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PERINATAL STATISTICS IN WESTERN AUSTRALIA

Seventh Annual Report of the Western Australian Midwives' Notification System 1989

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

NOVEMBER 1990

HEALTH Western Australia
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WESTERN AUSTRALIAN MIDWIVES' SYSTEM

MATERNAL AND CHILD HEALTH STUDIES UNIT

EPIDEMIOLOGY AND RESEARCH BRANCH

HEALTH DEPARTMENT OF WESTERN AUSTRALIA

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FOREWARD

The Western Australian 'Midwives' data' is now world famous. It was one of the first perinatal data sets in Australian (only Tasmania had a total population perinatal collection before ours in 1975) and has been utilised extensively by Western Australian researchers since then. Initially Professor Michael Hobbs and Dr Marlene Lugg helped to establish the collection for monitoring trends in births and as a sampling frame for epidemiological studies. Then Ms Joan Bedford took over the collection and helped my group access the data in the NH&MRC Research Unit in Epidemiology and Preventive Medicine, at the University of Western Australia. There we started out on our first attempts at record linkage to create a research data base for perinatal and paediatric epidemiological research in this state. Mrs Diane Moore, Ms Coralie Hill and now Mrs Vivien Gee have continued on the tradition of having a midwife run the system. These high quality and useful reports are published annually.

It is a truly local effort, with the TVW Telethon Foundation for Medical Research funding our research work in the Unit for the past 10 years. We used the data to describe the social and demographic trends in Western Australian births and the neonatal outcomes in a series of reports and papers. These included comparisons of Aboriginal and caucasian births (as no other data set had Aboriginality recorded these were the first total population descriptions of the higher risks for perinatal problems in Aboriginal mothers and their infants); the important description of young teenage births, their high levels of perinatal mortality and low birthweight compared with births to older teenagers and the very much higher fertility rate of Aboriginal than caucasian teenagers. We hope that these data may have been influential in establishing the Adolescent Clinic at King Edward Memorial Hospital and in encouraging shared care with the Aboriginal Medical Services. More recently, investigations using the 'Midwives' data' have concentrated on the rising rate of caesarean sections and of homebirths, with detailed cohort studies being done, with minimal need to go to additional data collection.

The real reason for their international reputation is, however, the extended use which has been made of the Midwives' data for case-control studies of cerebral palsy and birth defects. In fact the Western Australian Birth Defects Registry, which was established in the 1980 (the first in Australia) uses the data as a primary source of notifications. The value of the data base is that it provides a sampling frame for controls in case-control studies and of cohorts in cohort studies. The Midwives' data has helped to demonstrate that birth asphyxia is a rarer cause of cerebral palsy than generally thought and that intrauterine growth retardation may be an important marker of early pregnancy problems associated with cerebral palsy. They were also used in the studies quantifying the association of maternal dietary folate and the risk of neural tube defects in the offspring. They were used extensively in describing the epidemiology of low birth weight including preterm birth, small for gestational age births, for developing the first birthweight for gestation charts in Australia for caucasians and in a major study on the recurrence risks of small for gestational age infants.

The Western Australian perinatal data have also provided an important research training role. Several Ph D theses and the first Western Australian MPH thesis have been based on the data. Medical and nursing students have also had access to the data for their research, which is an important part of their education. The confidential nature of the data are handled well by the Confidentiality of Health Information Committee, chaired by Ms Myra Cake, which ensures that no named data are released except in certain strictly controlled situations.

The Health Department should feel justly proud of their data and how it has been utilised for monitoring trends in the patterns of births and their care, and for important research which is of benefit to the community. Mrs Gee and her team are to be congratulated on another high quality report.

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ACKNOWLEDGEMENTS

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 1989.

Sincere thanks are also extended to:

- Dr Fiona Stanley and Dr Vivienne Waddell for their continued support and advice;
- Maternal and Child Health Studies Unit clerical staff who processed and coded the information;
- Dr Carol Bower of Birth Defects Register for providing the information on congenital malformations;
- Miss Margot Bray, Nursing Services, for provision of additional information on planned homebirths;
- Mrs Elizabeth Rohwedder of Health Services Planning and Mr Peter Somerford for computation of data;
- The Information Technology Branch for maintenance of the computer program;
- The Registrar General's Office for providing additional information on births and perinatal deaths in Western Australia;
- The Western Australian Branch of the Bureau of Statistics for providing Western Australian population figures;
- Miss Poppy Diamantopoulos for secretarial support.
- Miss Stella Serafino for preparation of graphs.

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TREE DIAGRAMS

1. INTRODUCTION

This is the Seventh 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 1989 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 62 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 Form 2 (Midwives' Form) were distributed in late 1985 to midwives and all Western Australian hospitals with obstetric beds.[1] 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 Revision[2] (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:

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2. SUMMARY

Midwives' forms received by this Department indicate that 25,481 babies with birthweight ≥ 500 grams were born during 1989 in Western Australia.

This represents an increase of 1.6% in total birth numbers from the previous twelve months. The crude birth rate of 15.7 per 1000 population has decreased by 0.5/1000 from the 1988 statistic (Table 26).

This report includes statistics on only those babies whose birthweight was equal to or greater than 500 grams. There were an additional 62 babies with recorded birthweight of less than 500 grams.

Of the 25,100 women confined, 24,743 (98.6%) were of singleton pregnancy with the remaining 357 (1.4%) women having multiple pregnancies. Multiple births included 336 twin, 18 triplet, 2 quadruplet and 1 quintuplet pregnancy.

Although the incidence of multiple birth pregnancies increased from 331 (1.3%) to 357 (1.4%) the number of multiple birth babies rose from 673 (2.7%) to 738 (2.9%) due to the number of high multiple births in 1989 (Tree Diagram 1).

The average age of women at confinement was 27.5 years, with a range of 13 years to 49 years.

Most confinements (99.0%) occurred in hospital. Babies born before arrival for planned hospital confinements occurred in 74 cases representing 0.3% of overall births. There were 176 (0.7%) planned home confinements during 1989 (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 (156.1/1000) was eight times that of non-Aboriginal women (18.5/1000) 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 1606 (6.4%) of women which indicates a significant level of morbidity (Table 15).

Induction of labour was performed for 25.8% of women confined while 10.9% were confined without establishing labour (Table 16).

Of those women whose pregnancy was of breech presentation prior to delivery 75.7% were confined by caesarean section (Table 17).

The caesarean section proportion of confinements increased from 16.9% in 1988 to 18.1% in 1989 (Table 19).

A corresponding decrease in the incidence of spontaneous vaginal delivery from 65.1% in 1988 to 64.1% in 1989 occurred. The proportion of women confined with assistance or instrumental vaginal delivery has remained stable over the same period (Table 18).

The average birthweight was 3333 grams and six percent of all weighed less than 2500 grams at birth. When examined by maternal race 10.8% of babies born to Aboriginal women were of low birthweight (Table 35). More than two thirds (68.9%) of stillbirths were of low birthweight (Table 33.1).

Preterm birth (less than 37 weeks gestation) occurred for 1773 (7.0%) of the total births (Table 36.1) Of the multiple birth, 50.3% were preterm (Table 36.3).

Special neonatal care was required for 7.4% of total births during 1989. Of those admitted 4.5% stayed more than 28 days in special care (Table 39).

The majority of babies (79.3%) stayed in hospital between two and seven days after birth and another 17.0% stayed eight days or longer (Table 40.1).

Among the 25,481 births, 138 were stillborn and 121 of those liveborn died within the first twenty eight days of life (Table 41). Almost two thirds (58.6%) of the neonatal deaths occurred during the first day of life (Table 49).

Among multiple births, the stillbirth proportion increased from 8.9/1000 in 1988 to 13.6/1000 in 1989. Conversely the neonatal death proportion among multiple births decreased from 40.5/1000 to 33.0/1000 over the same period.

Causes of stillbirth included extremely low birthweight (30.4%) and lethal congenital malformations (14.5%). Stillbirths of unknown cause represented 34.8% of the total. For neonatal deaths, the major cause of death was low birthweight (less than 2500 grams) (43.8%) and lethal congenital malformations (40.5%) (Table 50).

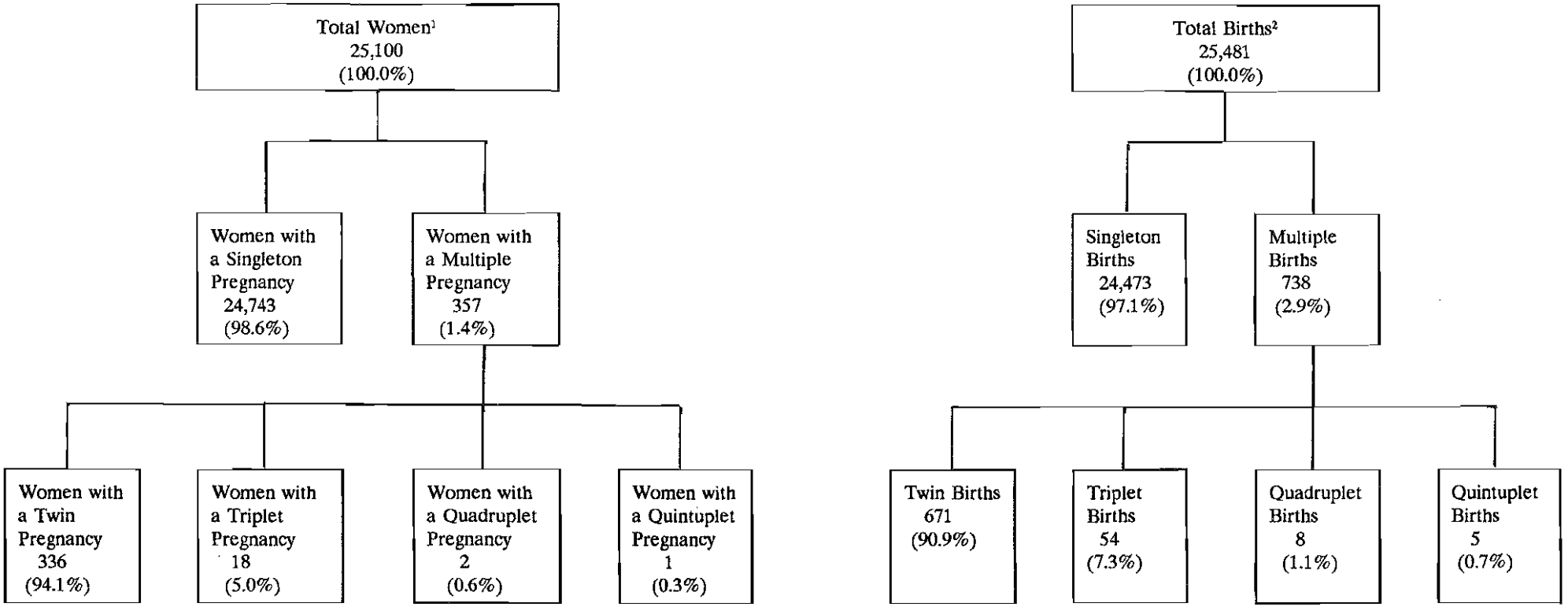
Autopsies were requested for 61.6% of stillbirths and 52.9% of neonatal deaths (Table 51).

Mortality proportions were identified by plurality for the 1989 birth cohort. The overall perinatal mortality for multiple births (46.1/1000) was almost seven times that for singleton births (9.1/1000).

The stillbirth proportion for multiple births was 13.6/1000 compared with 5.2/1000 for singleton births. For neonatal deaths the proportion for multiple births (33.0/1000) was eight times that of singleton births (3.9/1000) (Tree Diagram 2).

TREE DIAGRAM 1

PREGNANCIES AND BIRTHS IN WESTERN AUSTRALIA, 1989



Excludes births less than 500 grams birthweight.

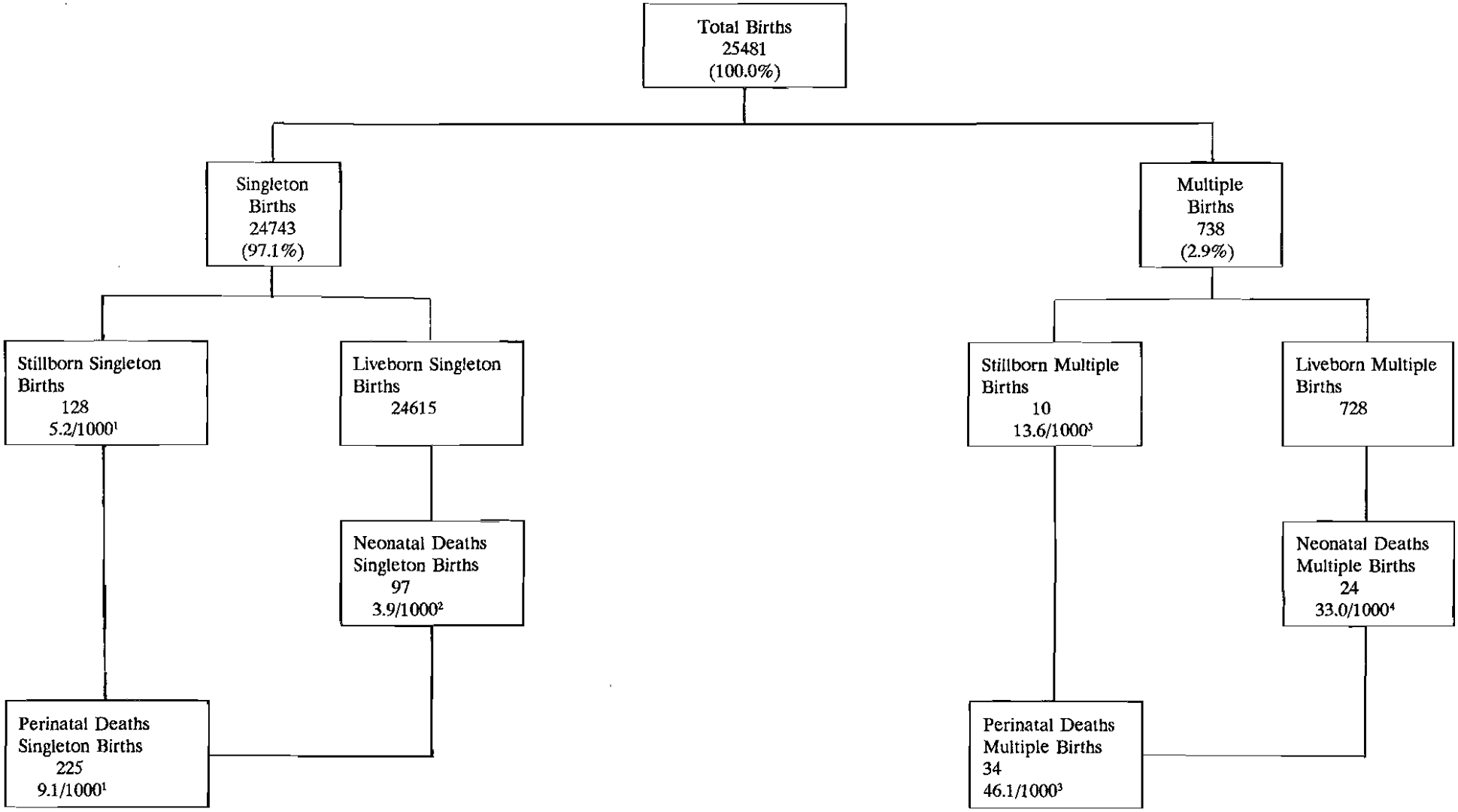
[1] Includes women with a twin pregnancy where one twin weighed less than 500 grams birthweight.

[2] Includes single twin birth whose birthweight was 500 grams or more.

SOURCE: MIDWIVES' NOTIFICATION SYSTEM

TREE DIAGRAM 2

PLURALITY OF BIRTHS AND PERINATAL DEATHS IN WESTERN AUSTRALIA, 1989



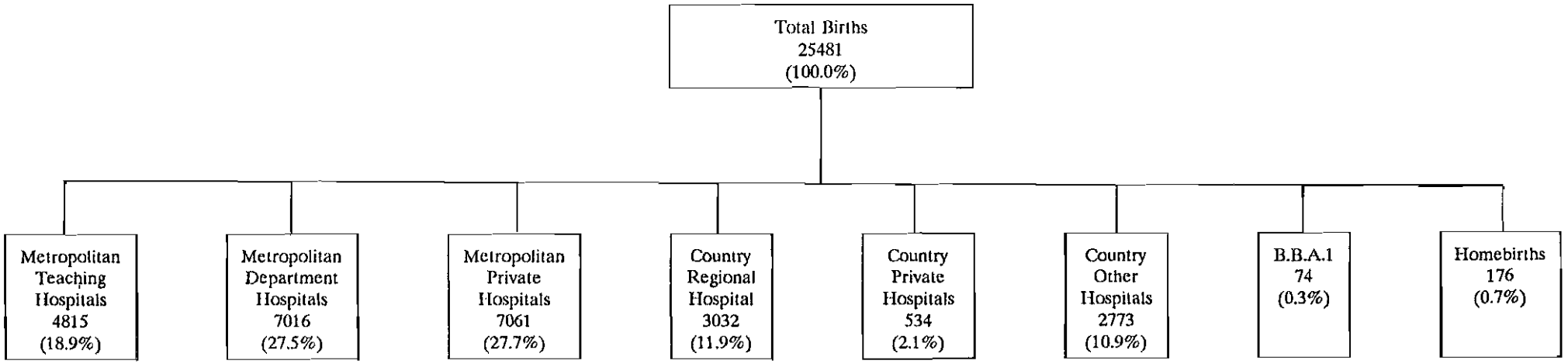
Excludes births less than 500 grams birthweight.

[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, 1989



Excludes births less than 500 grams birthweight.

[1] B.B.A. (born before arrival at hospital).

SOURCE: MIDWIVES' NOTIFICATION SYSTEM

SELECTED WESTERN AUSTRALIAN STATISTICS, 1983-1989

Obstetric Intervention Proportions (based on all confinements)	1983	1984	1985	1986	1987	1988	1989
Induction/1000 Confinements	256.9	245.5	257.9	269.4	262.2	258.9	257.5
Caesaren Section/1000 Confinements	132.7	138.6	151.7	156.4	169.0	169.4	180.8
Elective Caesarean/1000 Confinements	65.3	68.8	78.4	78.6	86.5	88.8	93.9
Emergency Caesarean/1000 Confinements	67.4	69.8	73.3	77.9	82.5	80.6	86.9
Fertility Rate							
Confinements/1000 Women-Years	71.4	69.3	69.7	70.1	66.8	66.3	65.0
Aboriginal Women/1000 Aboriginal Women-Years	147.2	139.2	145.4	138.9	136.6	148.5	136.9
Non-Aboriginal Women/1000 Non-Aboriginal Women-Years	69.7	67.4	67.7	68.3	64.9	64.1	63.1
Crude Birth Rate/1000 Person-Years	16.9	15.6	16.4	16.6	15.6	16.2	15.7
Low Birthweight (less than 2500 grams birthweight)							
Low Birthweight Births/1000 Total Births	63.4	68.3	62.6	60.0	61.6	61.3	66.7
Low Birthweight Singleton Births/1000 Singleton Births	53.2	49.4	51.0	49.0	49.8	48.8	51.6
Low Birthweight Multiple Births/1000 Multiple Births	542.0	457.4	549.2	530.1	523.3	515.6	537.9
Maternal Mortality/1000 Livebirths	0.04	0.04	0.04	0.04	0.08	0.04	0.04
Perinatal Mortality							
Stillbirths							
stillbirths/1000 births			6.4	6.1	5.5	4.7	5.4
singleton stillbirths/1000 singleton births			6.1	5.8	5.0	4.6	5.2
multiple stillbirths/1000 multiple births			22.3	20.0	25.0	8.9	13.6
Neonatal Mortality							
neonatal deaths/1000 livebirths			4.7	5.4	4.3	4.2	4.8
singleton neonatal deaths/1000 singleton livebirths			4.1	4.7	3.9	3.2	3.9
multiple neonatal deaths/1000 multiple livebirths			33.8	37.2	20.5	40.5	33.0
Perinatal Mortality							
perinatal deaths/1000 births			11.1	11.5	9.8	8.8	10.2
singleton perinatal deaths/1000 singleton births			10.1	10.5	8.9	7.7	9.1
multiple perinatal deaths/1000 multiple births			53.8	56.5	46.1	49.0	46.1

3. DEFINITIONS

Apgar Score

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

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.

4. MATERNAL DEMOGRAPHIC INFORMATION

4.1 Age

There were 25,100 women confined in Western Australia during 1989. The range of maternal age for these women was 13 years to 49 years with a mean age of 27.5 years. Women aged between 20 and 34 years represented 85.0% 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 8.7% from 8.4% in 1987. Of the women with multiple pregnancies 10(2.8%) were less than 20 years of age and 41(11.5%) 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, 1989

Maternal Age	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
≤13	2	-	-	-	2	-
14	19	0.1	-	-	19	0.1
15	47	0.2	1	0.3	48	0.2
16	164	0.7	1	0.3	165	0.7
17	303	1.2	3	0.8	306	1.2
18	467	1.9	3	0.8	470	1.9
19	569	2.3	2	0.6	571	2.3
20-24	5327	21.5	48	13.5	5375	21.4
25-29	9445	38.2	138	38.7	9583	38.2
30-34	6254	25.3	120	33.6	6374	25.4
35-39	1894	7.7	34	9.5	1928	7.7
40-44	241	1.0	7	2.0	248	1.0
≥45	11	-	-	-	11	-
TOTAL	24743	100.0	357	100.0	25100	100.0

Excludes births less than 500 grams birthweight.
Mean = 27.5 years. Standard Deviation = 5.1 years.

4.2 Race

Ethnic grouping of women identified the majority (87.7%) of women confined as caucasian. The remaining twelve percent was comprised of Aboriginal women (5.7%) and women of "other" races (6.6%).

Among multiple birth confinements 90.5% were to caucasian women, 4.2% to Aboriginal women and 5.3% to women of "other" racial classification (Table 2).

TABLE 2: RACE AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1989

Maternal	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
Caucasian	21699	87.7	323	90.5	22022	87.7
Aboriginal	1416	5.7	15	4.2	1431	5.7
Other	1628	6.6	19	5.3	1647	6.6
TOTAL	24743	100.0	357	100.0	25100	100.0

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

4.3 Conjugal State

Almost eleven percent of all women confined in Western Australia during 1989 were reported to be socially unsupported, being either single, widowed or separated. Single women represented the largest unsupported group (10.0%). For women with multiple pregnancy 5.9% were unsupported (Table 3, Figure I).

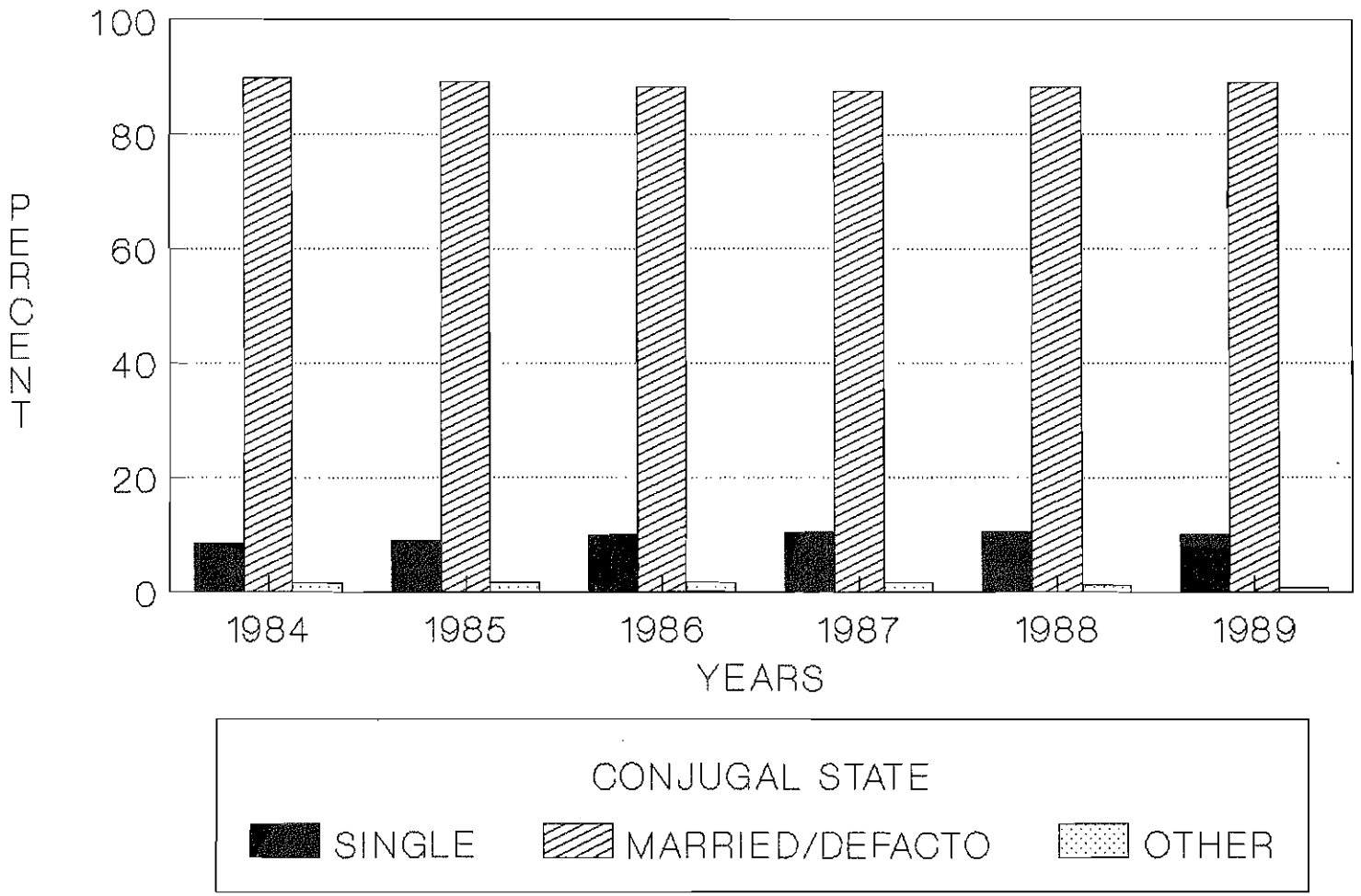
TABLE 3: CONJUGAL STATE AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1989

Conjugal State	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
Single	2483	10.0	16	4.5	2499	10.0
Married/Defacto	22038	89.1	336	94.1	22374	89.1
Other[1]	222	0.9	5	1.4	227	0.9
TOTAL	24743	100.0	357	100.0	25100	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, 1984-89



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

4.4 Health Service Management Regions

More than two thirds (68.0%) of women confined in 1989 provided a residential address within the four Metropolitan Health Service Management Regions. There were 31.9% of women confined whose usual place of residence was within the seven Country Health Service Management Regions and 17 women (0.1%) who were not usual residents of Western Australia.

Of the women with a multiple pregnancy 67.8% were Metropolitan residents and 32.2% were resident in country regions (Table 4, Figure II).

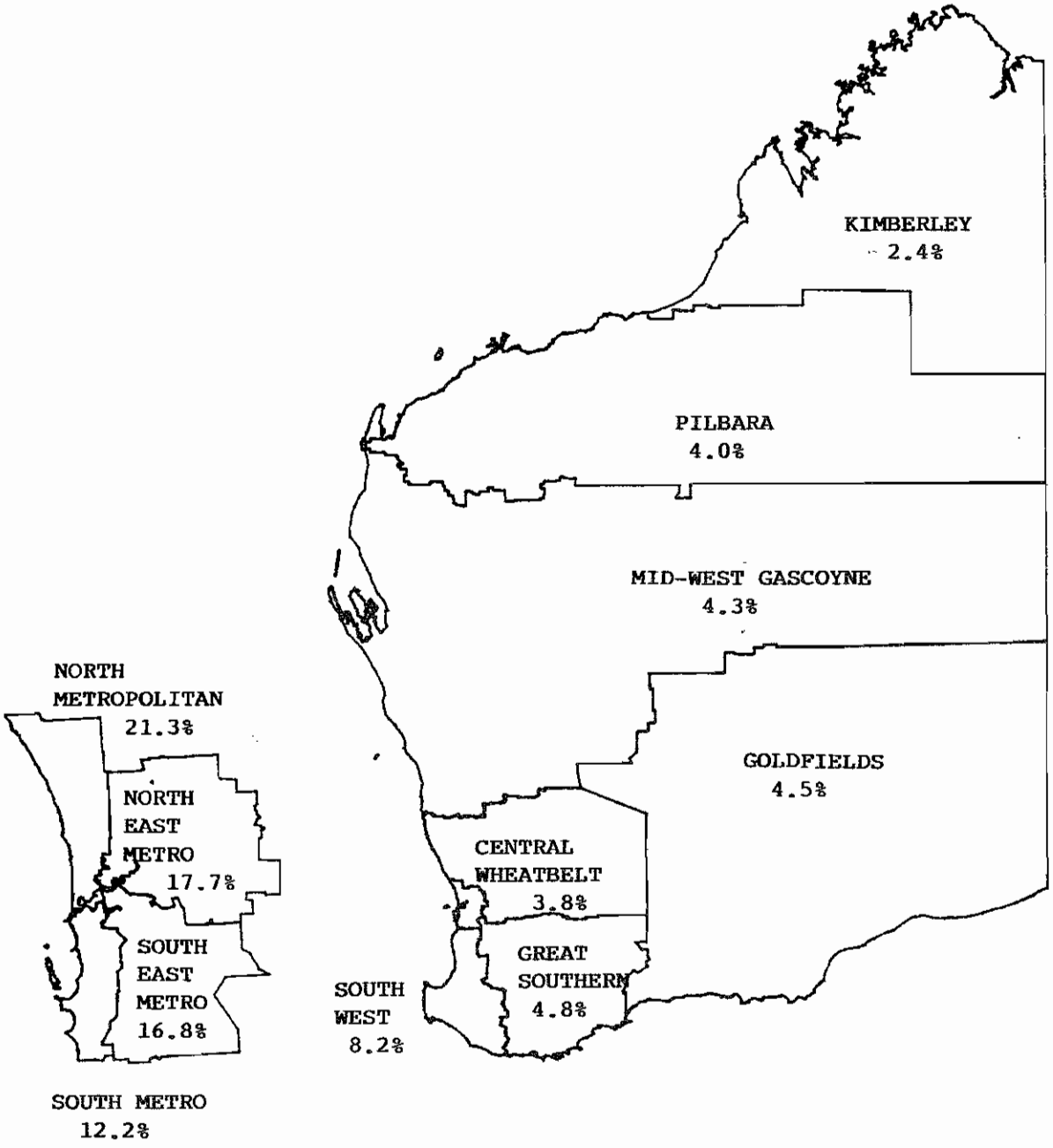
Information on Western Australian women confined during 1989 in other States and outside Australia is not included in this report.

TABLE 4: HEALTH SERVICE MANAGEMENT REGION OF RESIDENCE AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1989

Health Service Management Region	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
Metropolitan						
North	5263	21.3	75	21.0	5338	21.3
North East	4370	17.7	67	18.8	4437	17.7
South	3030	12.3	42	11.8	3072	12.2
South East	4166	16.8	58	16.3	4224	16.8
Country						
South West	2017	8.2	33	9.2	2050	8.2
Great Southern	1197	4.8	17	4.8	1214	4.8
Central Wheatbelt	938	3.8	7	2.0	945	3.8
Goldfields	1101	4.5	17	4.8	1118	4.5
Mid-West Gascoyne	1047	4.2	25	7.0	1072	4.3
Pilbara	990	4.0	11	3.1	1001	4.0
Kimberley	607	2.5	5	1.4	612	2.4
Outside WA	17	0.1	-	-	17	0.1
TOTAL	24743	100.0	357	100.0	25100	100.0

FIGURE II

HEALTH SERVICE MANAGEMENT REGION OF RESIDENCE OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1989



Excludes births less than 500 grams birthweight and those 17 (0.1%) mothers resident outside Western Australia.

SOURCE: Midwives' Notification System

Metropolitan Regions

Of the 25,100 women confined in Western Australia in 1989, 73.9% were confined in hospitals within the metropolitan area (Table 7).

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 95.0% were confined at hospitals within the region. Of these 20.7% were confined at a metropolitan teaching hospital and 74.3% at other hospitals in the region.

In the North East Metropolitan Region, almost half (48.1%) of women were confined in the region, 24.6% in a metropolitan teaching hospital and a further 21.7% in the North Metropolitan Region.

For women residing in the South Metropolitan Region 71.2% were confined in hospitals within the region with a further 18.5% confined in a metropolitan teaching hospital.

Among women resident in the South East Metropolitan Region, 45.1% were confined within the region, 28.1% at a metropolitan teaching hospital and another 13.4% were confined at hospitals in the South Metropolitan Region. (Table 8, Figure V)

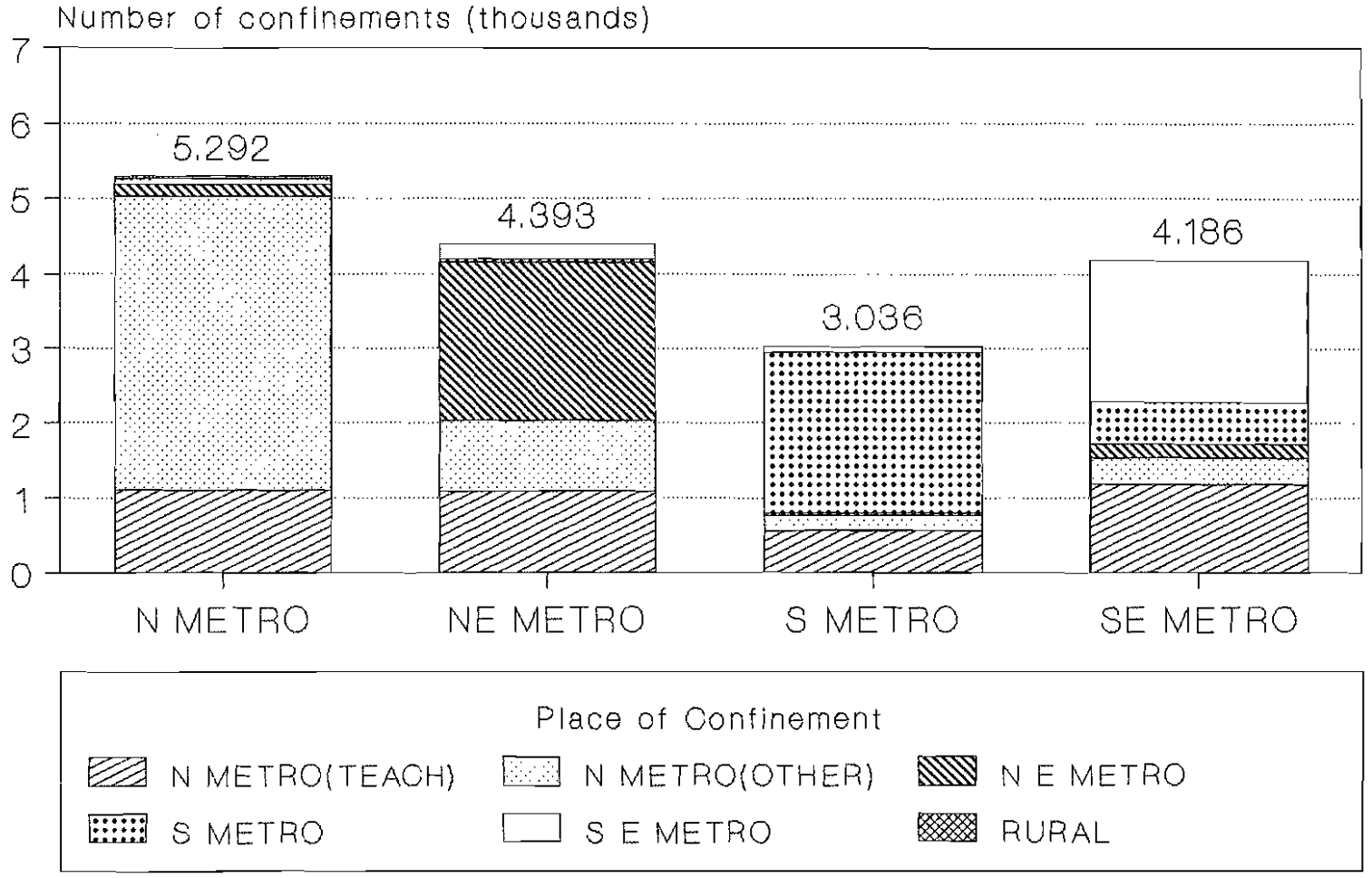
TABLE 5: MATERNAL RESIDENCE AND BIRTH HOSPITAL IN MANAGEMENT REGIONS FOR WOMEN CONFINED IN METROPOLITAN AREAS OF WESTERN AUSTRALIA - 1989

MATERNAL RESIDENCE MANAGEMENT REGIONS	BIRTH HOSPITALS IN MANAGEMENT REGIONS													
	NORTH METRO				NE METRO		SOUTH METRO		SE METRO		RURAL		TOTAL	
	Teaching		Other											
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
North Metro	1096	20.7	3933	74.3	165	3.1	71	1.3	26	0.5	1	-	5292	100.0
North East Metro	1082	24.6	951	21.7	2113	48.1	55	1.3	190	4.3	2	-	4393	100.0
South Metro	560	18.5	207	6.8	20	0.7	2162	71.2	74	2.4	13	0.4	3036	100.0
South East Metro	1177	28.1	363	8.7	190	4.5	559	13.4	1889	45.1	8	0.2	4186	100.0

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

FIGURE III

NUMBER OF HOSPITAL CONFINEMENTS AND MATERNAL RES METRO REGIONS IN WA, 1989



All women confined in hospital WA 1989

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

Country Regions

One quarter, (25.1%) of women confined in Western Australia during 1989 were confined in country hospitals (Table 7).

With the exception of the Central and Mid-West Gascoyne Health Service Management Regions more than 79% of women were confined at a hospital within the management region of their residence.

For the 2017 women residing in the South West Region, 85.0% were confined in the region and 14.4% in the metropolitan area.

In the Great Southern Region, of the 1192 women 79.2% were confined locally and 18.2% were confined in the metropolitan area.

Among the 1113 women residents confined in the Goldfields, 82.5% were attended in the Region and 16.2% in the metropolitan area.

Almost half (48.4%) of the 937 women residents confined in the Central Region were confined in a hospital in that region while 49.8% were confined in the metropolitan are and 1.8% in other regions.

Of the 1070 women confined in the Mid-West Gascoyne Region 71.0% were confined in the region and 27.6% in the metropolitan area.

For the 997 women for confinement resident in the Pilbara Region, 86.7% were confined at hospitals within the region and 12.6% travelled to the metropolitan regions for confinement.

Among those 600 women confined whose residence was in the Kimberley Region, 88.5% were confined in hospitals within the region and only 11.2% were confined in the metropolitan area (Table 9, Figure VI).

The movement of women to the metropolitan area for confinement reflects the geographical location of HSMRs and the levels of expertise and resources available to women during confinement in those Regions.

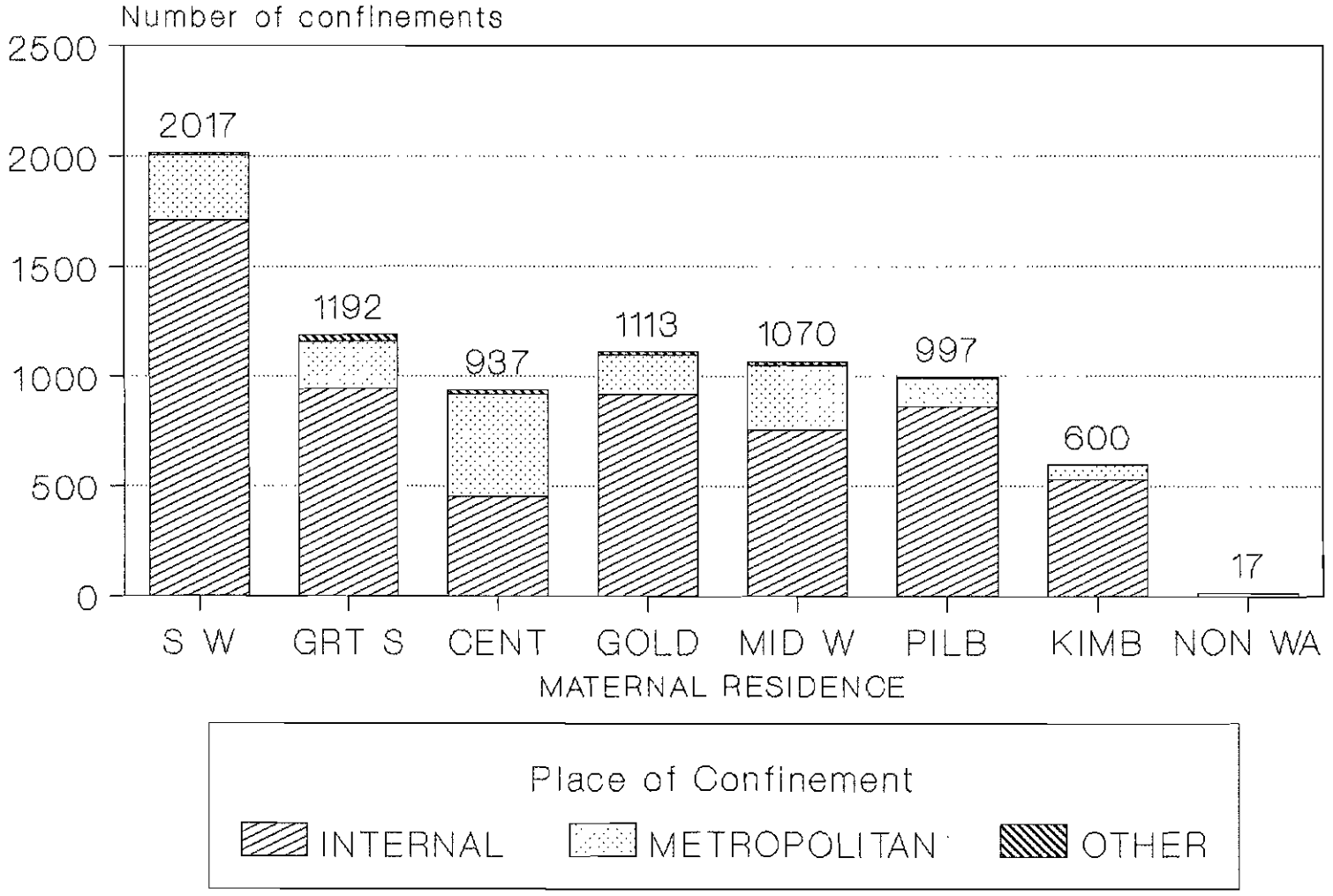
TABLE 6: MATERNAL RESIDENCE AND BIRTH HOSPITAL IN MANAGEMENT REGIONS FOR WOMEN CONFINED IN COUNTRY AREAS OF WESTERN AUSTRALIA - 1989

MATERNAL RESIDENCE MANAGEMENT REGION	BIRTH HOSPITALS IN MANAGEMENT REGIONS						TOTAL	
	INTERNAL		METROPOLITAN		OTHER			
	No.	%	No.	%	No.	%	No.	%
South West	1715	85.0	290	14.4	12	0.6	2017	100.0
Grt Southern	944	79.2	217	18.2	31	2.6	1192	100.0
Central	453	48.4	467	49.8	17	1.8	937	100.0
Goldfields	918	82.5	180	16.2	15	1.4	1113	100.0
Mid-West	760	71.0	295	27.6	15	1.4	1070	100.0
Pilbara	864	86.7	126	12.6	7	0.7	997	100.0
Kimberley	531	88.5	67	11.2	2	0.3	600	100.0
Non W.A.	-	-	15	88.2	2	11.8	17	100.0

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

FIGURE IV

NUMBER OF HOSPITAL CONFINEMENTS AND MATERNAL RES IN COUNTRY REGIONS IN WA



All women confined in hospital in 1989

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

4.5 Place of Confinement

During 1989 there were 25100 women confined in Western Australia. Of these, 99.0% occurred in metropolitan or country hospitals. Non-hospital births included 74 babies born before arrival at hospital (BBA) and 176 babies born at home as planned.

Almost 74% of total births were in metropolitan hospitals. These included 18.5% occurring in a metropolitan obstetric teaching hospital, 26.7% in metropolitan departmental (Government) hospitals and 27.7% in private metropolitan hospitals. The majority (91.6%) of the multiple births in 1989 occurred in metropolitan hospitals, with 45.4% being delivered in a teaching hospital (Table 5, Figure III).

TABLE 7: PLACE OF CONFINEMENT AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1989

Place of Birth	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
Metropolitan						
[1] Teaching	4470	18.1	162	45.4	4632	18.5
Department	6902	27.9	57	16.0	6959	27.7
Private	6841	27.7	108	30.3	6949	27.7
Country						
[2] Regional	3003	12.1	15	4.2	3018	12.0
Private	516	2.1	9	2.5	525	2.1
[3] Other	2761	11.2	6	1.7	2767	11.0
Non-Hospital						
Homebirths	176	0.7	-	-	176	0.7
[4] BBA	74	0.3	-	-	74	0.3
TOTAL	24743	100.0	357	100.0	25100	100.0

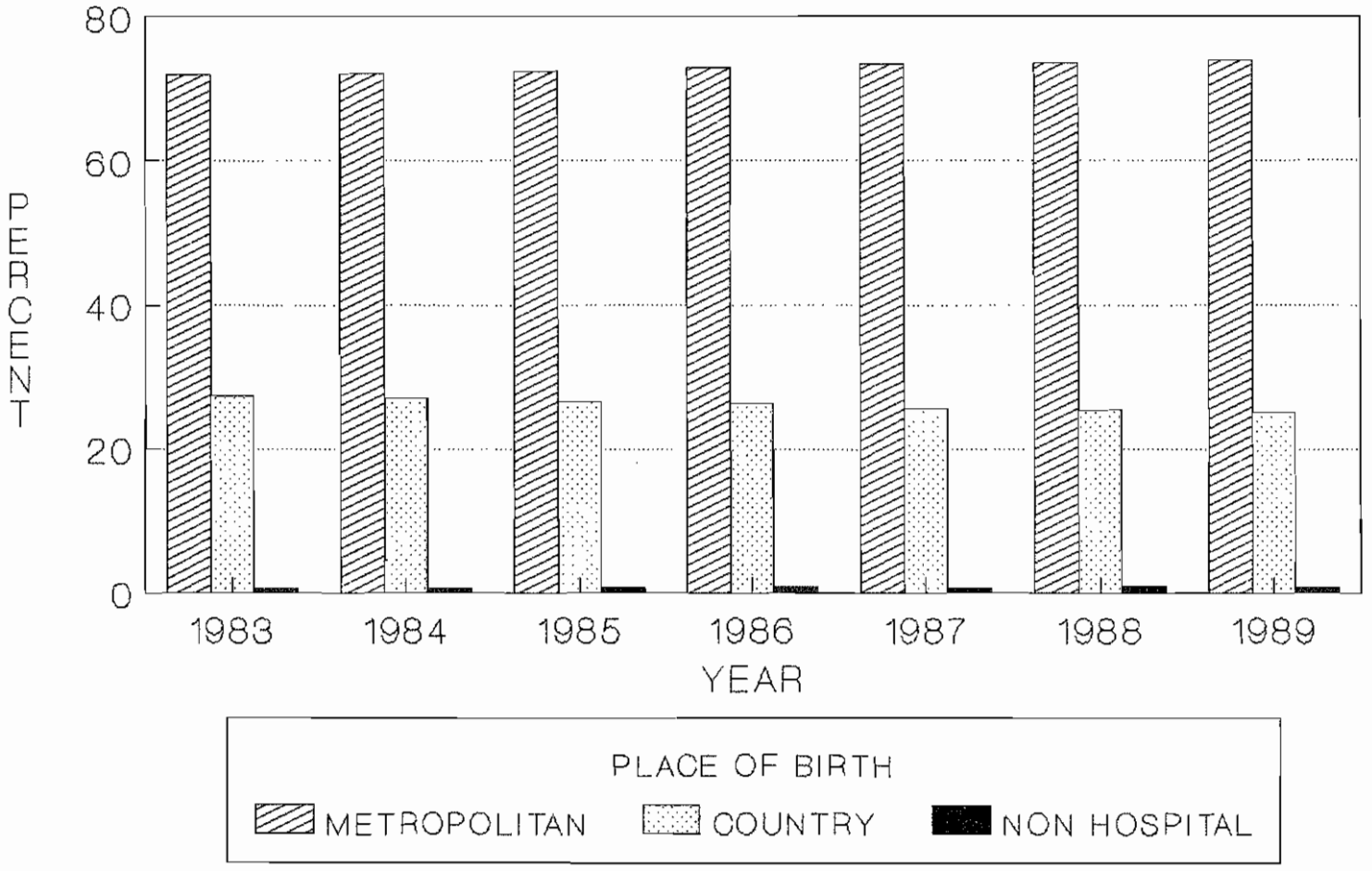
Excludes births less than 500 grams birthweight

[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 remained the same as for the previous twelve months representing 0.7% of total births (Table 6, Figure IV).

FIGURE V

PLACE OF CONFINEMENT FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1983-1989



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

TABLE 8: HOMEBIRTHS IN WESTERN AUSTRALIA, 1980-1989

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
1989	176	0.7

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

In 1989 there were 36 women who had planned a homebirth but because of complications were either referred or transferred during pregnancy (36.1%) or during labour (63.9%). These women and their babies are included in hospital birth statistics (Table 7).

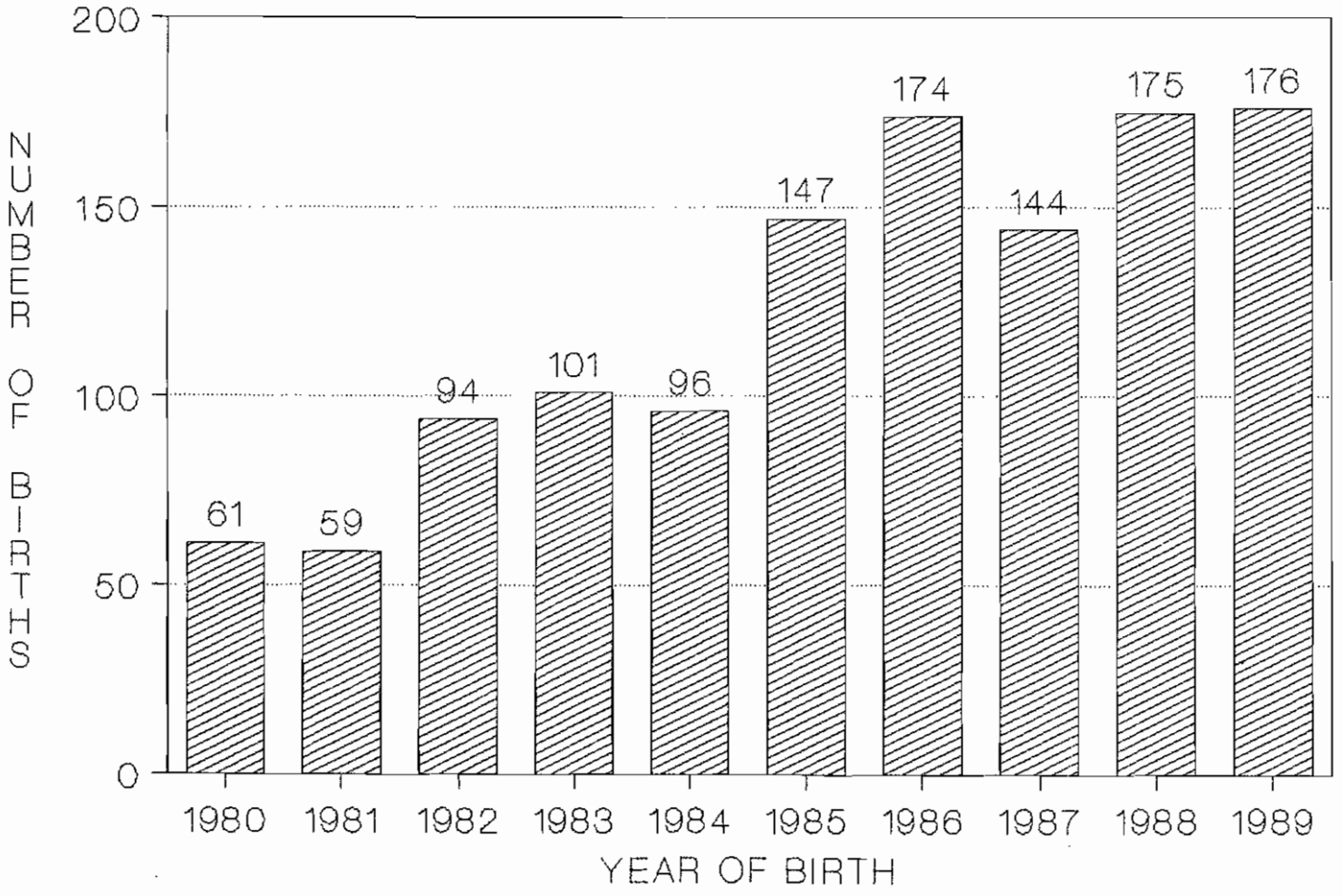
TABLE 9: REFERRAL/TRANSFER OR WOMEN WHO PLANNED A HOMEBIRTH IN WESTERN AUSTRALIA IN 1989

Time of Referral/Transfer	No.	%
Antepartum	13	36.1
Intrapartum	23	63.9
TOTAL	36	100.0

One other woman received medical attention in hospital following postpartum haemorrhage. The babies of four other women were admitted to hospital following homebirth for screening of febrile conditions or investigation of suspected cardiac disorders.

FIGURE VI

HOMEBIRTHS IN WESTERN AUSTRALIA
1980-1989



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

5. PREGNANCY PROFILE

5.1 Previous Pregnancies

More than a third of the total women confined were confined for the first time. The range of previous confinements extended to seventeen with a mean parity of 1.04. Of those women with a multiple pregnancy 39.8% were identified as nulliparous. Only 10.3% of women confined had a parity of three or more (Table 10).

The highest number of recorded previous pregnancies was seventeen. Mean = 1.4 previous pregnancies. Standard Deviation = 1.5.

TABLE 10: PARITY AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1989

Parity	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
0	9768	39.5	142	39.8	9910	39.5
1-2	12432	50.2	175	49.0	12607	50.2
3-4	2208	8.9	34	9.5	2242	8.9
≥5	335	1.4	6	1.7	341	1.4
TOTAL	24743	100.0	357	100.0	25100	100.0

Excludes births less than 500 grams birthweight.

Of the 9910 nulliparous women, 1277 (12.9%) were identified as teenagers (19 years or less), 82.8% were aged 20 to 34 years. Amongst the 259 women aged forty or more, 41 were having their first baby. There were two teenagers who had a parity of three or more (Table 11).

Teenage mothers were 80.8% nulliparous and 19.2% had a parity of 1-4. There were 259 women confined aged 40 years or more. Of these 15.8% were nulliparous, 46.7% with parity of 1-2, 28.6% with parity 3-4 and 8.9% with parity of 5 or more.

TABLE 11: PARITY AND AGE OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1989

Maternal Age	Parity								Total	
	0		1-2		3-4		5			
	No.	%	No.	%	No.	%	No.	%	No.	%
<15	21	0.2	-	-	-	-	-	-	21	0.1
15-19	1256	12.7	302	2.4	2	0.1	-	-	1560	6.2
20-24	2893	29.2	2299	18.2	170	7.6	13	3.8	5375	21.4
25-29	3698	37.3	5077	40.3	709	31.6	99	29.0	9583	38.2
30-34	1614	16.3	3763	29.9	880	39.3	117	34.3	6374	25.4
35-39	387	3.9	1045	8.3	407	18.2	89	26.1	1928	7.7
40-44	40	0.4	116	0.9	71	3.2	21	6.2	248	1.0
≥45	1	-	5	-	3	0.1	2	0.6	11	-
TOTAL	9910	100.0	12607	100.0	2242	100.0	341	100.0	25100	100.0

Excludes births less than 500 grams birthweight.

When maternal age was examined for primiparous women confined during 1980-1989, an obvious change in age of women having their first pregnancies was discernible. Among teenage primiparous women the percentage of confinements decreased from 17.2% in 1980 to 12.9% in 1989. For primiparous women aged 30 years or more there was a marked increase from 10.3% in 1980 to 20.2% in 1989. The average age of primiparous women was 25.5 years (Table 12, Figure VII).

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

TABLE 13: PARITY AND RACE OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1989

Parity	Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
0	8845	40.2	414	28.9	651	39.5	9910	39.5
1-2	11167	50.7	613	42.8	827	50.2	12607	50.2
3-4	1803	8.2	287	20.1	152	9.2	2242	8.9
≥5	207	0.9	117	8.2	17	1.0	341	1.4
Total	22022	100.0	1431	100.0	1647	100.0	25100	100.0

Excludes births less than 500 grams birthweight.

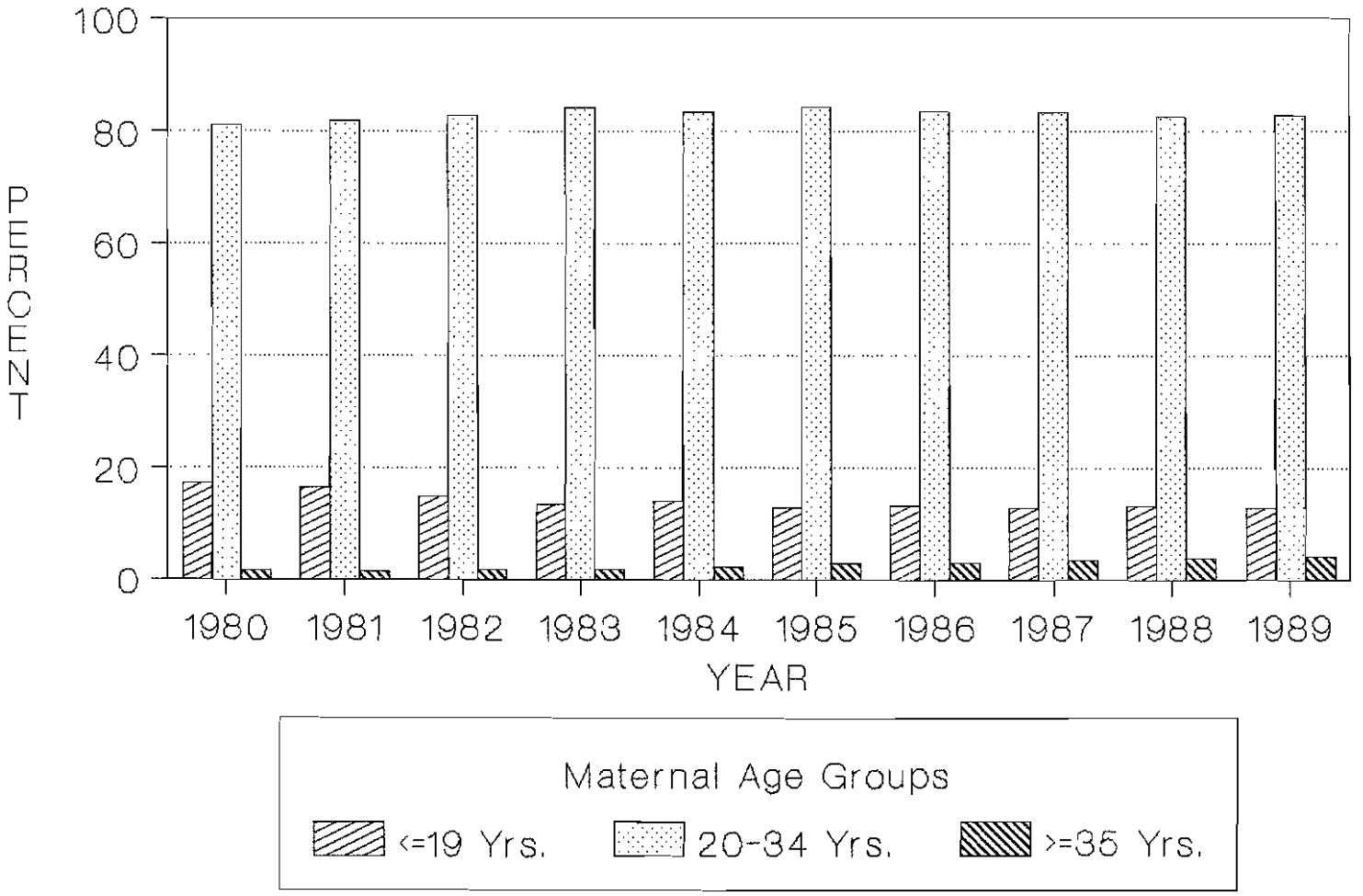
TABLE 12: AGE OF PRIMIPAROUS WOMEN AT CONFINEMENT IN WESTERN AUSTRALIA 1980-1989

Maternal Age	1980		1981		1982		1983		1984		1985		1986		1987		1988		1989	
	No.	%	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	21	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	46	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	156	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	269	2.7
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	389	3.9
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	396	4.0
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	2893	29.2
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	3698	37.3
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	1614	16.3
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	387	3.9
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	40	0.4
≥45	3	-	-	-	-	-	2	-	3	-	-	-	1	-	-	-	-	-	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	9910	100.0

Excludes births less than 500 grams birthweight.
1989 Mean = 25.5 years. Standard Deviation = 5.0.

FIGURE VII

MATERNAL AGE OF PRIMIPAROUS WOMEN CONFINED IN WESTERN AUSTRALIA 1980-1989



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

5.2 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 to adjust the denominators in accord with the directive of Hicks.[3]

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 eight times greater, while for the 20 to 34 year group it is more than double the rate for non-Aboriginal women. The rates of both groups in the 35 to 44 year age group are more equitable (Table 14, Figure VIII).

TABLE 14: FERTILITY RATES[1] OF ABORIGINAL, NON-ABORIGINAL AND TOTAL WOMEN CONFINED IN WESTERN AUSTRALIA, 1989

Maternal Age	Aboriginal			Non-Aboriginal			Total		
	Births	Population	Fertility Rate[1]	Births	Population	Fertility Rate[1]	Births	Population	Fertility Rate[1]
15-19	403	2582	156.1	1157	62472	18.5	1560	65054	24.0
20-24	513	2242	228.8	4862	61857	78.6	5375	64099	83.9
25-29	318	1921	165.5	9265	67045	138.2	9583	68966	139.0
30-34	139	1545	90.0	6235	65510	95.2	6374	67055	95.1
35-39	40	1207	33.1	1888	62915	30.0	1928	64122	30.1
40-44	2	839	2.4	246	55331	4.4	248	56170	4.4
TOTAL	1415	10336	136.9	23653	375130	63.1	25068	385466	65.0

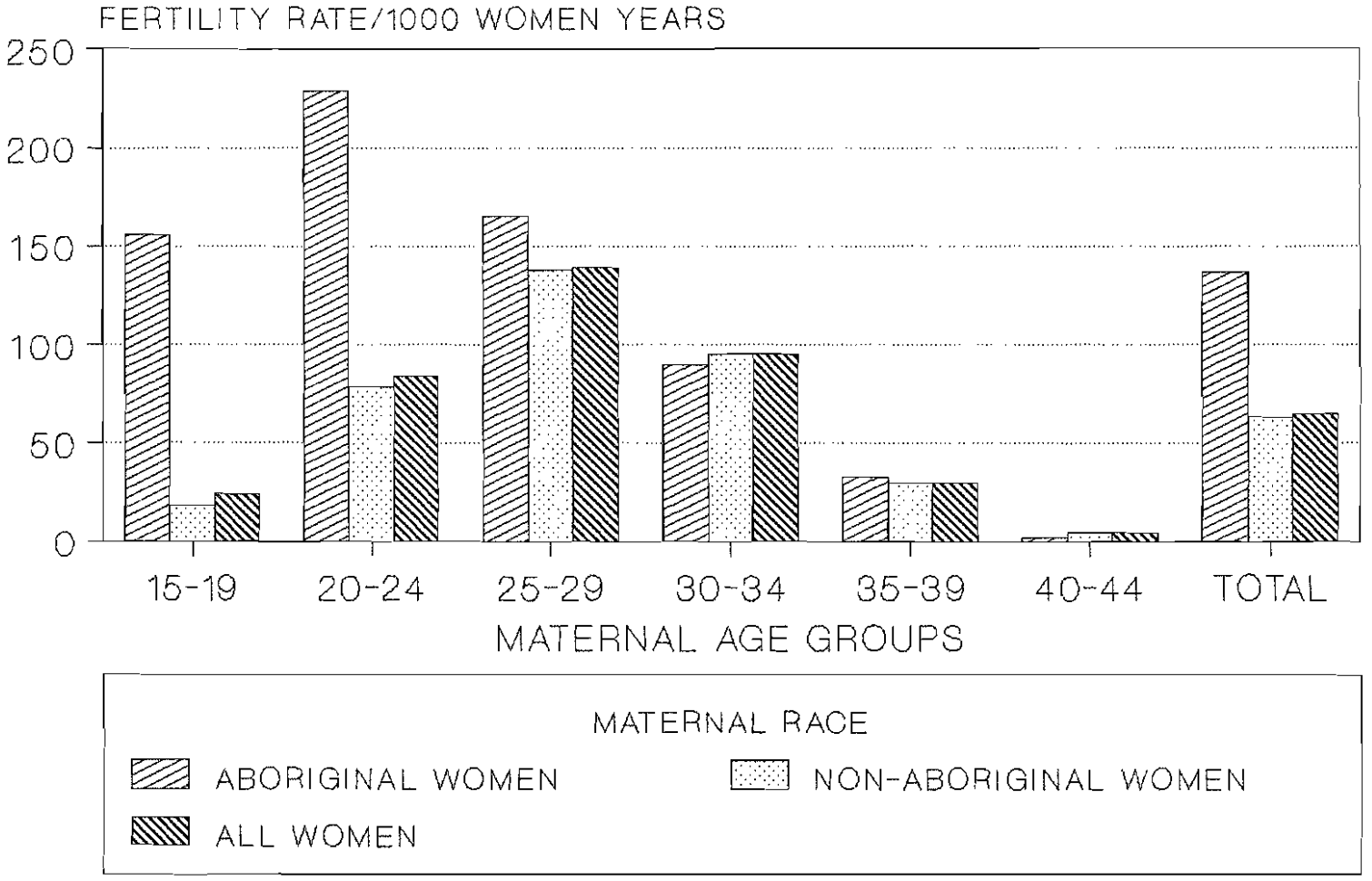
Excludes births less than 500 grams birthweight.

[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. 1989.



Excludes births less than 500 gram birthweight.

[1]Fertility Rates: Total Births/1000 Women Years.

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

5.3 Complications of Pregnancy

More than two thirds of all women confined during 1989 were recorded as having no complications of pregnancy.

Pre-eclampsia was reported in 1606 (6.4%) of women. Of the 53 (14.9%) women with multiple pregnancy, the proportion for pre-eclampsia was more than twice that for women with singleton pregnancies (6.3%). Also, there were 929 (3.7%) women recorded as having unspecified hypertension, 304 (1.2%) with anaemia of pregnancy, 578 (2.3%) women had a viral or bacterial genito-urinary tract infection, 230 (0.9%) had retarded fetal growth and 243 (1.0%) showed symptoms of gestational diabetes (Table 15).

TABLE 15:

SELECTED COMPLICATIONS OF PREGNANCY AND PLURALITY OF WOMEN CONFINED WESTERN AUSTRALIA, 1989

	Plurality				Total	
	Singleton		Multiple			
	No.	%[1]	No.	%[2]	No.	%
No complications	16713	67.6	101	28.3	16814	67.0
Complication						
Threatened Abortion	1183	4.8	29	8.1	1212	4.8
Urinary Tract Infection	1030	4.2	13	3.6	1043	4.2
Pre-eclampsia	1553	6.3	53	14.9	1606	6.4
A.P.H. - placenta praevia	138	0.6	1	0.3	139	0.6
- abruptio	161	0.7	5	1.4	166	0.7
- other	622	2.5	18	5.0	640	2.6
Premature Rupture of Membranes	919	3.7	48	13.5	967	3.9
Other	3981	16.1	203	56.9	4184	16.7

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[4] 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.

5.4 Medical Conditions

Among the 25,100 women confined during 1989, there were 4097 reported instances of pre-existing medical complications. Of these 981 (3.9%) of women confined were reported as asthmatic, 115 (0.5%) as epileptic, 67 (0.3%) as having pre-existing diabetes and 81 (0.3%) with thyroid disorders.

6. LABOUR AND DELIVERY

6.1 Onset of Labour

Almost two - thirds (63.3%) of total women confined during 1989 established labour spontaneously. Among women with multiple pregnancy 45.4% had a spontaneous onset of labour.

Induction of labour occurred for 25.8% of total women confined. One hundred and one (28.3%) women with multiple pregnancy underwent induction of labour. Of those women who did not establish labour, 10.7% were singleton and 26.3% were of multiple pregnancy (Table 16).

TABLE 16: ONSET OF LABOUR AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1989

Onset of Labour	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
Spontaneous	15730	63.6	162	45.4	15892	63.3
Induced	6363	25.7	101	28.3	6464	25.8
No labour	2650	10.7	94	26.3	2744	10.9
Total	24743	100.0	357	100.0	25100	100.0

Excludes births less than 500 grams birthweight.

There were 43 (0.2%) women reported as having had a failed induction of labour during 1989.

From 1981 to 1989 the number of women in Western Australia having an induction of labour has remained between 25-27% of total confinements.

6.2 Presentation

The presentation for the 24,743 singleton births was identified as 23,577 (95.3%) vertex, 987 (4.0%) breech, and 179 (0.7%) "other" presentations (Table 17).

Cephalic presentations of singleton births were delivered vaginally in 67.6% of cases during 1989.

Almost three quarters (75.7%) of total singleton births presenting by the breech were delivered by caesarean section (46.1% elective and 29.6% emergency caesarean section) (Table 17).

TABLE 17: PRESENTATION AND TYPE OF DELIVERY FOR SINGLETON BIRTHS IN WESTERN AUSTRALIA, 1989

Type of Delivery	Presentation						Total	
	Cephalic		Breech		Other			
	No.	%	No.	%	No.	%	No.	%
Normal	15944	67.6	17	1.7	35	19.6	15996	64.7
Vacuum	1923	8.2	-	-	7	3.9	1930	7.8
Forceps	2188	9.3	9	0.9	14	7.8	2211	8.9
Breech Manoeuvre	2	-	214	21.7	2	1.1	218	0.9
Elective Caesaren	1791	7.6	455	46.1	47	26.3	2294	9.3
Emergency Caesarean	1729	7.3	292	29.6	74	41.3	2094	8.5
Total	23577	100.0	987	100.0	179	100.0	24743	100.0

Excludes births less than 500 grams birthweight.

6.3 Type of Delivery

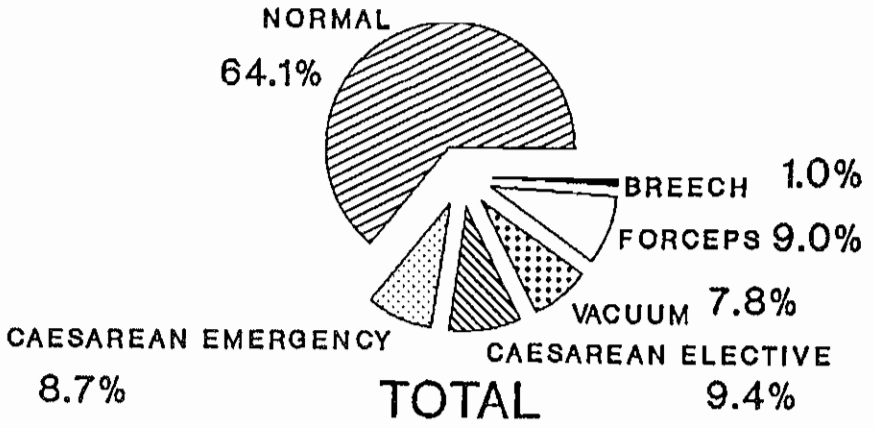
Less than two thirds (64.1%) of the total women confined in 1989 had a spontaneous vaginal delivery. Vaginal instrumental deliveries occurred in approximately one in five of total confinements with 7.8% of women having a vacuum extraction and 9.0% a forcep delivery.

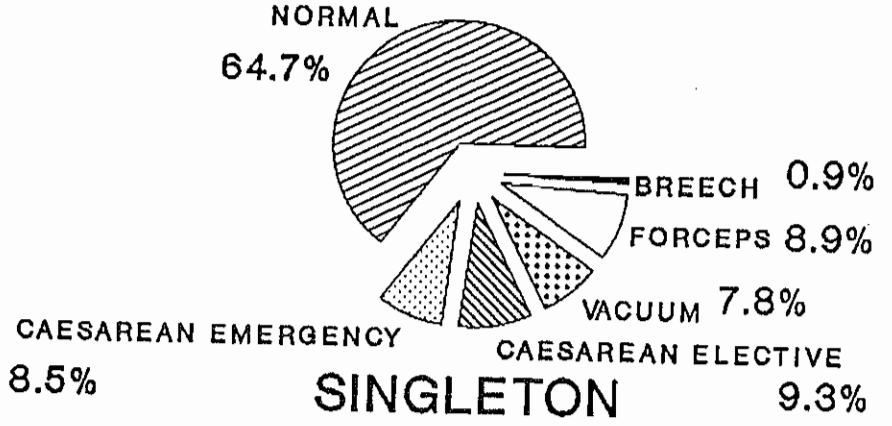
Among women with a multiple pregnancy, 150 (42.1%) were delivered by caesarean section. Spontaneous vaginal deliveries occurred for 97 (27.2%) multiple pregnancies (Table 18, Figure IX).

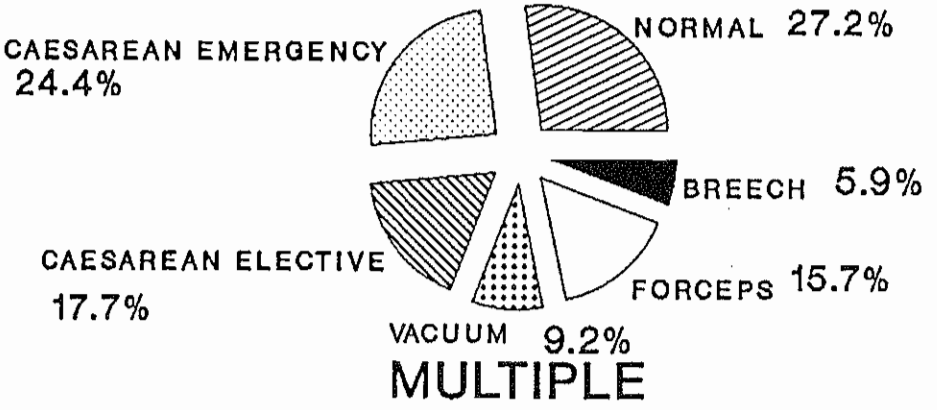
Of the women who were delivered by caesarean section during 1989, one third (33.3%) had had a previous caesarean section delivery or other uterine surgery.

FIGURE IX

TYPE OF DELIVERY AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1989







Excludes births less than 500 grams birthweight.
Multiple births relate to first multiple.

Source: Midwives' Notification System.

TABLE 18: TYPE OF DELIVERY AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1989

Type of Delivery	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
Normal	15996	64.7	97	27.2	16093	64.1
Vacuum	1930	7.8	33	9.2	1963	7.8
Forceps	2211	8.9	56	15.7	2267	9.0
Breech Manoeuvre	218	0.9	21	5.9	239	1.0
Elective Caesarean	2293	9.3	63	17.7	2356	9.4
Emergency Caesarean	2095	8.5	87	24.4	2182	8.7
Total	24743	100.0	357	100.0	25100	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 1989, 18.1% of women were delivered by this method (Table 19, Figure X). This increase reflects both national and international trends. Data from South Australia in 1988 reported caesarean section proportions of 20.2%[7], Victoria in 1988, 15.9%[8], NSW in 1987 15.9%[9], and Tasmania 12.9% in 1988[10].

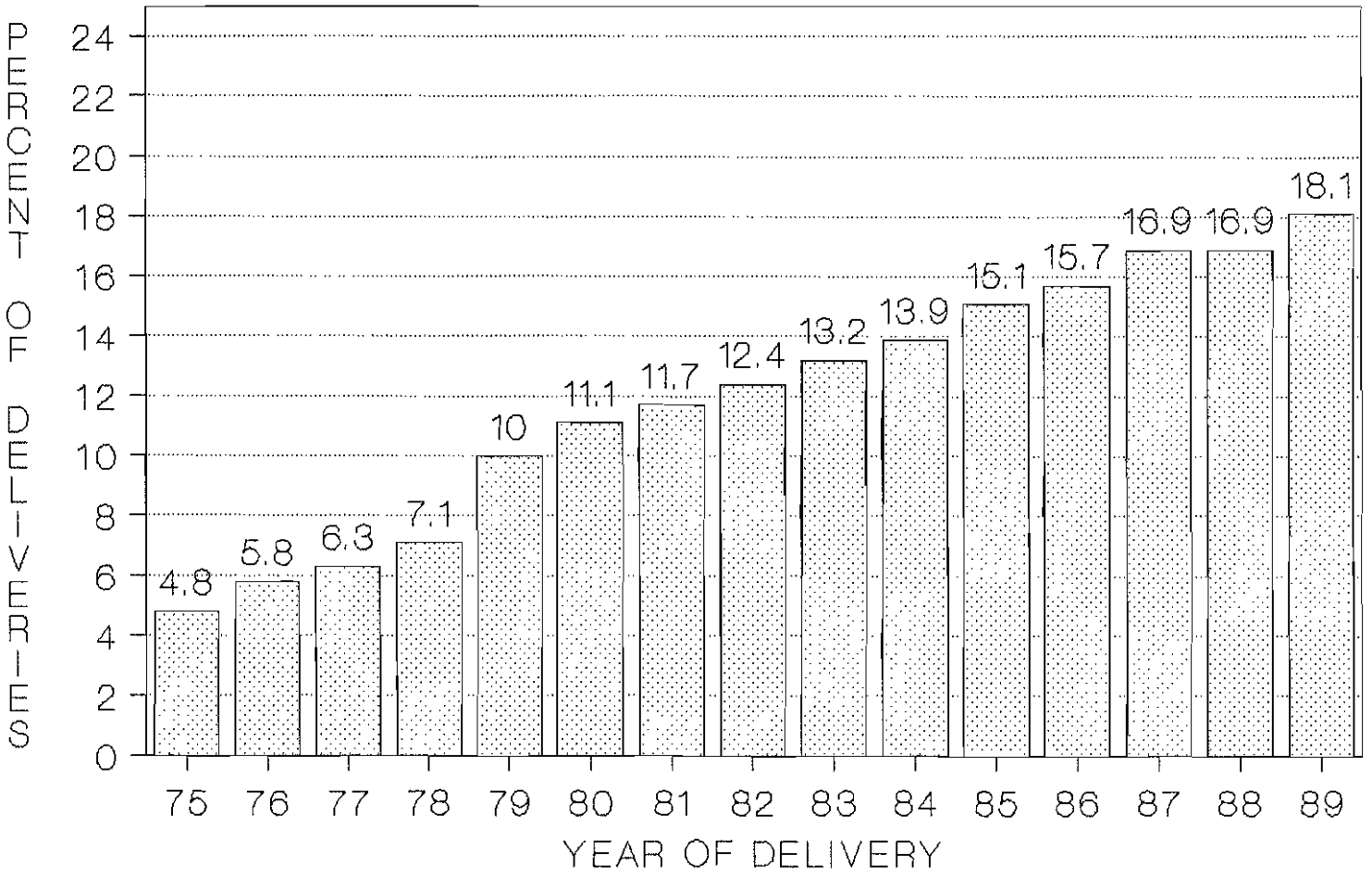
TABLE 19: CAESAREAN SECTION IN WOMEN CONFINED IN WESTERN AUSTRALIA, 1975-1989

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
1989	18.1

Excludes births less than 500 grams birthweight.

FIGURE X

CAESAREAN SECTIONS IN WESTERN AUSTRALIA 1975-1989



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

Of those women confined by caesarean section in Western Australia during 1989, the highest proportion were at metropolitan obstetric teaching and private hospitals. Overall, elective caesarean sections comprised 9.5% and emergency caesarean section 8.8% of women confined in hospital (Table 20).

TABLE 20: PLACE OF CONFINEMENT AND CAESAREAN SECTION FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1989

Place of Birth	Caesarean Section						Total		
	Elective			Emergency					
	No.	women confined	%	No.	women confined	%	No.	women confined	%
Metropolitan									
Teaching	428	4632	9.2	660	4632	14.2	1088	4632	23.5
Departmental	553	6959	7.9	493	6959	7.1	1046	6959	15.0
Private	903	6949	13.0	616	6949	8.9	1519	6949	21.9
Country									
Regional	286	3018	9.5	264	3018	8.7	550	3018	18.2
Private	60	525	11.4	42	525	8.0	102	525	19.4
Other	126	2767	4.6	107	2767	3.9	233	2767	8.4
Total	2356	24850	9.5	2182	24850	8.8	4538	24850	18.3

Excludes births less than 500 grams birthweight.
Excludes 176 homebirths and 74 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 5 and 12 hours of labour. There were 65 women or 0.3% 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, 1989**

Maternal Age	Metropolitan									Country								Total		
	Teaching			Departmental			Private			Regional			Private			Other					
	No.	Women	%	No.	Women	%	No.	Women	%	No.	Women	%	No.	Women	%	No.	Women	%	No.	Women	%
≤ 19	65	442	14.7	61	488	12.5	5	30	16.7	57	378	15.1	2	10	20.0	10	217	4.6	200	1565	12.8
20-34	839	3587	23.4	895	6011	14.9	1311	6168	21.3	461	2481	18.6	91	477	19.1	212	2404	8.8	3809	21128	18.0
≥ 35	184	603	30.5	90	460	19.6	203	751	27.0	32	159	20.1	9	38	23.7	11	146	7.5	529	2157	24.5
Total	1088	4632	23.5	1046	6959	15.0	1519	6949	21.9	550	3018	18.2	102	525	19.4	233	2767	8.4	4538	24850	18.3

Excludes births less than 500 grams birthweight.
Excludes 176 homebirths and 74 BBA's.

TABLE 22: HOURS OF ESTABLISHED LABOUR AND ONSET OF LABOUR OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1989

Hours of Labour	Onset of Labour			
	Spontaneous		Induction	
	No.	%	No.	%
<1	164	1.0	121	1.9
1-4	5822	36.7	3034	46.9
5-12	8564	53.9	3054	47.3
13-18	1059	6.7	221	3.4
19-24	219	1.4	25	0.4
>24	56	0.4	9	0.1
Total	15884	100.0	6464	100.0

Excludes births less than 500 grams birthweight, 2744 (10.9%) women who did not experience labour, and 8 women for whom hours of established labour was not known.

Examination of type of delivery and hours of established labour showed that over half (52.4%) of women confined had a labour lasting between 5 and 24 hours and of these 64.5% 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 (1.2%) women whose labour was recorded as 19 hours or more (Table 23).

6.5 Complications of Labour and Delivery

There were no complications of labour or delivery recorded for almost half (47.8%) of the women confined in 1989. However, for women with multiple pregnancies only 33.3% of women were reported to have had no complications.

Among those women identified as having had a complication, fetal distress was recorded for 13.2% of singleton pregnancies and 10.4% of multiple pregnancies. Cephalopelvic disproportion was identified for 5.2% of all women confined (Table 24).

Other complications included; 301 (1.2%) women with hypertension; 122 (0.5%) women with severe pre-eclampsia and five women were recorded as having had an eclamptic fit.

Prolonged first stage of labour was identified in 35 (0.1%) prolonged second stage in 434 (1.7%) women and unspecified prolonged labour occurred in 47 (0.2%) women. Perineal tears were identified as first degree in 316 (1.3%) cases, second degree in 296 (1.2%) cases and 85 (0.3%) women had a third degree tear.

Primary postpartum haemorrhage was recorded for 717 (2.9%) women and retained placenta in 313 (1.2%) women.

TABLE 23: TYPE OF DELIVERY AND HOURS OF ESTABLISHED LABOUR FOR WOMEN CONFINED IN WESTERN AUSTRALIA, 1989

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	-	-	-	-	7586	85.6	7832	67.4	557	43.5	85	34.8	25	38.5	16085	64.1
Vacuum	-	-	-	-	366	4.1	1322	11.4	218	17.0	42	17.2	15	23.1	1963	7.8
Forceps	-	-	-	-	431	4.9	1505	13.0	267	20.8	55	22.5	9	13.8	2267	9.0
Breech Manoeuvre	-	-	-	-	98	1.1	129	1.1	10	0.8	-	-	2	3.1	239	1.0
Elective Caesarean	2356	78.0	-	-	-	-	-	-	-	-	-	-	-	-	2356	9.4
Emergency Caesarean	388	22.0	275	100.0	382	4.3	832	7.2	229	17.9	62	25.4	14	21.5	2182	8.7
Total	2744	100.0	275	100.0	8863	100.0	11620	100.0	1281	100.0	244	100.0	65	100.0	25092	100.0

Excludes births less than 500 grams birthweight.
Excludes 8 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[1] and ongoing education and feedback to midwives.

TABLE 24: SELECTED COMPLICATIONS OF LABOUR AND DELIVERY AND PLURALITY OF WOMEN CONFINED IN WESTERN AUSTRALIA, 1989

	Plurality				Total	
	Singleton		Multiple			
	No.	%[1]	No.	%[2]	No.	%[3]
No Complication	11887	48.0	119	33.3	12006	47.8
Precipitate Delivery	1479	6.0	11	3.1	1490	5.9
Fetal Distress	3262	13.2	37	10.4	3299	13.1
Prolapsed Cord	86	0.4	2	0.6	88	0.4
Cord Tightly Around Neck	1711	6.9	8	2.2	1719	6.9
Cephalopelvic Disproportion	1309	5.3	7	2.0	1316	5.2
Other	8245	33.3	212	59.4	8457	33.7

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.

7. BABY CHARACTERISTICS

7.1 Births

Notification of Case Attended Form 2 (Appendix A) were received for 25,481 births of 500 grams birthweight or more in 1989.

Singleton births numbered 24,743 (97.1%) and multiple births 738 (2.9%). There were 671 multiple births, comprised of 333 sets of twins and 5 additional twins whose sibling birthweight was less than 500 grams, plus 18 sets of triplets, two sets of quadruplets and one set of quintuplets (Tree Diagram 1).

Since 1980, the proportion of triplet births has increased from 0.1/1000 to 2.1/1000 total births. The proportion of twin births has also risen from 19.2/1000 to 26.3/1000 total births[11] (Table 25).

TABLE 25: PLURALITY OF BIRTHS IN WESTERN AUSTRALIA, 1980-1989

Year of Birth	Plurality					Total
	Singleton	Twin	Triplet	Quadruplet	Quins	
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
1989	24743	671[7]	54	8	5	25481

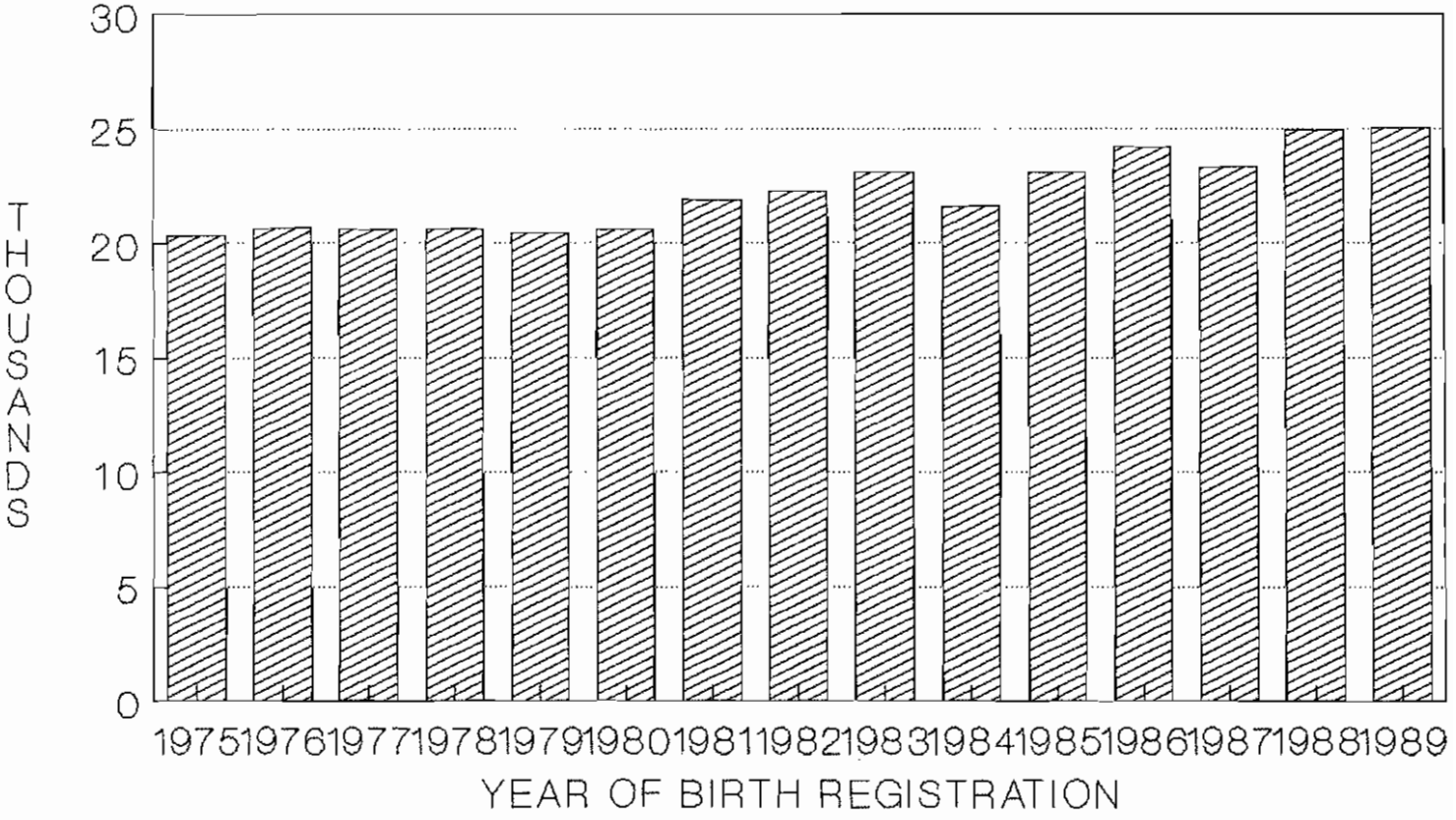
Excludes births less than 500 grams birthweight
[1] Excludes one triplet less than 500 grams birthweight
[2] Includes four single twins whose birthweight was 500 grams or more
[3] Includes three single twins whose birthweight was 500 grams or more
[4] Includes one single twin whose birthweight was 500 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
[7] Includes five single twins whose birthweight was 500 grams or more

7.2 Livebirths

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

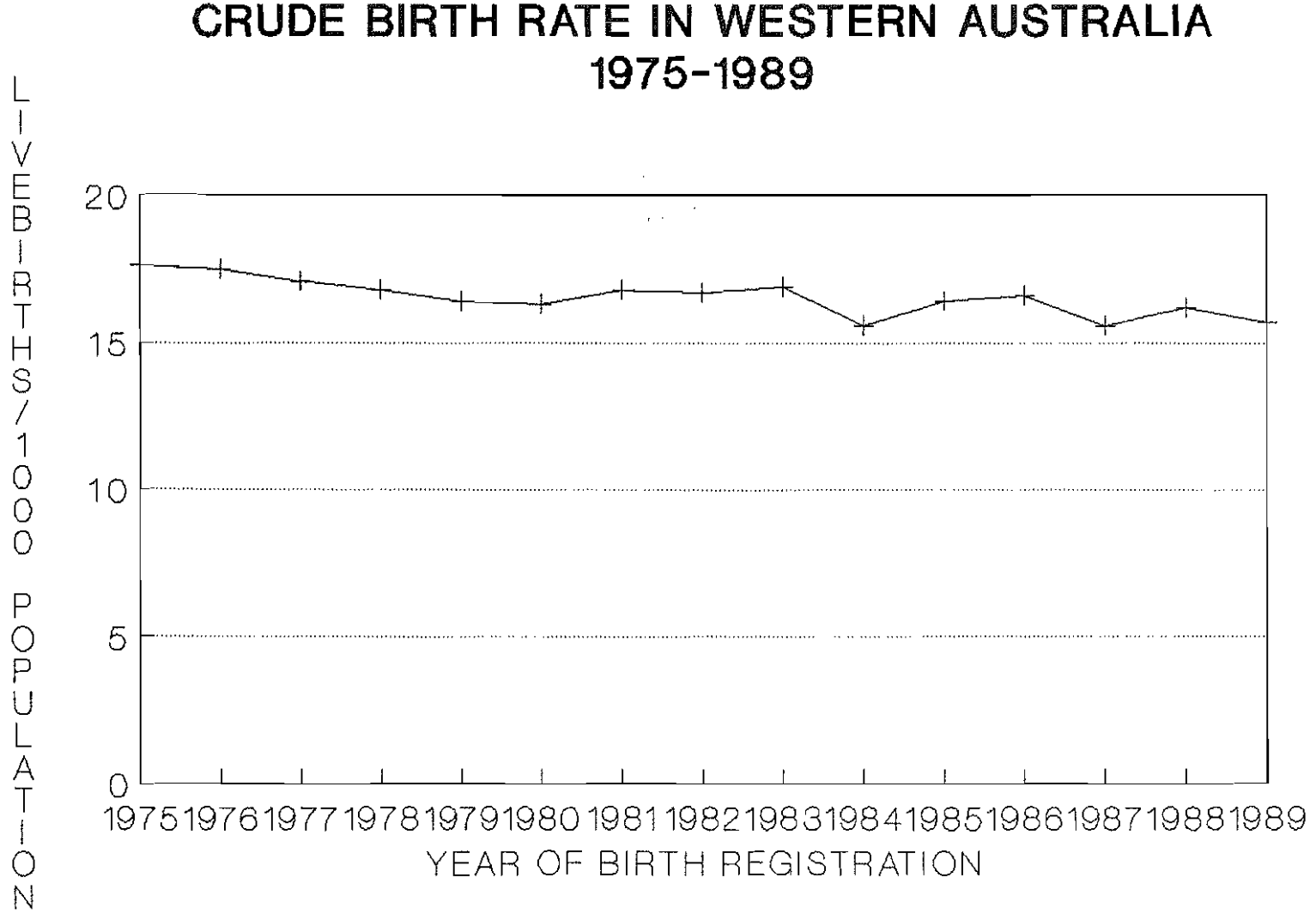
FIGURE XI

LIVEBIRTHS IN WESTERN AUSTRALIA 1975-1989.



1975-1989 Numbers based on State of residence.
Source: Australian Bureau of Statistics.

FIGURE XII



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

7.3 Crude Birth Rate

The crude birth rate was 15.7/1000 population in 1989. This is based on birth registrations from the Australian Bureau of Statistics and Registrar General's Office (Table 26, Figure XII).

TABLE 26: LIVEBIRTHS AND CRUDE BIRTH RATES IN WESTERN AUSTRALIA, 1975-1989

	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	25143	1544806	16.3
1989	25051	1594745	15.7

[1] Mean resident population
[2] Livebirths per 1000 total population

SOURCE: AUSTRALIAN BUREAU OF STATISTICS - Cat. No. 3203.5 population
- Cat. No. 3301.1 livebirths

7.4 Sex

There were 13,013 (51.1%) male births and 12,468 (48.9%) female births during 1989. The Sex ratio was 1.04 male per 1.00 female (Table 27).

TABLE 27: CONDITION AT BIRTH AND SEX OF BIRTHS IN WESTERN AUSTRALIA, 1989

Sex	Condition at Birth				Total	
	Stillbirth		Livebirth			
	No.	%	No.	%	No.	%
Male	84	60.9	12929	51.0	13013	51.1
Female	54	39.1	12414	49.0	12468	48.9
Total	138	100.0	25343	100.0	25481	100.0

Excludes births less than 500 grams birthweight.

7.5 Condition at Birth

Of the total 25,481 births, 25,343 were liveborn. There were 138 stillbirths and 121 livebirths who died within the first 28 days of life (Table 28). When condition was examined by sex for all births it showed 60.9% of the stillbirths were male (Table 27).

Stillbirth proportions were Caucasian 5.1/1000 total Caucasian births, Aboriginal 11.7/1000 total Aboriginal births and for babies of women of 'other' races 4.2/1000 total births (Table 28).

TABLE 28: CONDITION AT BIRTH AND MATERNAL RACE OF BIRTHS IN WESTERN AUSTRALIA, 1989

Race	Condition at Birth				Total Births		Stillbirth Proportion/1000 Total Births
	Stillbirth		Livebirth				
	No.	%	No.	%	No.	%	
Caucasian	114	82.6	22255	87.8	22369	87.8	5.1
Aboriginal	17	12.3	1430	5.6	1447	5.7	11.7
Other	7	5.1	1658	6.5	1665	6.5	4.2
Total	138	100.0	25343	100.0	25481	100.0	5.4

Excludes births less than 500 grams birthweight.

The majority of stillbirths (79.6%) were delivered in hospitals in the metropolitan area and nearly half (47.8%) 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, 1989

Place of Birth	Condition at Birth				Proportion /1000 Total Births	Total	
	Livebirth		Stillbirth				
	No.	%	No.	%		No.	%
Metropolitan							
[1] Teaching	4749	18.7	66	47.8	13.9	4815	18.9
Department	6990	27.6	26	18.8	3.7	7016	27.5
Private	7043	27.8	18	13.0	2.6	7061	27.7
Country							
[2] Regional	3019	11.9	13	9.4	4.3	3032	11.9
Private	531	2.1	3	2.2	5.6	534	2.1
[3] Other	2762	10.9	11	8.0	4.0	2773	10.9
Non-Hospital							
[4] BBA	73	0.3	1	0.7	26.3	74	0.3
Homebirths	176	0.7	-	-	-	176	0.7
Total	25343	100.0	138	100.0	5.4	25481	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).

7.6 Apgar Score at Five Minutes

The majority of livebirths (95.9%) had a recorded Apgar Score at five minutes of 8-10, while 1008 (4.0%) 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, 1989

Apgar Score	Time to Spontaneous Respiration										Intubation[1]		Unknown		Total	
	<1		2-3		4-6		7-10		>10							
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1-3	16	0.1	-	-	2	0.5	5	7.1	-	-	41	3.9	-	-	64	0.3
4-7	195	0.9	155	7.2	126	32.0	51	72.9	6	100.0	411	38.7	-	-	944	3.7
8-10	21428	99.0	1991	92.8	266	67.5	14	20.0	-	-	609	57.4	-	-	24308	95.9
Unknown	-	-	-	-	-	-	-	-	-	-	-	-	27	100.0	27	0.1
Total	21639	100.0	2146	100.0	394	100.0	70	100.0	6	100.0	1061	100.0	27	100.0	25343	100.0

Excludes births less than 500 grams birthweight.

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

7.7 Time to Spontaneous Respiration

Eighty five percent of all livebirths were recorded as having established spontaneous respiration within the first minute of life. Ten percent of livebirths required two to six minutes to establish respirations and 76 babies (0.3%) took seven minutes or more. There were 1061 (4.2%) livebirths who were intubated immediately following delivery (Table 30).

7.8 Resuscitation

Less than one third (32.8%) of the 25,343 liveborn babies in 1989 received some form of resuscitation at birth. Those babies who received no resuscitation numbered 17019 (67.2%). Resuscitation procedures such as intubation or bag and mask were used for 1729 (6.9%) of births and another 5783 (22.8%) babies received oxygen only.

When resuscitation and Apgar Scores were examined it was found that 62.5% of the babies with an Apgar Score of 1-3 and 43.1% 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, 1989

Resuscitation	Apgar Score at 5 Minutes								Unknown		Total	
	0		1-3		4-7		8-10					
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
None	-	-	13	20.3	46	4.9	16960	69.8	-	-	17019	67.2
Oxygen Only	-	-	8	12.5	264	28.0	5511	22.7	-	-	5783	22.8
Intubation	-	-	40	62.5	407	43.1	605	2.5	-	-	1052	4.2
Bag and Mask	-	-	2	3.1	156	16.5	519	2.1	-	-	677	2.7
Other	-	-	1	1.6	71	7.5	713	2.9	-	-	785	3.1
Unknown	-	-	-	-	-	-	-	-	27	100.0	27	0.1
Total	-	-	64	100.0	944	100.0	24308	100.0	27	100.0	25343	100.0

Excludes births less than 500 grams birthweight and 138 stillbirths.

7.9 Birthweight

Over two thirds (67.2%) of all babies born weighed between 3000 and 3999 grams at birth with the average birthweight 3333 grams. The percentage of low birthweight babies (less than 2500 grams) was 6.6% and for very low birthweight (less than 1500 grams) 1.3% of the total births.

Low birthweight among Aboriginal births was 10.8%, more than that of Caucasian births where only 6.2% were of low birthweight (Table 32).

TABLE 32: BIRTHWEIGHT DISTRIBUTION AND MATERNAL RACE OF BIRTHS IN WESTERN AUSTRALIA, 1989

Birthweight (Grams)	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
500 - 999	141	0.6	16	1.1	11	0.7	168	0.7
1000 - 1499	141	0.6	16	1.1	9	0.5	166	0.7
1500 - 1999	273	1.2	32	2.2	25	1.5	330	1.3
2000 - 2499	835	3.7	92	6.4	83	5.0	1010	4.0
2500 - 2999	3357	15.0	339	23.4	332	19.9	4028	15.8
3000 - 3499	8182	36.6	555	38.4	681	40.9	9418	37.0
3500 - 3999	6975	31.2	303	20.9	422	25.3	7700	30.2
4000 - 4499	2125	9.5	81	5.6	88	5.3	2294	9.0
≥4500	340	1.5	13	0.9	14	0.8	367	1.4
Total	22369	100.0	1447	100.0	1665	100.0	25481	100.0

Excludes births less than 500 grams birthweight.
Mean = 3333 grams. Standard Deviation = 609 grams.

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

Among the 1674 low birthweight babies (less than 2500 grams birthweight), 1579 (94.3%) were liveborn and 95 (5.7%) were stillborn. This meant that while 68.8% of stillbirths were of low birthweight only 6.2% 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 1192 (93.3%) livebirths and 85 (6.7%) stillbirths. For stillbirths 66.4% were low birthweight and among livebirths 4.8% were in this category (Table 33.2).

For multiple births, there were 728 (98.6%) liveborn and 10 (1.4%) stillborn. All stillborn multiple births were also of low birthweight (Table 33.3).

When categories of low birthweight were examined from 1980 to 1989 it was apparent that during this time births less than 1000 grams represented 0.5% to 0.7% 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 6.6% of the total births. An increase in the low birthweight percentage may be attributed to the increased number of high multiple births during 1989 (Table 34, Figure XIII).

TABLE 33.1: BIRTHWEIGHT DISTRIBUTION AND CONDITION AT BIRTH OF TOTAL BIRTHS IN WESTERN AUSTRALIA, 1989

Birthweight (Grams)	Condition at Birth				Total	
	Livebirths		Stillbirths			
	No.	%	No.	%	No.	%
500 - 999	121	0.5	47	34.1	168	0.7
1000 - 1499	149	0.6	17	12.3	166	0.7
1500 - 1999	314	1.2	16	11.6	330	1.3
2000 - 2499	995	3.9	15	10.9	1010	4.0
2500 - 2999	4012	15.8	16	11.6	4028	15.8
3000 - 3499	9405	37.1	13	9.4	9418	37.0
3500 - 3999	7692	30.4	8	5.8	7700	30.2
4000 - 4499	2291	9.0	3	2.2	2294	9.0
≥4500	364	1.4	3	2.2	367	1.4
Total	25343	100.0	138	100.0	25481	100.0

Excludes births less than 500 grams birthweight

[1] Low birthweight percentage

TABLE 33.2: SINGLETON BIRTHS IN WESTERN AUSTRALIA, 1989

Birthweight (Grams)	Condition at Birth				Total	
	Livebirths		Stillbirths			
	No.	%	No.	%	No.	%
500 - 999	79	0.3	43	34.1	122	0.5
1000 - 1499	101	0.4	14	10.9	115	0.5
1500 - 1999	214	0.9	14	10.9	228	0.9
2000 - 2499	798	3.2	14	10.9	812	3.3
2500 - 2999	3779	15.4	16	12.4	3795	15.3
3000 - 3499	9310	37.8	13	10.1	9323	37.7
3500 - 3999	7680	31.2	8	6.2	7688	31.1
4000 - 4499	2290	9.3	3	2.3	2293	9.3
≥4500	364	1.5	3	2.3	367	1.5
Total	24615	100.0	128	100.0	24743	100.0

Excludes births less than 500 grams birthweight

[1] Low birthweight percentage

TABLE 33.3: MULTIPLE BIRTHS IN WESTERN AUSTRALIA, 1989

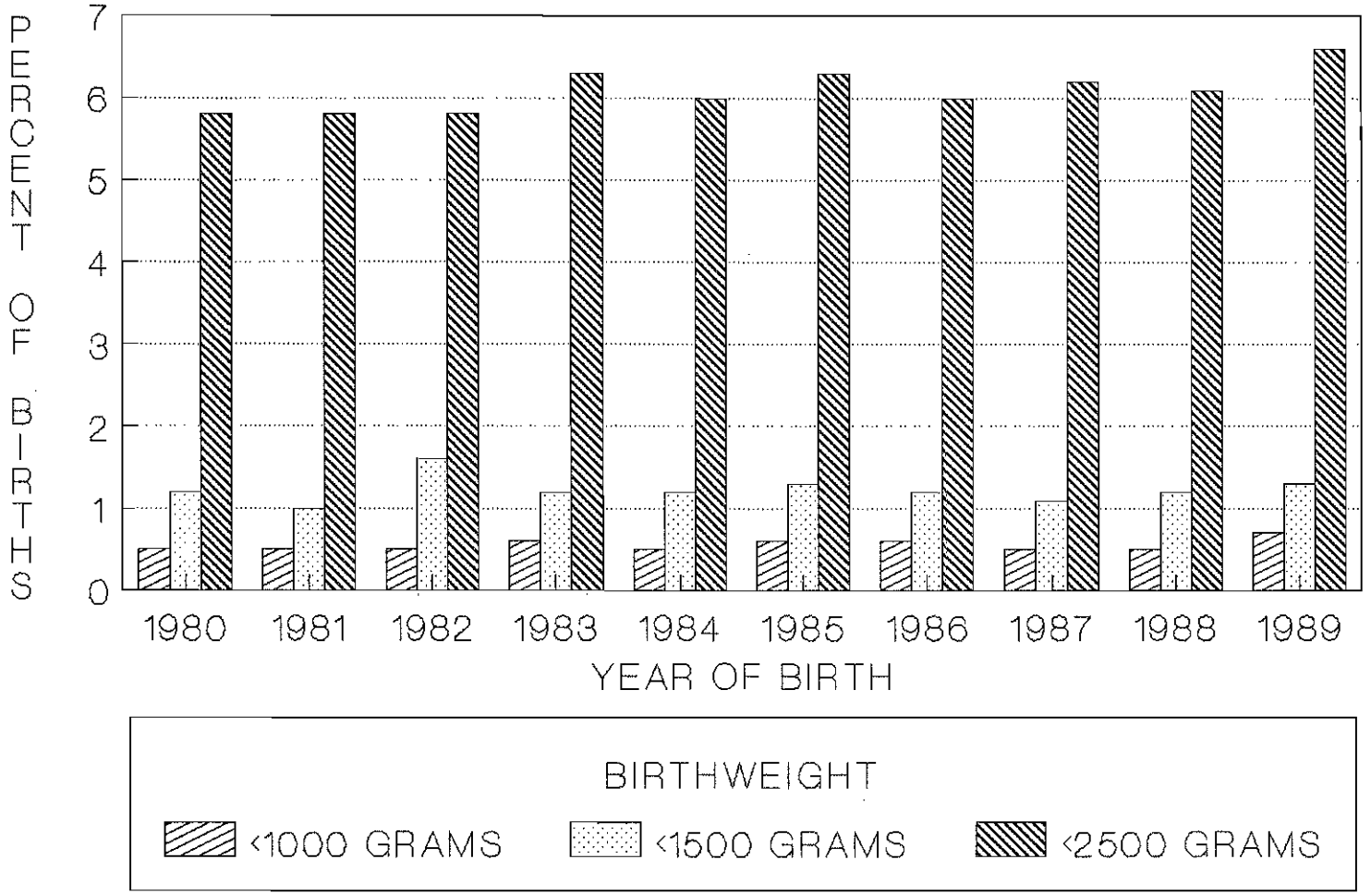
Birthweight (Grams)	Condition at Birth				Total	
	Livebirths		Stillbirths			
	No.	%	No.	%	No.	%
500 - 999	42	5.8	4	40.0	46	6.2
1000 - 1499	48	6.6	3	30.0	51	6.9
1500 - 1999	100	13.7	2	20.0	102	13.8
2000 - 2499	197	27.1	1	10.0	198	26.8
2500 - 2999	233	32.0	-	-	233	31.6
3000 - 3499	95	13.0	-	-	95	12.9
3500 - 3999	12	1.6	-	-	12	1.6
4000 - 4499	1	0.1	-	-	1	0.1
≥4500	-	-	-	-	-	-
Total	728	100.0	10	100.0	738	100.0

Excludes births less than 500 grams birthweight

[1] Low birthweight percentage

FIGURE XIII

LOW BIRTHWEIGHT[1] IDENTIFIED FOR TOTAL BIRTHS IN WESTERN AUSTRALIA 1980-1989.



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, 1980-1989

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
1989	168	0.7	334	1.3	1674	6.6	25481

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 1989. 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 BIRTHWEIGHT[1] AMONG BABIES OF ABORIGINAL AND NON-ABORIGINAL WOMEN IN WESTERN AUSTRALIA, 1980-1989

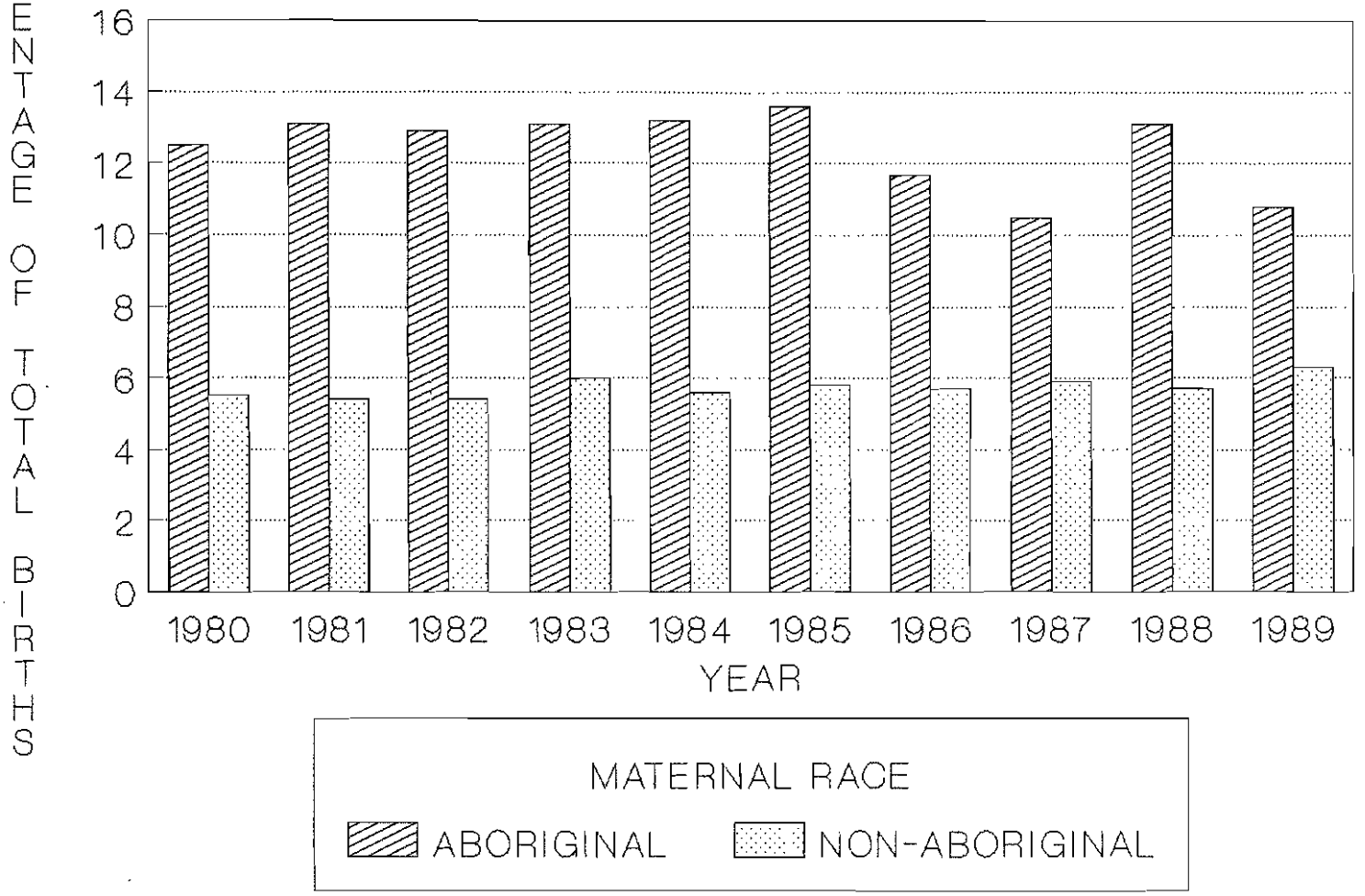
Year of Birth	Aboriginal			Non-Aboriginal		
	Total Births	LBW[1] No.	%	Total Births	LBW[1] No.	%
1980	1036	130	12.5	19734	1082	5.5
1981	1118	146	13.1	21073	1143	5.4
1982	1129	146	12.9	21214	1153	5.4
1983	1149	151	13.1	21880	1310	6.0
1984	1192	157	13.2	21725	1225	5.6
1985	1249	170	13.6	22039	1287	5.8
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
1989	1447	156	10.8	24034	1518	6.3

Excludes births less than 500 grams birthweight.

[1] Low birthweight - less than 2500 grams birthweight.

FIGURE XIV

LOW BIRTHWEIGHT[1] IDENTIFIED BY RACE WESTERN AUSTRALIA, 1980-1989.



Excludes births less than 500 grams.

[1]Low Birthweight - less than 500 grams birthweight.

Source: Midwives' Notification System.

7.10 Gestation

Preterm birth (less than 37 weeks gestation) occurred for 1,773 (7.0%) of the total births (Table 36.1). When examined for singleton births only, 1402 (5.7%) babies were preterm (Table 36.2). Of the 738 multiple births, 371 (50.3%) were preterm (Table 36.3).

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

7.11 Congenital Malformations

Data on selected birth defects included in this report are made available by the Western Australian Birth Defects Registry[12] (Table 37).

Recording of a congenital malformation on the Notification of Case Attended (Midwives') Form 2, provides an initial data source for the Birth Defects 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, 1989

Birthweight (Grams)	Gestation Weeks												TOTAL	
	< 22		22 - 27		28 - 32		33 - 36		37 - 42		≥ 43			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
500 - 999	4	100.0	121	87.7	41	13.3	1	0.1	1	-	-	-	168	0.7
1000 - 1499	-	-	17	12.3	119	38.5	28	2.1	2	-	-	-	166	0.7
1500 - 1999	-	-	-	-	121	39.2	185	14.0	24	0.1	-	-	330	1.3
2000 - 2499	-	-	-	-	23	7.4	524	39.6	463	2.0	-	-	1010	4.0
2500 - 2999	-	-	-	-	3	1.0	441	33.4	3581	15.1	3	7.1	4028	15.8
3000 - 3499	-	-	-	-	2	0.6	124	9.4	9279	39.2	13	31.0	9418	37.0
3500 - 3999	-	-	-	-	-	-	12	0.9	7670	32.4	18	42.9	7700	30.2
4000 - 4499	-	-	-	-	-	-	6	0.5	2284	9.7	4	9.5	2294	9.0
≥4500	-	-	-	-	-	-	1	0.1	362	1.5	4	9.5	367	1.4
Total	4	100.0	138	100.0	309	100.0	1322	100.0	23666	100.0	42	100.0	25481	100.0

TABLE 36.2 GESTATION AND BIRTHWEIGHT OF SINGLETON BIRTHS IN WESTERN AUSTRALIA, 1989

Birthweight (Grams)	Gestation Weeks										TOTAL	
	< 22		22 - 27		28 - 32		33 - 36		37 - 42		≥ 43			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
500 - 999	4	100.0	82	86.3	34	14.9	1	0.1	1	-	-	-	122	0.5
1000 - 1499	-	-	13	13.7	83	36.4	17	1.6	2	-	-	-	115	0.5
1500 - 1999	-	-	-	-	85	37.7	125	11.6	18	0.1	-	-	228	0.9
2000 - 2499	-	-	-	-	20	8.8	400	37.2	392	1.7	-	-	812	3.3
2500 - 2999	-	-	-	-	3	1.3	395	36.7	3394	14.6	3	7.1	3795	15.3
3000 - 3499	-	-	-	-	2	0.9	119	11.1	9189	39.4	13	31.0	9323	37.7
3500 - 3999	-	-	-	-	-	-	12	1.1	7658	32.9	18	42.9	7688	31.1
4000 - 4499	-	-	-	-	-	-	6	0.6	2283	9.8	4	9.5	2293	9.3
≥4500	-	-	-	-	-	-	1	0.1	362	1.6	4	9.5	367	1.5
Total	4	100.0	95	100.0	227	100.0	1076	100.0	23299	100.0	42	100.0	24743	100.0

TABLE 36.3 GESTATION AND BIRTHWEIGHT OF MULTIPLE BIRTHS IN WESTERN AUSTRALIA, 1989

Birthweight (Grams)	Gestation Weeks										TOTAL	
	< 22		22 - 27		28 - 32		33 - 36		37 - 42		≥ 43			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
500 - 999	-	-	39	90.7	7	8.5	-	-	-	-	-	-	46	6.2
1000 - 1499	-	-	4	9.3	36	43.9	11	4.5	-	-	-	-	51	6.9
1500 - 1999	-	-	-	-	36	43.9	60	24.4	6	1.6	-	-	102	13.8
2000 - 2499	-	-	-	-	3	3.7	124	50.4	71	19.4	-	-	198	26.8
2500 - 2999	-	-	-	-	-	-	46	18.7	187	51.0	-	-	233	31.6
3000 - 3499	-	-	-	-	-	-	5	2.0	90	24.5	-	-	95	12.9
3500 - 3999	-	-	-	-	-	-	-	-	12	3.3	-	-	12	1.6
4000 - 4499	-	-	-	-	-	-	-	-	1	0.3	-	-	1	0.1
≥4500	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	43	100.0	82	100.0	246	100.0	367	100.0	-	-	738	100.0

7.12 Birth Trauma

There were very few reported incidences of major birth trauma. The most common birth trauma identified was injuries to the scalp (6.0% of all livebirths) and this included cephalhaematoma and chignon from vacuum extraction (Table 38).

TABLE 37: BIRTHS IDENTIFIED WITH BIRTH DEFECTS IN WESTERN AUSTRALIA, 1989

Diagnostic Category (and B.P.A. Code)	1987		1988		1989	
	No.	[1]Rate	No.	[1]Rate	No.	[1]Rate
NERVOUS SYSTEM DEFECTS (7400-74299)	77	3.2	60	2.4	69	2.7
Neural Tube Defects (74000-74209)	46	1.9	43	1.7	40	1.6
Microcephaly (74210)	5	-	4	-	3	-
Congenital Hydrocephalus (74230-74239) (excludes hydrocephalus associated with N.T.D.)	13	0.5	9	-	14	-
CARDIOVASCULAR DEFECTS (74500-74799)	134	5.5	134	5.4	178	7.0
Transposition of Great Vessels (74510-74519)	10	-	17	0.7	-	-
Tetralogy of Fallot (74520)	1	-	3	-	12	-
Ventricular Septal Defect (74540-74549)	76	3.1	73	3.0	97	3.8
Atrial Septal Defect (74550-74559)	17	0.7	17	0.7	34	1.3
Hypoplastic Left Heart Syndrome (74670)	1	-	3	-	11	-
Patent Ductus Arteriosus (74700)	22	0.9	20	0.8	30	1.2
Coarctation of Aorta (74710-74719)	10	-	6	-	10	-
RESPIRATORY SYSTEM DEFECTS (74800-74899)	22	0.9	9	-	17	-
Hypoplasia/Dysplasia of Lung (74850-74858)						
GASTRO-INTESTINAL DEFECTS (74900-75199)	139	5.7	123	5.0	141	5.5
Cleft Palate Only (74900-74909)	13	0.5	13	0.5	19	0.7
Cleft Lip Only (74910-74919)	9	-	14	0.6	16	0.6
Cleft Lip and Palate (74920-74929)	27	1.1	20	0.8	22	0.9
Tracheo-Oesophageal Fistula, Oesophageal Atresia, Oesophageal Stenosis (75030-75038)	17	0.7	7	-	7	-
Pyloric Stenosis (75050-75058)	50	2.1	35	1.4	45	1.8
Stenosis/Atresia Anus (75123-75124)	7	-	13	0.5	17	0.7
URO-GENITAL DEFECTS (75200-75399)	172	7.1	126	5.1	159	6.2
Undescended Testis (treated) (75250-75253)	43	1.8	18	0.7	29	1.1
Hypospadias (75260)	82	3.4	60	2.4	64	2.5
Renal Agenesis or Dysgenesis (75300-75301)	6	-	7	-	14	-
Ureteric Reflux (75348)	13	0.5	11	-	18	0.7
MUSCULO-SKELETAL DEFECTS (75400-75699)	313	12.9	259	10.5	276	10.8
Congenital Dislocation of Hip (75430-75431)	137	5.7	124	5.0	144	5.7
Talipes (75450-75473)	50	2.1	52	2.1	41	1.6
Polydactyly (75500-75509)	32	1.3	14	0.6	14	-
Syndactyly (75510-75519)	18	0.7	9	-	14	-
Reduction Deformities Upper and/or Lower Limbs (75520-75549)	14	0.6	11	-	18	0.7
Diaphragmatic Hernia (75661)	10	-	2	-	10	-
Exomphalos (75670)	8	-	6	-	7	-
Gastroschisis (75671)	5	-	4	-	3	-
CHROMOSOME DEFECTS (75800-75899)	53	2.2	54	2.2	50	2.0
Down Syndrome (75800-75809)	33	1.4	39	1.6	30	1.2
Trisomy 13 (75810-75819)	5	-	2	-	3	-
Trisomy 18 (75820-75829)	6	-	3	-	6	-
Turner's Syndrome (75860-75861, 75869)	1	-	1	-	4	-
OTHER						
Congenital Rubella (77100)	1	-	-	-	-	-
Cystic Fibrosis (27700)	6	-	11	-	5	-
Phenylketonuria (27010)	1	-	-	-	2	-

[1] Rate per 1000 total births.
Rates have not been calculated where number of cases with defect is less than 13.
SOURCE: Birth Defects Registry.

TABLE 38: BIRTH TRAUMA AMONGST LIVEBIRTHS IN WESTERN AUSTRALIA, 1989

Birth Trauma	No.	% of Livebirths
Subdural and Cerebral Haemorrhage	-	-
Injuries to Scalp	1527	6.0
Fracture to Clavicle	6	-
Other Injuries to Skeleton	3	-
Facial Nerve Injury	15	0.1
Injury to Brachial Plexus	13	0.1
Other	106	0.4

Excludes births less than 500 grams birthweight.

7.13 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 25,343 livebirths, a total of 1882 (7.4%) babies were reported to have received special care. Of these singleton births numbered 1648 (87.6%) and multiple births 234 (12.4%). The proportions for these babies were singleton births 67.0/1000 singleton livebirths and multiple births 321.4/1000 multiple livebirths.

Five percent of all babies stayed more than 28 days. Multiple births stayed longer in special care units, with 63.2% staying 8 days or more (Table 39).

TABLE 39: PLURALITY AND LENGTH OF STAY IN SPECIAL CARE OF LIVEBIRTHS IN WESTERN AUSTRALIA, 1989

Length of Stay (Days)	Plurality				Total	
	Singleton		Multiple			
	No.	%	No.	%	No.	%
1	502	13.2	30	10.9	532	13.1
2	277	7.3	19	6.9	296	7.3
3	151	4.0	7	2.6	158	3.9
4	124	3.3	9	3.3	133	3.3
5	108	2.8	8	2.9	116	2.9
6	79	2.1	7	2.6	86	2.1
7	60	1.6	6	2.2	66	1.6
8-14	140	3.7	49	17.8	189	4.7
15-20	41	1.1	15	5.5	56	1.4
21-28	39	1.0	28	10.2	67	1.6
>28	127	3.3	56	20.4	183	4.5
Total	1648	100.0	234	100.0	1882	100.0

Excludes births less than 500 grams birthweight.

7.14 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 25,343 livebirths, 1229 (4.8%) babies were transferred to another hospital after birth.

7.15 Length of Stay

The majority of babies (20094, 79.3%) stayed in their hospital of birth from two to seven days and another 4299 (17.0%) stayed eight or more days. Two hundred and thirty five babies stayed more than 28 days (Table 40.1).

TABLE 40.1: LENGTH OF STAY AND BIRTHWEIGHT DISTRIBUTION OF LIVEBIRTHS IN WESTERN AUSTRALIA, 1989

Birthweight (Grams)	Length of Stay (Days)												Total	
	≤1		2-7		8-14		15-20		21-28		>28			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
500 - 999	38	4.0	7	-	5	0.1	1	0.5	-	-	70	29.8	121	0.5
1000 - 1499	18	1.9	8	-	4	0.1	10	5.4	17	18.9	92	39.2	149	0.6
1500 - 1999	24	2.5	42	0.2	100	2.6	54	29.2	46	51.1	48	20.4	314	1.2
2000 - 2499	54	5.7	497	2.5	370	9.8	45	24.3	23	25.6	6	2.6	995	3.9
2500 - 2999	146	15.4	3106	15.5	737	19.5	20	10.8	1	1.1	2	0.9	4012	15.8
3000 - 3499	347	36.6	7846	39.1	1170	30.9	30	16.2	3	3.3	9	3.8	9405	37.1
3500 - 3999	241	25.4	6422	32.0	1008	26.6	16	8.7	-	-	5	2.1	7692	30.4
4000 - 4499	71	7.5	1874	9.3	338	8.9	7	3.8	-	-	1	0.4	2291	9.0
>4500	11	1.2	292	1.5	57	1.5	2	1.1	-	-	2	0.9	364	1.4
Total	950	100.0	20094	100.0	3789	100.0	185	100.0	90	100.0	235	100.0	25343	100.0

Excludes births less than 500 grams birthweight
Includes 176 homebirths in midwives' care

There were 1141 inter-hospital transfers and 88 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, 1989

Birthweight (Grams)	Length of Stay (Days)												Total	
	≤1		2-7		8-14		15-20		21-28		>28			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
500 - 999	-	-	-	-	1	-	-	-	-	-	47	27.3	48	0.2
1000 - 1499	-	-	-	-	-	-	1	0.7	4	7.1	66	38.4	71	0.3
1500 - 1999	1	0.2	17	0.1	55	1.5	34	23.5	29	51.8	38	22.1	174	0.7
2000 - 2499	10	2.1	442	2.3	336	9.2	40	27.6	19	33.9	4	2.3	851	3.5
2500 - 2999	56	12.0	3006	15.3	725	19.8	20	13.8	1	1.8	2	1.2	3810	15.8
3000 - 3499	198	42.5	7698	39.3	1161	31.6	26	17.9	3	5.4	9	5.2	9095	37.7
3500 - 3999	160	34.3	6321	32.2	1001	27.3	15	10.3	-	-	3	1.7	7500	31.1
4000 - 4499	37	7.9	1837	9.4	334	9.1	7	4.8	-	-	1	0.6	2216	9.2
>4500	4	0.9	284	1.4	57	1.6	2	1.4	-	-	2	1.2	349	1.5
Total	466	100.0	19605	100.0	3670	100.0	145	100.0	56	100.0	172	100.0	24114	100.0

Excludes births less than 500 grams birthweight
Includes 176 homebirths in midwives' care
1 excludes 955 babies requiring interhospital transfer

7.16 Perinatal Mortality

There were 138 stillbirths and 121 neonatal deaths during 1989. The perinatal mortality proportion for Western Australia was 10.2/1000 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, 1980-1989

Year	Perinatal Mortality					
	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[1]	117	4.7	104	4.2	221	8.8
1989[1]	138	5.4	121	4.8	259	10.2

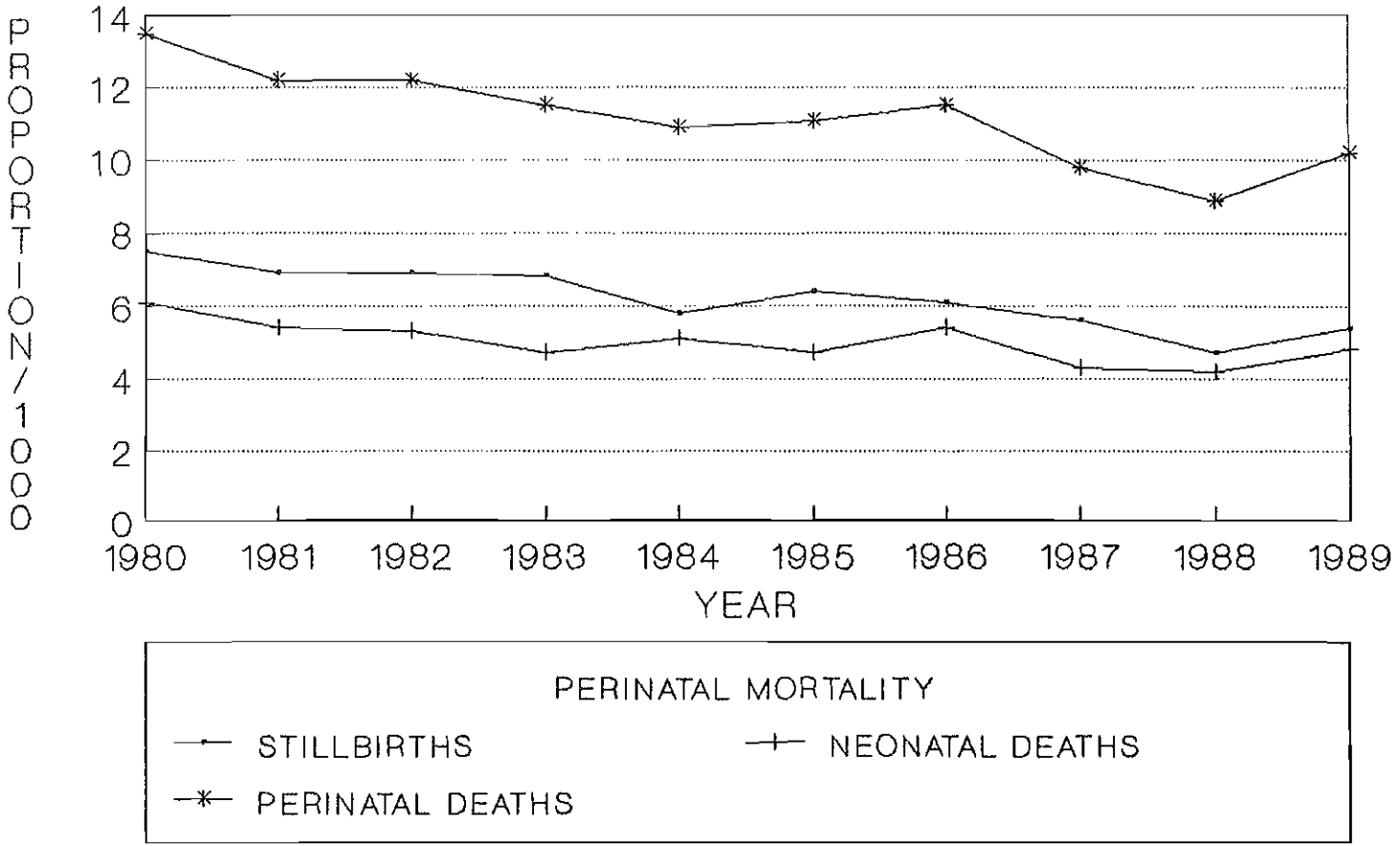
Excludes births less than 500 grams birthweight

[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 more than double those for non-Aboriginal births (Table 45, Figure XV).

FIGURE XV

PERINATAL MORTALITY PROPORTIONS IN WESTERN AUSTRALIA 1980-1989.



Excludes births less than 500 grams birthweight.

[1]Stillbirths and Perinatal Deaths/1000 Total Births.

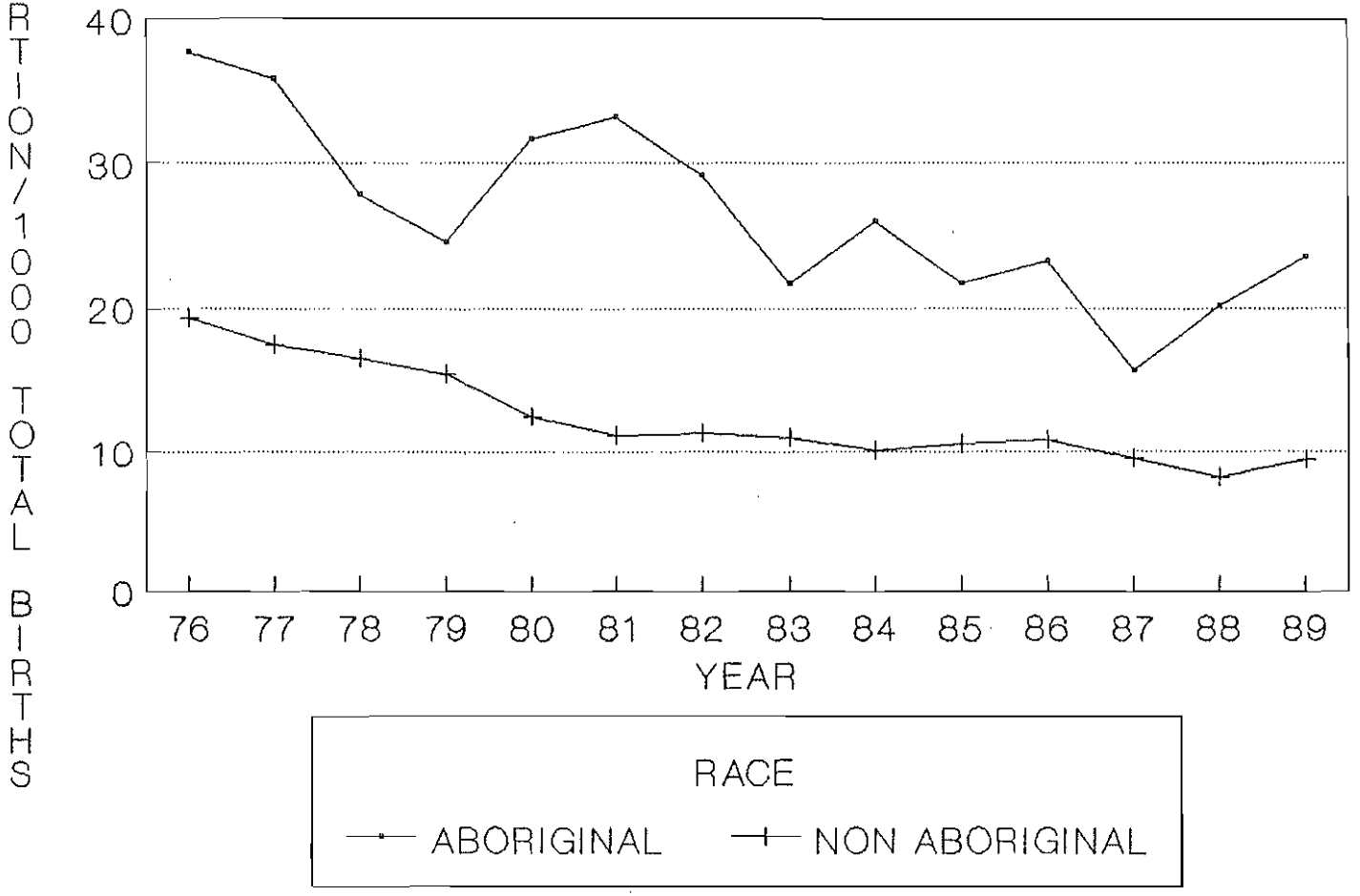
[2]Neonatal Deaths/1000 Livebirths.

Note: 1980-1983 data based on year of death.
1984-1989 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 1976-1989



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.
1984-1989 data based on year of birth.

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

TABLE 42: WESTERN AUSTRALIAN PERINATAL MORTALITY USING BIRTHWEIGHT CRITERIA, 1989

Birthweight	Stillbirth Proportion/ 1000 Total Births	Neonatal Death Proportion/ 1000 Livebirths	Perinatal Death Proportion/ 1000 Total Births
≥400 grams	5.8	5.2	11.0
≥500 grams International Definition of World Health Organisation	5.4	4.8	10.2

TABLE 43: WESTERN AUSTRALIAN PERINATAL MORTALITY USING GESTATION CRITERIA, 1989

Gestation	Stillbirth Proportion/ 1000 Total Births	Neonatal Death Proportion/ 1000 Livebirths	Perinatal Death Proportion/ 1000 Total Births
≥20 weeks	7.1	5.5	12.6
≥22 weeks International Definition of World Health Organisation	6.1	5.2	11.2

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, 1989

Type of Death	Maternal Race			Total
	Caucasian	Aboriginal	Other	
Stillbirth/1000 total births	5.1	11.7	4.2	5.4
Neonatal/1000 livebirths	4.4	11.9	4.2	4.8
Perinatal/1000 total births	9.5	23.5	9.0	10.2

Excludes births less than 500 grams birthweight

Data from 1976 to 1989 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, 1976-1989

Year	Stillbirth[1] Proportion		Neonatal Mortality[2] Proportion		Perinatal Mortality[1] Proportion	
	Aboriginal	Non-Aboriginal	Aboriginal	Non-Aboriginal	Aboriginal	Non-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
1989	11.7	5.0	11.9	4.3	23.5	9.4

Excludes births less than 500 grams birthweight.

[1] Stillbirth and perinatal mortality proportions/1000 total births.
[2] Neonatal mortality proportions/1000 livebirths.

More than one third (36.7%) of perinatal deaths had a birthweight of less than 1000 grams. Overall 68.8% of stillbirths and 71.9% 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, 1989**

Birthweight (Grams)	Perinatal Deaths				Total	
	Stillbirths		Neonatal Deaths			
	No.	%	No.	%	No.	%
500 - 999	47	34.1	48	39.7	95	36.7
1000 - 1499	17	12.3	18	14.9	35	13.5
1500 - 1999	16	11.6	12	9.9	28	10.8
2000 - 2499	15	10.9	9	7.4	24	9.3
2500 - 2999	16	11.6	8	6.6	24	9.3
3000 - 3499	13	9.4	15	12.4	28	10.8
3500 - 3999	8	5.8	6	5.0	14	5.4
≥4000	6	4.3	5	4.1	11	4.2
Unknown	-	-	-	-	-	-
Total	138	100.0	121	100.0	259	100.0

Excludes births less than 500 grams birthweight.

Amongst the 738 multiple births, there were 34 perinatal deaths. Of these, 10 were stillborn and 24 were neonatal deaths (Table 47).

The stillbirth proportion for multiple births (13.6/1000) was more than twice that for singleton births (5.2/1000).

The neonatal mortality proportion for multiple births (33.0/1000) was eight times greater than for singleton births (3.9/1000) (Table 47).

TABLE 47: PLURALITY OF STILLBIRTHS, NEONATAL AND PERINATAL DEATHS AMONGST BIRTHS IN WESTERN AUSTRALIA, 1989

Plurality	Perinatal Mortality				Total	
	Stillbirths		Neonatal Deaths			
	No.	Propn[1]	No.	Propn[2]	No.	Propn[1]
Singleton	128	5.2	97	3.9	225	9.1
Multiple	10	13.6	24	33.0	34	46.1
Total	138	5.4	121	4.8	259	10.2

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, 67.4% occurred antepartum, 24.6% were intrapartum and timing of stillbirth was unknown in 8.0% of cases (Table 48).

TABLE 48: TIME OF DEATH OF STILLBIRTHS IN WESTERN AUSTRALIA, 1989

Time of Death	No.	%
Antepartum	93	67.4
Intrapartum	34	24.6
Unknown	11	8.0
Total	138	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, 1989

Age at Neonatal Death	No.	% of Neonatal Deaths
< Day 1	47	38.8
Day 1	24	19.8
Day 2	9	7.4
Day 3	7	5.8
Day 4	9	7.4
Day 5	4	3.3
Day 6	3	2.5
Day 7	2	1.7
Day 8 - 14	7	5.8
Day 15 - 21	6	5.0
Day 22 - 28	3	2.5
Total	121	100.0

Excludes births less than 500 grams birthweight.

The causes of death of stillborn babies are largely unknown (34.8%). Extremely low birthweight (less than 1000 grams birthweight) contributed in 30.4% of cases and 14.5% resulted from lethal congenital malformations.

The principal causes of death of neonates are reported to be low birthweight 43.8% and lethal congenital malformations 40.5%. (Table 50).

TABLE 50: CAUSES OF STILLBIRTHS AND NEONATAL DEATHS IN WESTERN AUSTRALIA, 1989

Causes of Death	[1] Stillbirths		[2] Neonatal Deaths	
	No.	%	No.	%
Lethal Congenital Malformations	20	14.5	49	40.5
Extremely low birthweight (<1000 grams)	42	30.4	-	-
Low birthweight (<2500 grams)	-	-	53	43.8
Asphyxia	-	-	6	5.0
Maternal				
Obstetric	3	2.2	2	1.7
Medical	5	3.6	-	-
Hypertension	1	0.7	1	0.8
Placenta & Cord	16	11.6	-	-
Hydrops fetalis	-	-	-	-
Infection	-	-	2	1.7
S.I.D.S.	-	-	3	2.5
Other	3	2.2	2	1.7
Unknown	48	34.8	3	2.5
Total	138	100.0	121	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 61.6% of stillbirths and 52.9% of neonatal deaths. In the case of 22 (8.5%) perinatal deaths it is unknown whether an autopsy was requested (Table 51).

TABLE 51: AUTOPSY REQUESTS FOR STILLBIRTHS AND NEONATAL DEATHS IN WESTERN AUSTRALIA, 1989

	Perinatal Deaths				Total	
	Stillbirths		Neonatal Deaths			
	No.	%	No.	%	No.	%
Yes	85	61.6	64	52.9	149	57.5
No	40	29.0	48	39.7	88	34.0
Unknown	13	9.4	9	7.4	22	8.5
Total	138	100.0	121	100.0	259	100.0

Excludes births less than 500 grams birthweight.

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Health Act (Midwifery Nurses) Regulations Form 2

Appendix A

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

13 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)*

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 (wholedays only)

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

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...../...../.....

55097/6/87—30M SETS—S/7002

HEALTH STATISTICS COPY

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: ___/___/_____