74239) (excludes hydrocephalus associated with N.T.D.)	12	-	13	0.5	9	-
CARDIOVASCULAR DEFECTS (74500 - 74799)	169	7.1	134	5.5	134	5.4
Transposition of Great Vessels (74510 - 74519)	15	0.6	10	-	17	0.7
Tetralogy of Fallot (74520)	10	-	1	-	3	-
Ventricular Septal Defect (74540 - 74549)	77	3.2	76	3.1	73	3.0
Atrial Septal Defect (74550 - 74559)	31	1.3	17	0.7	17	0.7
Hypoplastic Left Heart Syndrome (74670)	5	-	1	-	3	-
Patent Ductus Arteriosus (74700)	30	1.3	22	0.9	20	0.8
Coarctation of Aorta (74710 - 74719)	14	0.6	10	-	6	-
RESPIRATORY SYSTEM DEFECTS (74800 - 74899)	32	1.3	22	0.9	9	-
Hypoplasia/Dysplasia of Lung (74850 - 74858)						
GASTRO-INTESTINAL DEFECTS (74900 - 75199)	136	5.7	139	5.7	123	5.0
Cleft Palate Only (74900 - 74909)	15	0.6	13	0.5	13	0.5
Cleft Lip Only (74910 - 74919)	12	-	9	-	14	0.6
Cleft Lip and Palate (74920 - 74929)	22	0.9	27	1.1	20	0.8
Tracheo-Oesophageal Fistula, Oesophageal Atresia, Oesophageal Stenosis (75030 - 75038)	6	-	17	0.7	7	-
Pyloric Stenosis (75050 - 75058)	45	1.9	50	2.1	35	1.4
Stenosis/Atresia Anus (75123 - 75124)	7	-	7	-	13	0.5
URO-GENITAL DEFECTS (75200 - 75399)	200	8.4	172	7.1	126	5.1
Undescended Testis (treated) (75250 - 75253)	60	2.5	43	1.8	18	0.7
Hypospadias (75260)	77	3.2	82	3.4	60	2.4
Renal Agenesis or Dysgenesis (75300 - 75301)	9	-	6	-	7	-
Ureteric Reflux (75348)	17	0.7	13	0.5	11	-
MUSCULO-SKELETAL DEFECTS (7540 - 75699)	285	11.9	313	12.9	259	10.5
Congenital Dislocation of Hip (75430 - 75431)	142	5.9	137	5.7	124	5.0
Talipes (75450 - 75473)	51	2.1	50	2.1	52	2.1
Polydactyly (75500 - 75509)	24	1.0	32	1.3	14	0.6
Syndactyly (75510 - 75519)	8	-	18	0.7	9	-
Reduction Deformities Upper and/or Lower Limbs (75520 - 75549)	9	-	14	0.6	11	-
Diaphragmatic Hernia (75661)	6	-	10	-	2	-
Exomphalos (75670)	8	-	8	-	6	-
Gastroschisis (75671)	6	-	5	-	4	-
Achondroplasia (75643)						
Osteogenesis Imperfecta (75650)						
CHROMOSOME DEFECTS (75800 - 75899)	49	2.1	53	2.2	54	2.2
Down Syndrome (75800 - 75809)	35	1.5	33	1.4	39	1.6
Trisomy 13 (75810 - 75819)	3	-	5	-	2	-
Trisomy 18 (75820 - 75829)	2	-	6	-	3	-
Turner's Syndrome (75860 - 75861, 75869)	1	-	1	-	1	-
OTHER						
Congenital Rubella (77100)	1	-	1	-	-	-
Cystic Fibrosis (27700)	3	-	6	-	11	-
Phenylketonuria (27010)	1	-	1	-	-	-

¹ Rate per 1000 total births.

Rates have not been calculated where number of cases with defect is less than 15.

SOURCE: CONGENITAL MALFORMATIONS REGISTRY

TABLE 38: BIRTH TRAUMA AMONGST LIVEBIRTHS IN WESTERN AUSTRALIA, 1988

Birth Trauma	No.	% of Livebirths
Subdural and Cerebral Haemorrhage	-	-
Injuries to Scalp	1480	5.9
Fracture to Clavicle	11	-
Other Injuries to Skeleton	6	-
Facial Nerve Injury	11	-
Injury to Brachial Plexus	14	0.1
Other	66	0.3

Excludes births less than 500 grams birthweight.

9.13 Special Care

Although there are difficulties relating to the definition and location of special care units in Western Australia, data from the Midwives' 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, future data on Special Care will relate only to babies in Level 2 or Level 3 Special Care nurseries.

Among the 24,961 livebirths, a total of 1777 (7.1%) babies were reported to have received special care. Of these singleton births numbered 1597 (89.9%) and multiple births 180 (10.1%). The proportions for these babies were singleton births 65.7/1000 and multiple births 269.9/1000.

Eleven percent of all babies stayed more than 28 days. Multiple births stayed longer in special care units, with 58.4% staying 8 days or more (Table 39).

TABLE 39: PLURALITY AND LENGTH OF STAY IN SPECIAL CARE OF LIVEBIRTHS IN WESTERN AUSTRALIA, 1988

Length of Stay (days)	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
1	423	26.5	26	14.4	449	25.3
2	251	15.7	10	5.6	261	14.7
3	183	11.5	3	1.7	186	10.5
4	127	8.0	7	3.9	134	7.5
5	79	5.0	7	3.9	86	4.8
6	75	4.7	11	6.1	86	4.8
7	44	2.8	11	6.1	55	3.1
8-14	149	9.3	32	17.8	181	10.2
15-20	64	4.0	12	6.7	76	4.3
21-28	48	3.0	20	11.1	68	3.8
>28	154	9.6	41	22.8	195	11.0
Total:	1597	100.0	180	100.0	1777	100.0

Excludes births less than 500 grams birthweight.

9.14 Neonatal Transfers

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.

Of the 24,961 livebirths, 1102, (4.4%) babies were transferred to another hospital after birth.

9.15 Length of Stay

The majority of babies (19706, 78.9%) stayed in their hospital of birth from two to seven days and another 3903 (15.6%) stayed eight or more days. Two hundred and twenty five babies stayed more than 28 days. (Table 40.1).

TABLE 40.1: LENGTH OF STAY AND BIRTHWEIGHT DISTRIBUTION OF LIVEBIRTHS IN WESTERN AUSTRALIA 1988

Birthweight (Grams)	Length of Stay(Days)												Total	
	≤1		2 - 7		8-14		15 - 20		21 - 28		>28			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
500 - 999	35	4.2	4	--	1	--	--	--	2	2.1	50	22.2	92	0.4
1000 -1499	24	2.9	3	--	6	0.2	7	3.4	15	15.6	108	48.0	163	0.7
1500 -1999	17	2.1	42	0.2	84	2.2	56	27.4	44	45.8	43	19.1	286	1.2
2000 -2499	53	6.4	453	2.3	323	8.3	61	29.9	19	19.8	11	4.9	920	3.7
2500 -2999	164	19.8	2889	14.7	782	20.0	24	11.8	9	9.4	2	0.9	3870	15.5
3000 -3499	258	31.2	7777	39.5	1291	33.1	26	12.0	3	3.1	5	2.2	9360	37.5
3500 -3999	204	24.7	6407	32.5	991	25.4	20	9.8	3	3.1	6	2.7	7631	30.6
4000 -4499	65	7.9	1865	9.5	353	9.0	5	2.5	1	1.0	--	--	2289	9.2
>4500	7	0.9	266	1.4	72	1.8	5	2.5	--	--	--	--	350	1.4
Total:	827	100.0	19706	100.0	3903	100.0	204	100.0	96	100.0	225	100.0	24961	100.0

Excludes births less than 500 grams birthweight
Includes 144 homebirths in midwife's care

There were 1102 inter-hospital transfers and 82 neonatal deaths in the hospital of birth. Table 40.2 shows the length of stay of babies who were neither transferred nor died in the hospital of birth. The overall length of hospital stay following a baby's transfer from the hospital of birth is not recorded on midwives' data.

TABLE 40.2: LENGTH OF STAY AND BIRTHWEIGHT DISTRIBUTION OF SURVIVING LIVEBIRTHS IN WESTERN AUSTRALIA, 1988

Birthweight (Grams)	Length of Stay(Days)												Total	
	≤1		2 - 7		8-14		15 - 20		21 - 28		>28			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
500 - 999	--	---	--	---	--	---	--	---	--	---	33	20.8	33	0.1
1000 -1499	--	---	--	---	--	---	2	1.2	6	10.5	76	47.8	84	0.4
1500 -1999	--	---	22	0.1	54	1.0	32	19.3	23	40.4	32	20.1	163	0.7
2000 -2499	6	1.6	409	2.1	294	7.8	57	34.3	14	24.6	6	3.8	786	3.3
2500 -2999	57	15.6	2791	14.5	764	20.2	23	13.9	8	14.0	2	1.3	3645	15.3
3000 -3499	144	39.3	7621	39.6	1279	33.7	23	13.9	2	3.5	4	2.5	9073	38.2
3500 -3999	121	33.1	6310	32.8	978	25.8	19	11.5	3	5.3	6	3.8	7437	31.3
4000 -4499	35	9.6	1829	9.5	351	9.3	5	3.0	1	1.8	--	--	2221	9.3
>4500	3	0.9	255	1.4	72	1.9	5	3.0	--	--	--	--	335	1.4
Total:	366	100.0	19237	100.0	3792	100.0	166	100.0	57	100.0	159	100.0	23777	100.0

Excludes births less than 500 grams birthweight

Includes 144 homebirths in midwives' care

1 excludes 955 babies requiring interhospital transfer

9.16 Perinatal Mortality

There were 117 stillbirths and 104 neonatal deaths during 1988. The perinatal mortality proportion for Western Australia was 8.8/1000 total births.

Perinatal mortality calculations in this report are based on the year of birth cohort, whereas prior to 1984 they were based on the year of death (Table 41, Figure XV).

TABLE 41. STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY PROPORTIONS IN WESTERN AUSTRALIA, 1980-1988

Perinatal Mortality						
Year	Stillbirths		Neonatal Deaths		Total	
	No.	Proportion/ 1000 total Births	No	Proportion/ 1000 Live Births	No	Proportion/ 1000 Total Births
1980	155	7.5	125	6.1	280	13.5
1981	153	6.9	118	5.4	271	12.2
1982	155	6.9	118	5.3	273	12.2
1983	157	6.8	108	4.7	265	11.5
1984 ¹	134	5.8	116	5.1	250	10.9
1985 ¹	150	6.4	109	4.7	259	11.1
1986 ¹	146	6.1	129	5.4	275	11.5
1987 ¹	134	5.6	103	4.3	237	9.8
1988	117	4.7	104	4.2	221	8.8

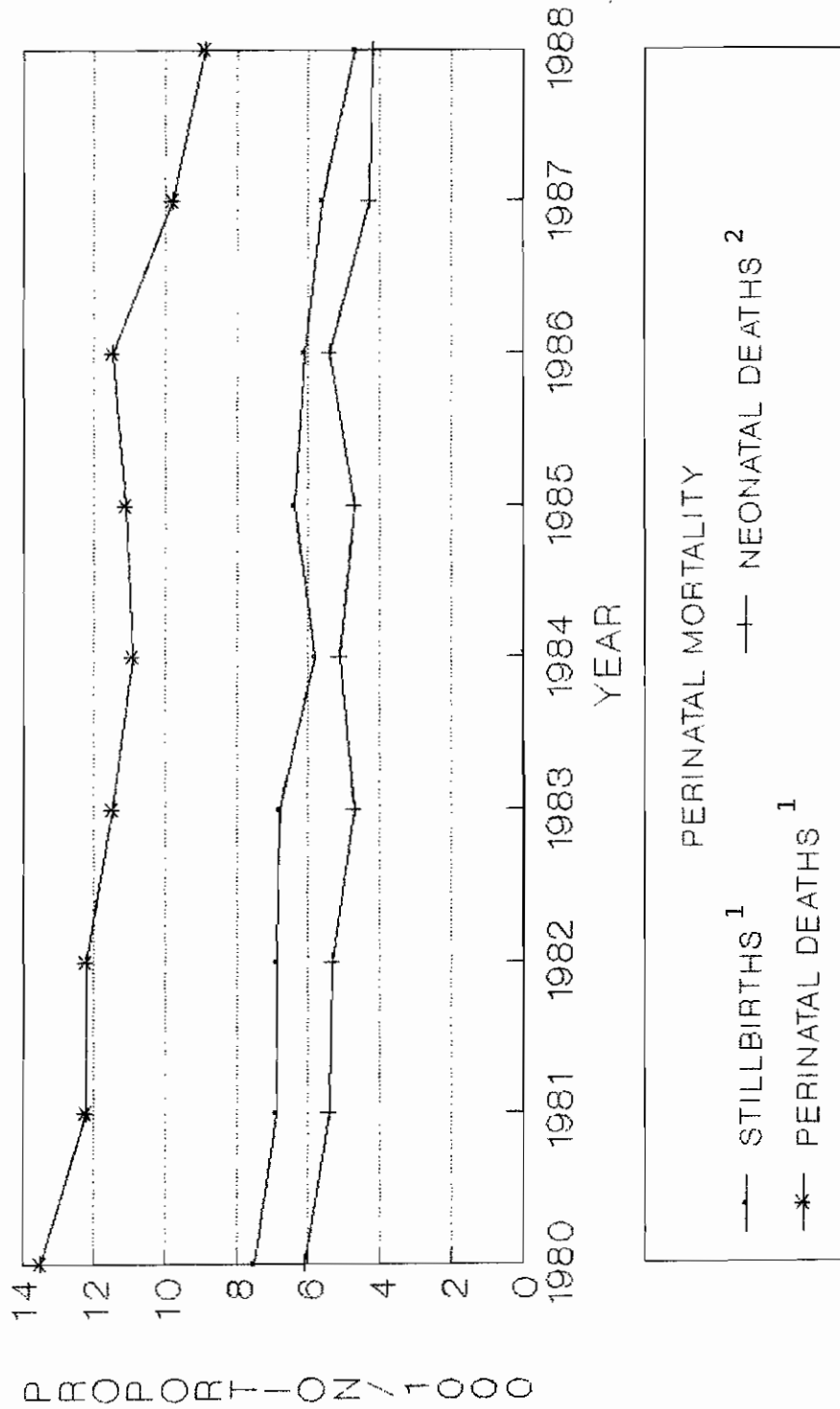
Excludes births less than 500 grams birthweight

¹ Data based on year of birth

Tables 42 and 43 give perinatal mortality proportions of birthweight and gestation criteria using World Health Organisation definitions. Aboriginal stillbirth, neonatal and perinatal mortality proportions are double those of non-Aboriginal births (Table 45, Figure XV).

FIGURE XV

PERINATAL MORTALITY PROPORTIONS IN WESTERN AUSTRALIA 1980-1988.

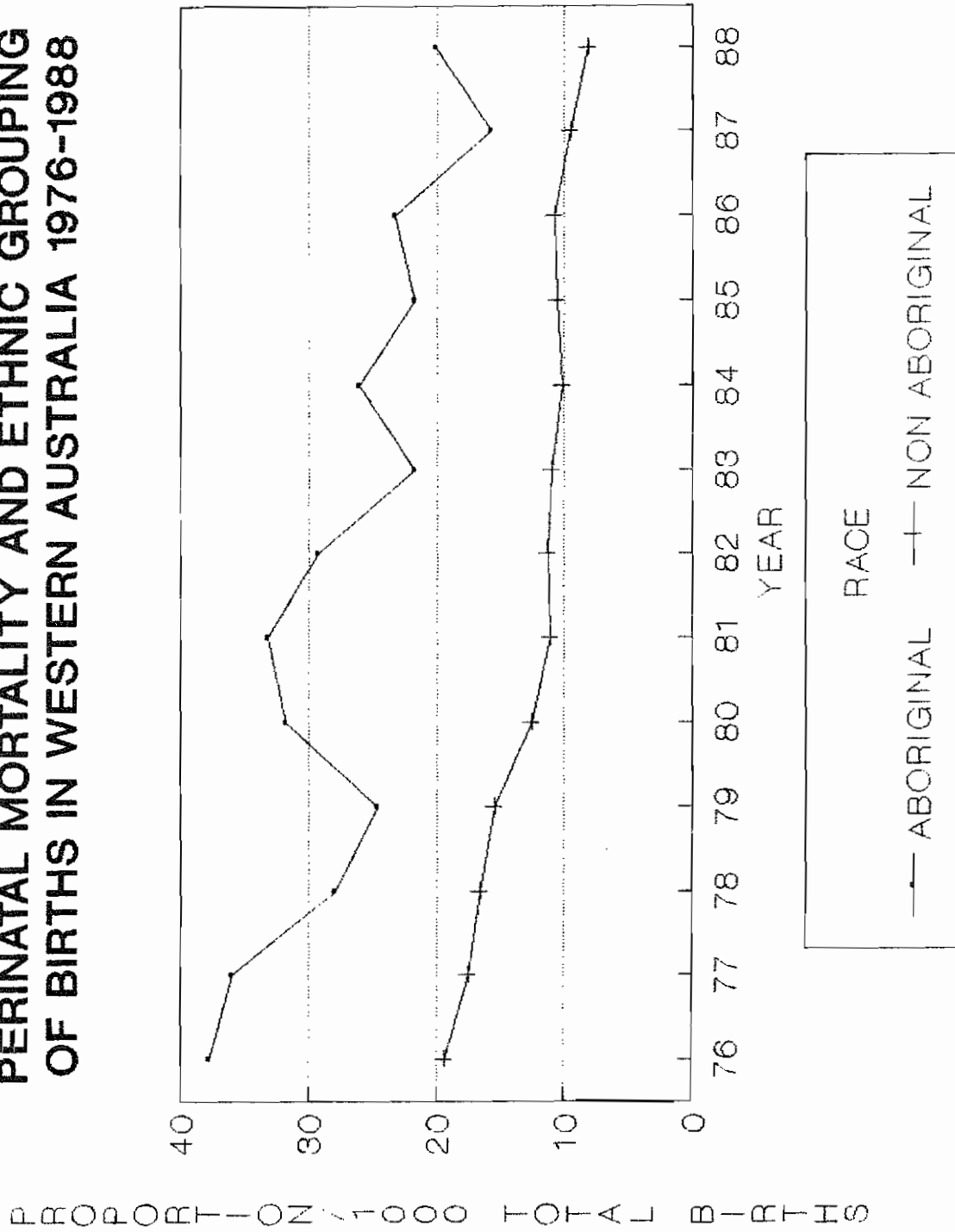


Excludes births less than 500 grams birthweight.
 1 Stillbirths and Perinatal Deaths/1000 Total Births.
 2 Neonatal Deaths/1000 Livebirths.
 Note: 1980-1983 data based on year of death.
 1984-1988 data based on year of birth.

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

FIGURE XVI

PERINATAL MORTALITY AND ETHNIC GROUPING OF BIRTHS IN WESTERN AUSTRALIA 1976-1988



Excludes births less than 500 grams birthweight.

1 Stillbirths and Perinatal Deaths/1000 Total Births.

2 Neonatal Deaths/1000 Livebirths.

Note: 1980-1983 data based on year of death.
1984-1988 data based on year of birth.

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

TABLE 42: WESTERN AUSTRALIAN PERINATAL MORTALITY USING BIRTHWEIGHT CRITERIA, 1988

Birthweight	Stillbirth Proportion/ 1000 Total Births	Neonatal Death Proportion/ 1000 Livebirths	Perinatal Death Proportion/ 1000 Total Births
≥ 400 grams	5.5	4.4	9.9
≥ 500 grams International Definition of World Health Organisation	4.7	4.2	8.8

TABLE 43: WESTERN AUSTRALIAN PERINATAL MORTALITY USING GESTATION CRITERIA, 1988

Gestation	Stillbirth Proportion/ 1000 Total Births	Neonatal Death Proportion/ 1000 Livebirths	Perinatal Death Proportion/ 1000 Total Births
≥ 20 weeks	7.0	4.8	11.8
≥ 22 weeks International Definition of World Health Organisation	6.0	4.5	10.5

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

TABLE 44: STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY PROPORTIONS BY MATERNAL RACE IN WESTERN AUSTRALIA, 1988

Type of Death	Maternal Race			Total
	Caucasian	Aboriginal	Other	
Stillbirth/ 1000 total births	4.6	8.3	2.6	4.7
Neonatal/ 1000 livebirths	3.8	11.9	2.0	4.2
Perinatal/ 1000 total births	8.4	20.1	4.5	8.8

Excludes births less than 500 grams birthweight.

Data from 1976 to 1988 on stillbirth, neonatal and perinatal mortality proportions in Western Australia shows there has been an overall decline during this decade. Table 44 provides mortality proportions by race. Aboriginal proportions have declined but remain double the non-Aboriginal figures (Table 45).

TABLE 45: STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY PROPORTIONS BY ABORIGINAL AND NON-ABORIGINAL BIRTHS IN WESTERN AUSTRALIA, 1976-1988

Year	Stillbirth ¹ Proportion		Neonatal Mortality ² Proportion		Perinatal Mortality ¹ Proportion	
	Non- Aboriginal	Aboriginal	Non- Aboriginal	Aboriginal	Non- Aboriginal	Aboriginal
1976	19.3	11.0	18.7	8.4	37.7	19.3
1977	18.0	9.2	18.3	8.4	35.9	17.5
1978	10.2	9.3	17.8	7.3	27.9	16.5
1979	14.2	8.3	10.4	7.1	24.6	15.4
1980	11.5	7.2	20.4	5.3	31.7	12.5
1981	19.7	6.2	13.7	4.9	33.2	11.1
1982	14.2	6.6	15.3	4.8	29.2	11.3
1983	12.2	6.5	9.7	4.4	21.7	11.0
1984	13.4	5.4	11.9	3.5	26.0	10.1
1985	11.2	5.7	10.5	4.4	21.7	10.6
1986	12.8	5.7	10.6	5.2	23.3	10.8
1987	9.7	5.3	6.0	4.2	15.7	9.5
1988	8.3	4.4	11.9	3.7	20.1	8.1

Excludes births less than 500 grams birthweight

¹ Stillbirth and perinatal mortality proportions/1000 total births.

² Neonatal mortality proportions/1000 livebirths.

Almost a third of stillbirths and neonatal deaths (32.6%) birthweight less than 1000 grams. Overall 65.0% of stillbirths and 59.6% of neonatal deaths weighed less than 2500 grams at birth (Table 46).

TABLE 46: BIRTHWEIGHT DISTRIBUTION OF STILLBIRTHS, NEONATAL AND PERINATAL DEATHS IN WESTERN AUSTRALIA, 1988

Birthweight (Grams)	Perinatal Deaths				Total	
	Stillbirths		Neonatal Deaths			
	No.	%	No.	%	No.	%
500 - 999	33	28.2	39	37.5	72	32.6
1000 - 1499	16	13.7	13	12.5	29	13.1
1500 - 1999	16	13.7	4	3.8	20	9.0
2000 - 2499	11	9.4	6	5.8	17	7.7
2500 - 2999	20	17.1	19	18.3	39	17.6
3000 - 3499	12	10.3	10	9.6	22	9.9
3500 - 3999	7	6.0	10	9.6	17	7.7
≥ 4000	2	1.7	3	2.9	5	2.3
Unknown	-	-	-	-	-	-
Total	117	100.0	104	100.0	221	100.0

Excludes births less than 500 grams birthweight.

Amongst the 673 multiple births, there were 33 perinatal deaths. Of these, 6 were stillborn and 27 were neonatal deaths (Table 47).

The stillbirth proportion for multiple births (8.9/1000) was almost twice that for singleton births (4.6/1000).

The neonatal mortality proportion for multiple births (40.5/1000) was almost thirteen times greater than for singleton births (3.2/1000) (Table 47).

TABLE 47: PLURALITY OF STILLBIRTHS, NEONATAL AND PERINATAL DEATHS AMONGST BIRTHS IN WESTERN AUSTRALIA, 1988

Plurality	Perinatal Mortality				Total	
	Stillbirths		Neonatal Deaths			
	No.	1	No.	2	No.	1
Singleton	111	4.6	77	3.2	188	7.7
Multiple	6	8.9	27	40.5	33	49.0
Total	117	4.7	104	4.2	221	8.9

Excludes births less than 500 grams birthweight.

¹ Stillbirth/Perinatal mortality proportions:

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

² Neonatal mortality proportions:

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

When stillbirths were examined by time of death, 68.4% occurred antepartum, 25.6% were intrapartum and timing of stillbirth was unknown in 6.0% of cases (Table 48).

TABLE 48: TIME OF DEATH OF STILLBIRTHS IN WESTERN AUSTRALIA, 1988

Time of Death	No.	%
Antepartum	80	68.4
Intrapartum	30	25.6
Unknown	7	6.0
Total	117	100.0

Excludes births less than 500 grams birthweight.

Almost two thirds of the neonatal deaths occurred within the first day of life (Table 49).

TABLE 49: AGE AT NEONATAL DEATH AMONGST LIVEBIRTHS IN WESTERN AUSTRALIA, 1988

Age At Neonatal Death	No.	% of Neonatal Deaths
< Day 1	51	49.0
Day 1	14	13.5
Day 2	7	6.7
Day 3	5	4.8
Day 4	3	2.9
Day 5	3	2.9
Day 6	2	1.9
Day 7	1	1.0
Day 8 - 14	8	7.7
Day 15 - 21	5	4.8
Day 22 - 28	5	4.8
Total	104	100.0%

Excludes births less than 500 grams birthweight.

The causes of death of stillborn babies are largely unknown (36.8%). Extremely low birthweight (less than 1000 grams birthweight) contributed in 25.6% of cases and 14.5% resulted from lethal congenital malformations.

The principal causes of death of neonates are reported to be low birthweight 44.2% and lethal congenital malformations 36.5% (Table 50).

TABLE 50: CAUSES OF STILLBIRTHS AND NEONATAL DEATHS IN WESTERN AUSTRALIA, 1988

Cause of Death	1 Stillbirths		2 Neonatal Deaths	
	No.	%	No.	%
Lethal Congenital Malformations	17	14.5	38	36.5
Extremely low birthweight (<1000 grams)	30	25.6	-	-
Low birthweight (<2500 grams)	-	-	46	44.2
Asphyxia	-	-	8	7.7
Maternal				
Obstetric	1	0.9	-	-
Medical	3	2.6	-	-
Hypertension	5	4.3	-	-
Placenta & Cord	18	15.4	-	-
Hydrops fetalis	-	-	-	-
Infection	-	-	2	1.9
S.I.D.S.	-	-	8	7.7
Other	-	-	2	1.9
Unknown	43	36.8	-	-
Total	117	100.0	104	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.

SOURCE: MIDWIVES' NOTIFICATION SYSTEM

Autopsies were requested for 59.8% of stillbirths and 51.9% of neonatal deaths. In the case of 22 (10.0%) perinatal deaths it is unknown whether an autopsy was requested (Table 51).

TABLE 51: AUTOPSY REQUESTS FOR STILLBIRTHS AND NEONATAL DEATHS IN WESTERN AUSTRALIA, 1988

	Perinatal Deaths				Total	
	Stillbirths		Neonatal Death			
	No.	%	No.	%	No.	%
Yes	70	59.8	54	51.9	124	56.1
No	36	30.8	39	37.5	75	33.9
Unknown	11	9.4	11	10.6	22	10.0
Total	117	100.0	104	100.0	221	100.0

Excludes births less than 500 grams birthweight.

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NOTIFICATION OF CASE ATTENDED

1 Hospital

PARTICULARS RELATING TO MOTHER

PRINT
IN
BLOCK
LETTERS

2 SURNAME		6 UNIT RECORD No.	
3 FORENAMES		7 BIRTH DATE	
4 ADDRESS OF USUAL RESIDENCE		8 POSTCODE	
5 MAIDEN NAME			

9 Current Conjugal State:

single () 1

married (incl. de facto) () 2

other []

10 Race:

Caucasian () 1

Aboriginal (full or part) () 2

Other () 3

11 Height (cms) [] [] []

PREGNANCY

PREVIOUS PREGNANCIES (excluding this pregnancy)

Total number of [] []

12 Previous Pregnancies [] []

Previous children now living [] []

14 born alive, now dead [] []

15 stillborn [] []

THIS PREGNANCY

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

17 This date certain () 1
not certain () 2

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

19 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

21 Medical Conditions:

[] [] [] [] [] []

LABOUR AND DELIVERY

23 Onset of Labour:

spontaneous [] A

induced [] B

no labour [] D

24 Presentation:

vertex () 1

breech () 2

other () 3

25 Type of Delivery:

normal [] A

vacuum - successful [] B

- failed [] C

forceps - successful [] D

- failed [] E

breech manoeuvre [] F

caesarean - elective [] G

- emergency [] H

Anaesthesia:

none []

general [] A

epidural spinal [] B

other [] C

26 Hours of established labour: [] []

27 Complications of Labour, Delivery:

(Include reason for Caesarean)

precipitate delivery [] A

foetal distress [] B

prolapsed cord [] C

cord tight around neck [] D

cephalopelvic disproportion [] E

28 other F

BABY

Separate Form for each Baby

Adoption Yes () No ()

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

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

35 Plurality:

single birth () 1

first twin () 2

second twin () 3

other multiple birth: () 4

36 (specify baby number, _ of _)

37 Sex: male () 1
female () 2

38 Condition: liveborn () 1
stillborn () 2

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

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

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

42 Resuscitation:

none [] 0

intubation [] 3

oxygen only [] 8

other []

43 Apgar Score (5 mins) [] [] [] []

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

44 Congenital Anomalies

[] [] [] [] [] []

45 Birth Trauma (Eg. cephalhaematoma)

[] [] [] [] [] []

COMPLETE SECTION ON SEPARATION

Attach to Mother and Baby's Inpatient Summaries (HA22). Forward to Health Statistics P.O. Box 8172 Stirling Street, PERTH 6001 after discharge of Mother and/or baby whichever is later.

MIDWIFE

Name

Signature

22

Reg. No. Date

BABY'S SEPARATION DETAILS

Date of Discharge 29 Transfer or Death [] [] [] [] [] []

Neonatal Blood Screening No ()

30 Type of Separation:

Discharged home () 1

Died () 2

Transferred to () 3

31 Special Care (whole days only) [] [] [] []

32 Separate HA22 for baby: yes, attached () 2

Mrs. Vivien Gee
Co-Ordinator
Maternal and Child Health Studies
Epidemiology Branch
Health Department of Western Australia

Appendix B

This is to advise that,

SURNAME: _____ DATE OF BIRTH: ___/___/___

FORENAMES: _____

ADDRESS: _____

_____ POSTCODE: _____

GRAVIDA PARITY (including this delivery)

had planned to have a home birth but was transferred to hospital -

a) before onset of labour; or

b) during labour (indicate whichever is appropriate) because of the following indications:

Transferred to Hospital: _____

on ___/___/___

Reception on Admission to Hospital

Nursing Staff: _____

Medical Staff: _____

The outcome was: _____

NAME OF MIDWIFE: _____

(please print)

DATE: ___/___/___

