

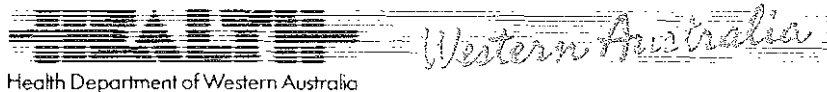
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THE 1987 WESTERN AUSTRALIAN BIRTH COHORT

PERINATAL AND INFANT MORTALITY IDENTIFIED BY MATERNAL RACE

VIVIEN GEE, R.N., R.M., B.App.Sc. (Nursing, Curtin)
Epidemiology and Research Branch

October 1989



**Statistical Series/19
Health Department of
Western Australia
Perth**

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SUMMARY

The Midwives' Notification System of Western Australia indentified 24138 births of >500 grams birthweight, to 23836 women during 1987. Of these babies, 134 were stillborn, and a further 185 babies died within the first twelve months.

The overall stillborn proportion was 5.6/1000 total births. Among babies born to Caucasian women the proportion was 5.4/1000, for babies of Aboriginal women 9.7/1000 and for babies of women of other races the proportion was 4.6/1000 total births. The stillbirth proportion of 5.1/1000 among singleton births was one fifth that (25.0/1000) for multiple births.

Of babies born to teenage women 9 (6.0/1000) were stillborn. Consideration of maternal parity showed a lower stillbirth proportion for primiparous women (5.5/1000) than among babies of women whose parity was 5 or more (6.2/1000).

The causes of stillbirths were unexplained for 48 (35.8%) babies and the deaths of 21 (15.7%) babies were attributed to lethal congenital malformations.

There were 103 neonatal deaths, giving a neonatal mortality proportion of 4.3/1000 livebirths; for babies of Caucasian women the proportion was 4.2/1000, for babies of Aboriginal mothers 5.3/1000 and for babies of women of other races 5.4/1000.

Post neonatal deaths numbered 82 (3.0/1000 livebirths) babies. Forty seven (66.2%) of these were attributed to Sudden Infant Death Syndrome and 12 (16.9%) to lethal congenital malformations. The majority of these post neonatal deaths occurred during the winter months of April to September.

The perinatal mortality proportion was 9.8/1000 total births. For babies of Caucasian women the proportion was 9.5/1000, for babies of Aboriginal women 14.9/1000 and babies of women of other races 10.0/1000. Perinatal deaths amongst babies born to Aboriginal teenage mothers (21.9/1000) was greater than for babies born to Caucasian women in the same age group (13.2/1000). The proportion of perinatal mortality among babies of single women (13.7/1000) and of babies of separated, divorced or widowed women was noticeably higher than the proportion (9.4/1000) for babies of women reported to be socially supported by a male partner.

Infant deaths numbered 185, being 103 neonatal deaths and 82 post neonatal deaths. These numbers represent an overall proportion of 7.7/1000 livebirths.

Among babies of Aboriginal women the proportion (18.8/1000) was more than twice the overall proportion (7.7/1000) with babies born to Aboriginal teenage women being at a higher risk of death in infancy (19.7/1000 livebirths).

In accord with perinatal deaths, overall the proportion of infant deaths was higher where mothers were socially unsupported by a male partner. An exception was shown among Aboriginal families where the infant mortality proportion among babies born to single women (15.3/1000) was lower than for babies of women in a marriage or defacto relationship.

The major causes of infant death remain lethal congenital malformation (24.3%), Sudden Infant Death Syndrome (28.1%) and low birthweight related disorders (26.0%).

Babies born to Aboriginal mothers have higher proportions of perinatal and infant mortality than those babies born to non-Aboriginal women. Although the infant mortality proportion among babies of Aboriginal women has substantially decreased over the past seven years from, 31.3/1000 in 1980 to 18.8/1000 in 1987, it still remains more than double that of the overall infant mortality proportion (7.7/1000) of livebirths in 1987.

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- . The Registrar General's Office for providing information on deaths of liveborn infants;
- . The Australian Bureau of Statistics for population estimates;
- . Mrs Adda Hopkins of the Community and Child Health Services for verification of information on Aboriginal deaths;
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1. INTRODUCTION

This report is the fourth in a continuing series examining perinatal and infant mortality.

The aim of compiling the data in this report is to measure relationships of mortality among infants with consideration of variables such as maternal race, maternal age, parity, conjugal state and infant plurality, gestation and birthweight.

This report relates to the cohort of babies that was born in Western Australia in 1987, and includes information on their outcomes up to the age of twelve months. Prior to 1984, mortality data was calculated according to year of death rather than year of birth.

Epidemiological studies in the area of infant mortality are naturally long term and this report compiles basic factual data which will assist research aimed to limit human loss in future years.

3. DATA COLLECTION

The Western Australian Midwives' Notification System forms the basis of this fourth annual report of perinatal and infant mortality.

Although this System collects data for babies >20 weeks gestation or >400 grams birthweight, this report includes only those babies whose birthweight was >500 grams.

Information related to deaths of liveborn babies was obtained from the Registrar General's Office, the Hospital Morbidity System, the Community and Child Health Services and the Australian Bureau of Statistics (Western Australian Branch). As far as can be determined from the above-mentioned sources, the data relating to number of deaths in this report is complete.

A computer file of deaths was created and linked to the Midwives' Notification System. This provided a comprehensive data base from which this report was written. After all follow up procedures were complete, linkage was 100% successful for babies >500 grams.

Intercensal estimates of total population of Western Australia and Statistical Divisions, and female populations by age were supplied by the Australian Bureau of Statistics (Western Australian Branch).

Aboriginal population statistics were supplied by the Community and Child Health Services of the Health Department of Western Australia.

4. BIRTHS IN WESTERN AUSTRALIA IN 1987

4.1 Births Incidence

Midwives' forms received by this department indicate that 24,138 babies were born to 23836 women during 1987. This report includes statistics only on those babies whose birthweight was equal to or greater than 500 grams.

Examination of births showed that 21,493 (89.0%) were born to Caucasian women, 1,341 (5.6%) to Aboriginal women and 1,304 (5.4%) to women of other racial groups (Table 1).

4.2 Place of Birth

The majority 23,931 (99.1%) births occurred in hospital. Of these, births in metropolitan hospitals numbered 17,782 (74.3%) and non-metropolitan hospital births were 6,149 (25.7%).

There were 207 (0.9%) non hospital births including 63 (0.3%) born before arrival at hospital and 144 (0.6%) planned supervised homebirths.¹

4.3 Maternal Place of Residence

Assessment of location of women bearing children throughout the State shows that the majority of births 16,331 (67.7%) were to women whose usual place of residence was in the Perth Statistical Division (Table 2).

4.4 Crude Birth Rate

An overall crude birth rate of 16.0/1000 total population was identified for Western Australia during 1987. The area with the lowest crude birth rate (15.0/1000 total population) was the Perth Statistical Division (Figure 1).

TABLE 1 : MATERNAL RACE AND CONDITION OF BIRTHS IN WESTERN AUSTRALIA IN 1987

Total Births		24,138		(100.0%)	
Caucasian Births		21,493		(89.0%)	
Aboriginal Births		1,341		(5.6%)	
Other Race Births		1,304		(5.4%)	
Liveborn	Stillborn	Liveborn	Stillborn	Liveborn	Stillborn
Caucasian	Caucasian	Aboriginal	Aboriginal	Other Race	Other Race
21,378	115	1,328	13	1,298	6
(99.5%)	(0.5%)	(99.0%)	(1.0%)	(99.5%)	(0.5%)

Excludes births <500 grams birthweight.

TABLE 2 : LIVEBIRTHS AND TOTAL BIRTHS BY STATISTICAL DIVISION OF MATERNAL RESIDENCE AND MATERNAL RACE IN WESTERN AUSTRALIA IN 1987

Statistical Division	Maternal Race															
	Caucasian				Aboriginal				Other				Total			
	Live-born No.	%	Total No.	%	Live-born No.	%	Total No.	%	Live-born No.	%	Total No.	%	Live-born No.	%	Total No.	%
Perth	14834	69.4	14922	69.4	359	27.0	361	26.9	1044	80.4	1048	80.4	16237	67.6	16331	67.7
Southwest	1851	8.7	1861	8.7	43	3.2	44	3.3	36	2.8	36	2.8	1930	8.0	1941	8.0
Lower Great Southern	761	3.6	764	3.6	34	2.6	34	2.5	21	1.6	21	1.6	816	3.4	819	3.4
Upper Great Southern	353	1.7	353	1.6	38	2.9	40	3.0	4	0.3	4	0.3	395	1.7	397	1.6
Midlands	782	3.7	785	3.7	55	4.1	57	4.2	10	0.8	10	0.8	847	3.5	852	3.5
South Eastern	889	4.2	891	4.1	100	7.5	100	7.5	35	2.7	36	2.8	1024	4.3	1027	4.3
Central	835	3.9	840	3.9	135	10.2	137	10.2	36	2.8	36	2.8	1006	4.2	1013	4.2
Pilbara	840	3.9	844	3.9	170	12.8	171	12.8	93	7.2	94	7.2	1103	4.6	1109	4.6
Kimberley	216	1.0	216	1.0	393	29.6	396	29.5	14	1.0	14	1.0	623	2.6	626	2.6
Outside WA	17	0.1	17	0.1	1	0.1	1	0.1	5	0.4	5	0.4	23	0.1	23	0.1
TOTAL	21378	100.0	21493	100.0	1328	100.0	1341	100.0	1298	100.0	1304	100.0	24004	100.0	24138	100.0

Excludes births <500 grams birthweight.

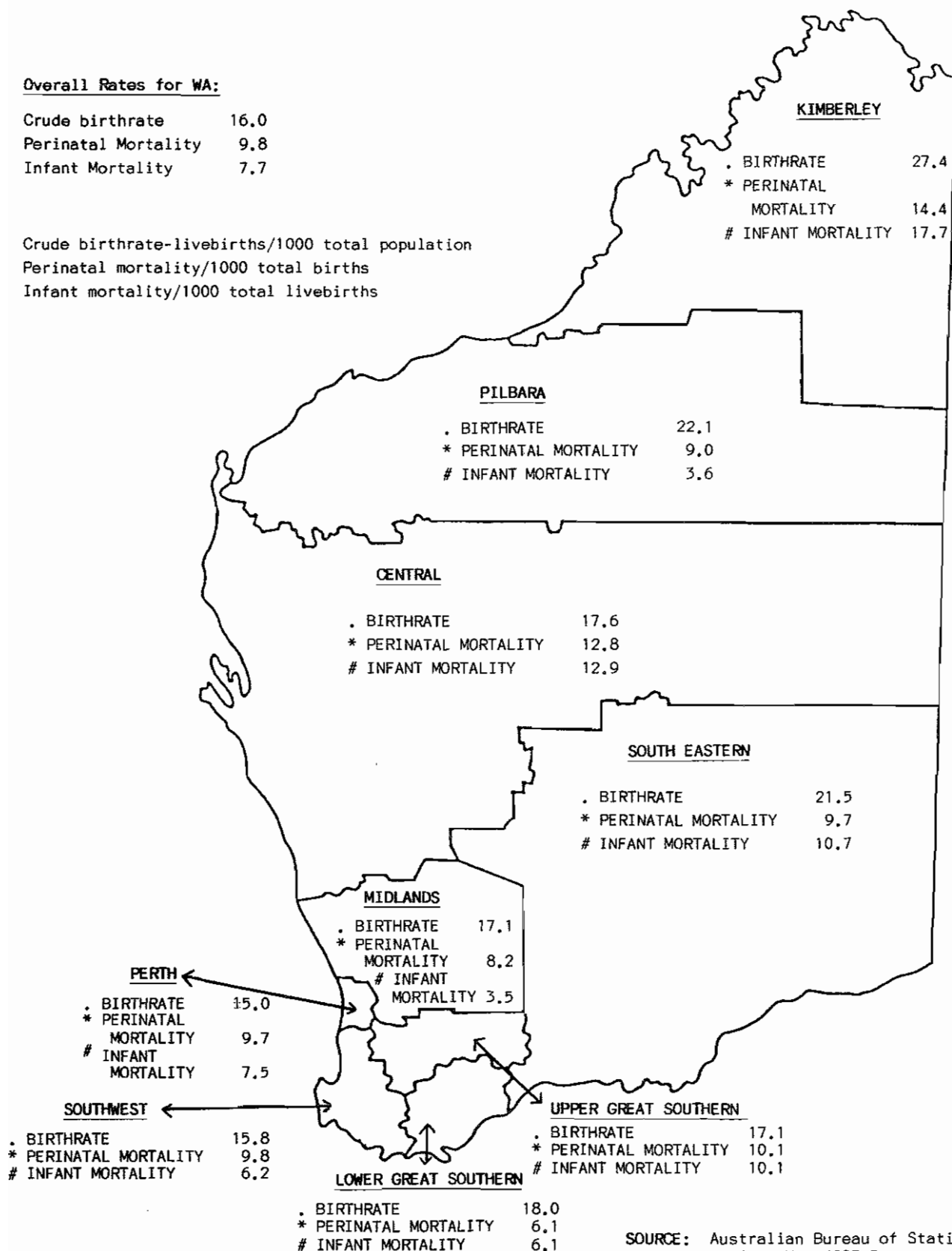
FIGURE I

CRUDE BIRTH RATE, PERINATAL AND INFANT MORTALITY
 BY STATISTICAL DIVISION OF MATERNAL RESIDENCE FOR BIRTHS
 IN WESTERN AUSTRALIA IN 1987

Overall Rates for WA:

Crude birthrate	16.0
Perinatal Mortality	9.8
Infant Mortality	7.7

Crude birthrate-livebirths/1000 total population
 Perinatal mortality/1000 total births
 Infant mortality/1000 total livebirths



SOURCE: Australian Bureau of Statistics
 Cat. No. 3203.5

4.5 Condition of Births

Analysis of the condition at birth showed 24004 (99.4%) babies were liveborn and 134 (0.6%) babies were stillborn.¹ Livebirths to Caucasian women numbered 21,378 (99.5%) and stillbirths 115 (0.5%). Among Aboriginal women there were 1,328 (99.0%) liveborn and 13 (1.0%) stillborn babies. For women of other races there were 1,298 (99.5%) livebirths and 6 (0.5%) stillbirths (Table 1).

4.6 Maternal Age and Births

Consideration of maternal age shows that the highest number of women confined (9,320, 39.1%) were in the 25 to 29 year age category.

Women in their teenage years accounted for 1,492 (6.2%) of total confinements. Almost a third (30.6%) of Aboriginal women confined were teenagers. This contrasts with Caucasian women of whom 5.0% were teenagers and women of other races with 2.6% teenage confinements. Women aged 40 years or more represented 0.9% of all women confined (Table 3).

TABLE 3 : MATERNAL AGE AND MATERNAL RACE OF WOMEN CONFINED IN WESTERN AUSTRALIA IN 1987

Maternal Age	Maternal Race						Total	
	Caucasian		Aboriginal		Other		No.	%
	No.	%	No.	%	No.	%		
< 13	-	-	3	0.2	-	-	3	-
14	7	-	9	0.7	-	-	16	0.1
15	25	0.1	34	2.6	-	-	59	0.2
16	79	0.4	60	4.5	2	0.2	141	0.6
17	160	0.8	91	6.8	6	0.5	257	1.1
18	316	1.5	86	6.5	12	0.9	414	1.7
19	464	2.2	124	9.3	14	1.0	602	2.5
< 19	1051	5.0	407	30.6	34	2.6	1492	6.2
20-24	4969	23.4	470	35.4	226	17.5	5665	23.8
25-29	8590	40.5	292	22.0	438	33.9	9320	39.1
30-34	5042	23.8	118	8.9	403	31.2	5563	23.3
35-39	1356	6.4	38	2.8	173	13.4	1567	6.6
40-44	198	0.9	4	0.3	17	1.3	219	0.9
> 45	10	-	-	-	-	-	10	-
TOTAL	21216	100.0	1329	100.0	1291	100.0	23836	100.0

Excludes births <500 grams birthweight.

5. STILLBIRTHS, NEONATAL AND POST-NEONATAL MORTALITY IN WESTERN AUSTRALIA IN THE 1987 BIRTH COHORT

5.1 Stillbirths

There were 134 stillbirths in Western Australia during the 1987 year which were equal to or greater than 500 grams birthweight. The stillbirth proportion for the State was 5.6/1000 total births (Table 4).

The stillbirth proportion for babies of Aboriginal women (9.7/1000) was high compared to that for babies of Caucasian women (5.4/1000) and for babies of women of other racial groups (4.6/1000).

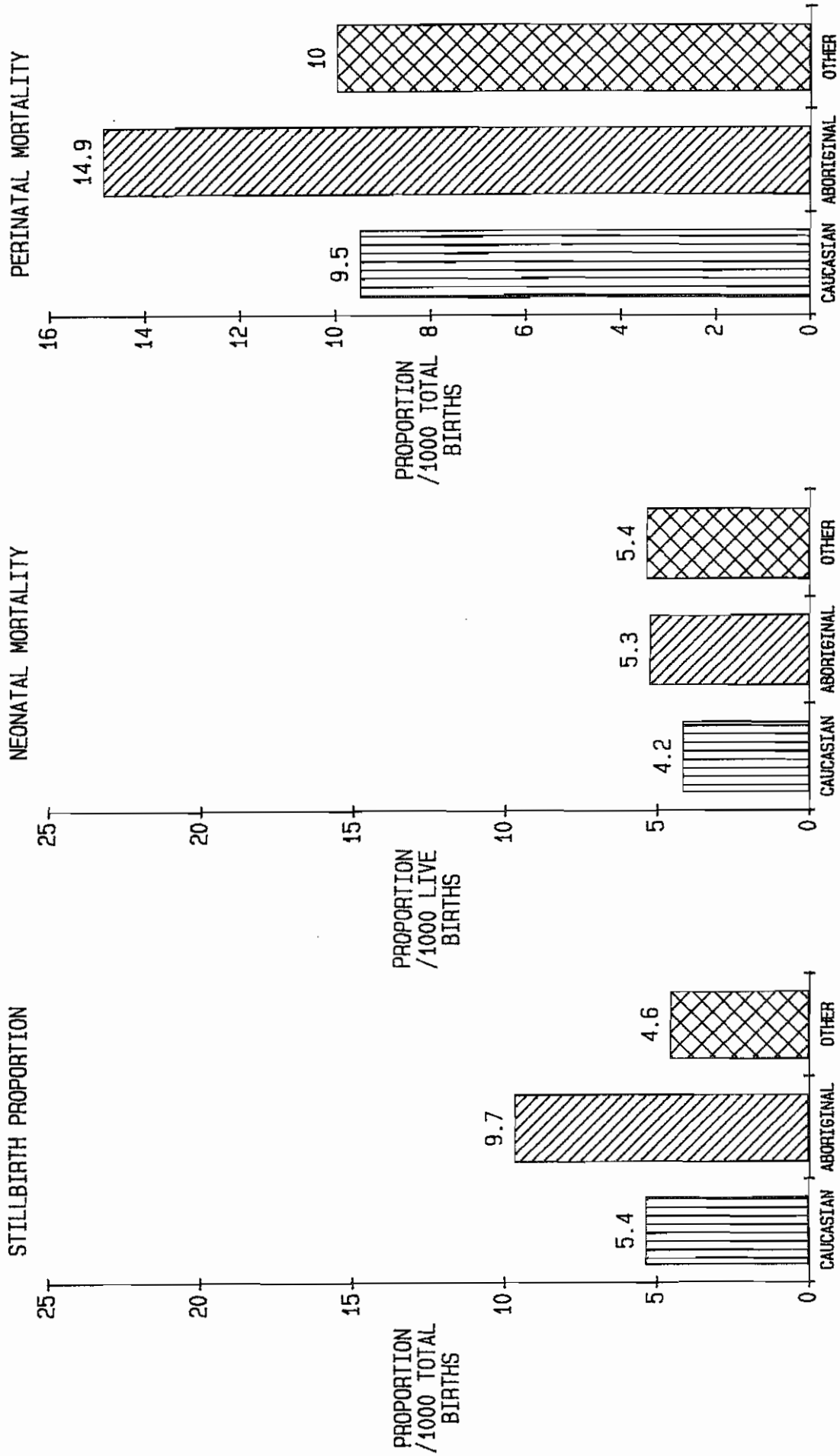
Stillbirth proportions relating to Statistical Divisions of maternal residence are shown on Table 4. It should be noted, however, that due to small numbers of births in each country division the proportions do vary from year to year and may be considered unrepresentative on an annual basis. (Table 4, Figure II).

5.1.1 Maternal Race and Maternal Age

The overall proportion of stillbirths was 5.6/1000 total births. For babies of teenage mothers, the proportion was 6.0/1000 and among babies of Aboriginal teenage mothers the proportion was 12.2/1000 total births. Among women aged 25-29 years, the group with the highest number of births overall, the stillbirth proportion was low at 4.6/1000 total births. Among babies of women aged 35 years and over 22 (12.0/1000) stillbirths occurred (Table 5).

FIGURE II

STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY FOR ABORIGINALS
AND NON-ABORIGINALS IN WESTERN AUSTRALIA IN 1987



Excludes births less than 500 grams birthweight.

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

TABLE 4 : STILLBIRTHS, NEONATAL AND PERINATAL DEATHS BY STATISTICAL DIVISION OF MATERNAL RESIDENCE AND MATERNAL RACE IN WESTERN AUSTRALIA IN 1986

Statistical Division	Maternal Race														Total										
	Caucasian				Aboriginal				Other				Total												
	Still- births No. Prop ⁿ	Neo- natal No. Prop ⁿ	Peri- natal No. Prop ⁿ	Still- births No. Prop ⁿ	Neo- natal No. Prop ⁿ	Peri- natal No. Prop ⁿ	Still- births No. Prop ⁿ	Neo- natal No. Prop ⁿ	Peri- natal No. Prop ⁿ	Still- births No. Prop ⁿ	Neo- natal No. Prop ⁿ	Peri- natal No. Prop ⁿ	Still- births No. Prop ⁿ	Neo- natal No. Prop ⁿ	Peri- natal No. Prop ⁿ										
Perth	88	5.9	59	4.0	147	9.9	2	(5.5)	1	(2.8)	3	(8.3)	4	(3.8)	5	4.8	9	8.6	94	5.8	65	4.0	159	9.7	
Southwest	10	5.4	7	3.8	17	9.1	1	(22.7)	-	-	1	(22.7)	-	-	1	(27.8)	1	(27.8)	11	5.7	8	4.1	19	9.8	
Lower Great Southern	3	(3.9)	1	(1.3)	4	(5.2)	-	-	1	(29.4)	1	(29.4)	-	-	-	-	-	-	3	(3.7)	2	(2.5)	5	6.1	
Upper Great Southern	-	-	1	(2.8)	1	(2.8)	2	(50.0)	1	(26.3)	3	(75.0)	-	-	-	-	-	-	2	(5.0)	2	(5.1)	4	(10.1)	
Midlands	3	(3.8)	2	(2.6)	5	6.4	2	(35.1)	-	-	2	(35.0)	-	-	-	-	-	-	5	5.9	2	(2.4)	7	8.2	
South Eastern	2	(2.2)	7	7.9	9	10.1	-	-	-	-	-	-	1	(27.8)	-	-	-	1	(27.8)	3	(2.9)	7	6.8	10	9.7
Central	5	6.0	6	7.2	11	13.1	2	(14.6)	-	-	2	14.6	-	-	-	-	-	-	7	6.9	6	6.0	13	12.8	
Pilbara	4	(4.7)	4	(4.8)	8	9.5	1	(5.8)	-	-	1	(5.8)	1	(10.6)	-	-	-	1	(10.6)	6	5.4	4	(3.6)	10	9.0
Kimberley	-	-	2	(9.3)	2	(9.3)	3	(7.6)	4	(10.2)	7	17.7	-	-	-	-	-	-	3	(4.8)	6	9.6	9	14.4	
Outside WA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	(200.0)	1	(200.0)	-	-	1	(43.5)	1	(43.5)	
TOTAL	115	5.4	89	4.2	204	9.5	13	9.7	7	5.3	20	14.9	6	4.6	7	5.4	13	10.0	134	5.6	103	4.3	237	9.8	

Excludes births <500 grams birthweight.

- 1 Stillbirth & Perinatal Death proportion/1000 total births.
 - 2 Neonatal Death proportion/1000 livebirths.
- () Where n<5 proportion has been bracketed.

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

TABLE 5 : STILLBIRTHS BY MATERNAL RACE AND MATERNAL AGE IN WESTERN AUSTRALIA IN 1987

Maternal Age	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Total	Prop ⁿ
	No.	Total	Prop ⁿ	No.	Total	Prop ⁿ	No.	Total	Prop ⁿ			
< 15	-	32	-	-	46	-	-	-	-	-	78	-
16	2	79	25.3	1	60	16.7	-	2	-	3	141	21.3
17	1	161	6.2	1	91	11.0	-	6	-	2	258	7.8
18	-	317	-	2	89	22.5	-	12	-	2	418	4.8
19	1	469	2.1	1	125	8.0	-	14	-	2	608	3.3
< 19	4	1058	3.8	5	411	12.2	-	34	-	9	1503	6.0
20-24	25	5024	5.0	5	473	10.6	1	227	4.4	31	5724	5.4
25-29	40	8692	4.6	1	295	3.4	2	443	4.5	43	9430	4.6
30-34	28	5116	5.5	1	120	8.3	-	409	-	29	5645	5.1
35-39	13	1392	9.3	1	38	26.3	3	174	17.2	17	1604	10.6
40-44	4	201	19.9	-	4	-	-	17	-	4	222	18.0
> 45	1	10	100.0	-	-	-	-	-	-	1	10	100.0
TOTAL	115	21493	5.4	13	1341	9.7	6	1304	4.6	134	24138	5.6

Excludes births <500 grams birthweight.

¹ Proportion/1000 total births.

5.1.2 Maternal Race and Parity

Fifty two (5.5/1000) stillborn babies were to primiparous women compared with 60 (6.5/1000) in the 1986 birth cohort. For babies of women whose parity was three or more the stillbirth proportion fell from 21 (9.1/1000) in 1986 to 14 (5.9/1000) in 1987 (Table 6).

TABLE 6 : STILLBIRTHS BY MATERNAL RACE AND PARITY IN WESTERN AUSTRALIA IN 1987

Parity	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Total	Prop ⁿ
	No.	Total Births	Prop ⁿ	No.	Total Births	Prop ⁿ	No.	Total Births	Prop ⁿ			
0	48	8468	5.7	2	399	5.0	2	516	3.9	52	9383	5.5
1 - 2	57	11146	5.1	7	554	12.6	4	688	5.8	68	12388	5.5
3 - 4	8	1686	4.7	4	278	14.4	-	80	-	12	2044	5.9
> 5	2	193	10.4	-	110	-	-	20	-	2	323	6.2
TOTAL	115	21493	5.4	13	1341	9.7	6	1304	4.6	134	24138	5.6

Excludes births <500 grams birthweight.

¹ Proportion/1000 total births.

5.1.3 Maternal Race, Condition and Plurality

Consideration of condition and plurality at birth showed that fifteen of the 134 stillborn babies in 1987 were multiple births. This represents a proportion of 25.0/1000 multiple births. Of the 119 singleton stillbirths (5.1/1000 singleton births), those to Aboriginal mothers numbered 12 representing a higher proportion (9.1/1000) of stillbirths among singleton births to Aboriginal women (Table 7).

TABLE 7 : CONDITION, PLURALITY AND MATERNAL RACE OF BIRTHS IN WESTERN AUSTRALIA, 1987

	Maternal Race										Total					
	Caucasian				Aboriginal				Other				Total Births	Live Births	Still Births	Propn Births
	Total Births	Live Births	Still Births	Propn Births	Total Births	Live Births	Still Births	Propn Births	Total Births	Live Births	Still Births	Propn Births				
Singleton	20943	20842	101	4.8	1317	1305	12	9.1	1278	1272	6	4.7				
Multiple	550	536	14	25.5	24	23	1	41.7	26	26	-	-	600	585	15	25.0
TOTAL	21493	21378	115	5.4	1341	1328	13	9.7	1304	1298	6	4.6	24138	24004	134	5.6

Excludes births <500 grams birthweight.

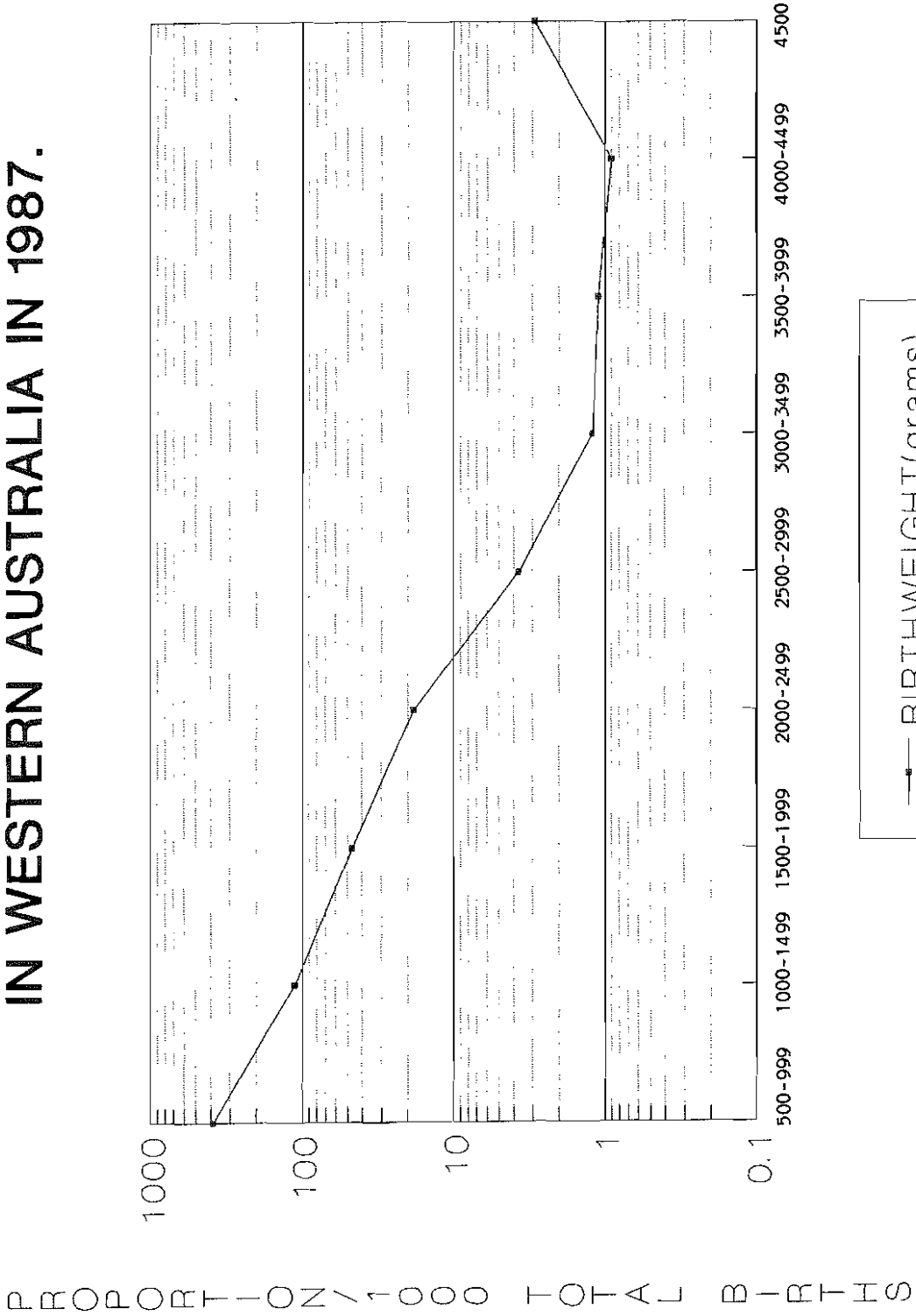
¹ Proportion/1000 total births.

5.1.4 Maternal Race and Birthweight

The stillbirth proportion for all races varied inversely for birthweight up to 4000 grams, and then increased slightly in heavier babies. The proportion of stillbirths in low birthweight babies was 65.9/1000. The lowest stillbirth proportion (0.9/1000) was for babies of birthweight 4000-4499 grams (Table 8, Figure III).

FIGURE III

BIRTHWEIGHT DISTRIBUTION OF STILLBIRTHS IN WESTERN AUSTRALIA IN 1987.



Excludes births less than 500 grams birthweight.

SOURCE: MIDWIVES' NOTIFICATION SYSTEM

TABLE 8 : STILLBIRTH PROPORTION BY MATERNAL RACE AND BIRTHWEIGHT
DISTRIBUTION IN WESTERN AUSTRALIA IN 1987

Birthweight (grams)	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Total	Prop ⁿ
	No.	Total	Prop ⁿ	No.	Total	Prop ⁿ	¹ No.	Total	Prop ⁿ			
	Births			Births			Births			Births		
500 - 999	45	118	381.4	6	12	500.0	1	4	(250.0)	52	134	388.0
1000 - 1499	14	121	115.7	-	12	-	2	10	(200.0)	16	143	11.9
1500 - 1999	11	246	44.7	2	23	(87.0)	-	10	-	13	279	46.6
2000 - 2499	14	771	18.2	1	94	(10.6)	2	65	(30.8)	17	930	18.3
< 2500	84	1256	66.9	9	141	63.8	5	89	56.2	98	1486	65.9
2500 - 2999	14	3194	4.4	-	317	-	-	244	-	14	3755	3.7
3000 - 3499	8	8024	1.0	2	482	(4.1)	1	557	(1.8)	11	9063	1.2
3500 - 3999	7	6605	1.1	1	299	(3.3)	-	331	-	8	7235	1.1
4000 - 4499	2	2094	(1.0)	-	82	-	-	74	-	2	2250	(0.9)
> 4500	-	320	-	1	20	(50.0)	-	9	-	1	349	(2.9)
TOTAL	115	21493	5.4	13	1341	9.7	6	1304	4.6	134	24138	5.6

Excludes births <500 grams birthweight.

¹ Proportion/1000 total births.

() Where n<5 proportion has been bracketed.

5.1.5 Causes of Stillbirths

There were 48 (35.8% stillborn babies with cause unknown and 43 (32.1%) stillbirths were attributed to extremely low birthweight Lethal congenital malformations caused 21 (15.7%) stillbirths and a further 15 (11.2%) stillbirths resulted from complications of placenta and/or cord (Table 9).

The high percentage of unexplained stillbirths would be reduced if autopsies were performed on more babies. Of the 134 stillborn babies, it is known that 76 (56.7%) had autopsies and 31 (23.1%) did not. It is not known whether the remaining 27 (20.2%) stillborn babies underwent autopsy.

Eighty six (64.2%) stillbirths were recorded as antepartum deaths, 29 (21.6%) were recorded as intrapartum deaths and for 19 (14.2%) the time of death was unknown.

TABLE 9 : CAUSE OF STILLBIRTH BY MATERNAL RACE IN WESTERN AUSTRALIA IN 1987

Cause of Death	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Lethal Congenital Malformation	18	15.7	2	15.4	1	16.7	21	15.7
Extremely Low Birth Weight (<1000g)*	36	31.3	6	46.1	1	16.7	43	32.1
Unknown	42	36.5	4	30.8	2	33.3	48	35.8
Maternal:								
Obstetric	-	-	-	-	-	-	-	-
Medical	-	-	-	-	-	-	-	-
Hypertension	1	0.9	-	-	2	33.3	3	2.2
Placenta and Cord	15	13.0	-	-	-	-	15	11.2
Other	3	2.6	1	7.7	-	-	4	3.0
TOTAL	115	100.0	13	100.0	6	100.0	134	100.0

Excludes births <500 grams birthweight.

*Any non-malformed stillbirth of birthweight <1000 grams was included in the extremely low birthweight category.

5.2 Neonatal Deaths

There were 103 neonatal deaths from the 24004 livebirths in 1987.¹ The overall neonatal mortality proportion was 4.3/1000 livebirths. For babies of Aboriginal women neonatal mortality was 5.3/1000 livebirths which is slightly higher than for babies of Caucasian women (4.2/1000) and slightly lower than the proportion for babies of women of other races (5.4/1000) (Table 4).

The figures for neonatal mortality by Statistical Division of maternal residence are provided in Table 4. However, it should be noted that due to small numbers of births in each country division, the proportions do fluctuate markedly.³

5.2.1 Maternal Race and Maternal Age

Fourteen (9.4/1000) of the 103 liveborn babies who died within the first 28 days of life, were born to teenage mothers. In the age group where the highest number of births occurred (25-29 years) the neonatal mortality proportion was 3.1/1000. The proportion of neonatal deaths (9.9/1000) among babies of Aboriginal teenage mothers is slightly higher than that for babies of Caucasian teenage women (9.5/1000) (Table 10).

TABLE 10 : NEONATAL DEATHS BY MATERNAL RACE AND MATERNAL AGE IN WESTERN AUSTRALIA IN 1987

Maternal Age	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Live Births	Prop ⁿ
	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ			
< 15	2	32	62.5	-	46	-	-	-	-	2	78	25.6
16	1	77	13.0	-	59	-	-	2	-	1	138	7.2
17	2	160	12.5	-	90	-	-	6	-	2	256	7.8
18	2	317	6.3	3	87	34.5	-	12	-	5	416	12.0
19	3	468	6.4	1	124	8.1	-	14	-	4	606	6.6
< 19	10	1054	9.5	4	406	9.9	-	34	-	14	1494	9.4
20-24	24	4999	4.8	1	468	2.1	2	226	8.9	27	5693	4.7
25-29	28	8652	3.2	1	294	3.4	-	441	-	29	9387	3.1
30-34	20	5088	3.9	1	119	8.4	3	409	7.3	24	5616	4.3
35-39	6	1379	4.3	-	37	-	2	171	11.7	8	1587	5.0
40-44	1	197	5.1	-	4	-	-	17	-	1	218	4.6
> 45	-	9	-	-	-	-	-	-	-	-	9	-
TOTAL	89	21378	4.2	7	1328	5.3	7	1298	5.4	103	24004	4.3

Excludes births <500 grams birthweight.

¹ Proportion/1000 total livebirths.

5.2.2 Maternal Race and Parity

Forty four (3.6/1000) neonatal deaths were to women with a previous parity of one or two. The highest proportions were for babies of Caucasian women with parity of five or more (10.5/1000) and primiparous Aboriginal women (10.1/1000) (Table 11).

TABLE 11 : NEONATAL DEATHS BY MATERNAL RACE AND PARITY IN WESTERN AUSTRALIA IN 1987

Parity	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Live Births	Prop ⁿ
	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ			
0	36	8420	4.3	4	397	10.1	2	514	3.9	42	9331	4.5
1 - 2	38	11089	3.4	1	547	1.8	5	684	7.3	44	12320	3.6
3 - 4	13	1678	7.7	2	274	7.3	-	80	-	15	2032	7.4
> 5	2	191	10.5	-	110	-	-	20	-	2	321	6.2
TOTAL	89	21378	4.2	7	1328	5.3	7	1298	5.4	103	24004	4.3

Excludes births <500 grams birthweight.

¹ Proportion/1000 livebirths.

5.2.3 Maternal Race and Plurality

These data show that a neonatal death proportion of 3.8/1000 livebirths for singleton births and 22.2/1000 livebirths for multiple births. There were no neonatal deaths among twin births to Aboriginal women or among twin births to women of other races (Table 12).

TABLE 12 : NEONATAL DEATHS BY MATERNAL RACE AND PLURALITY IN WESTERN AUSTRALIA IN 1987

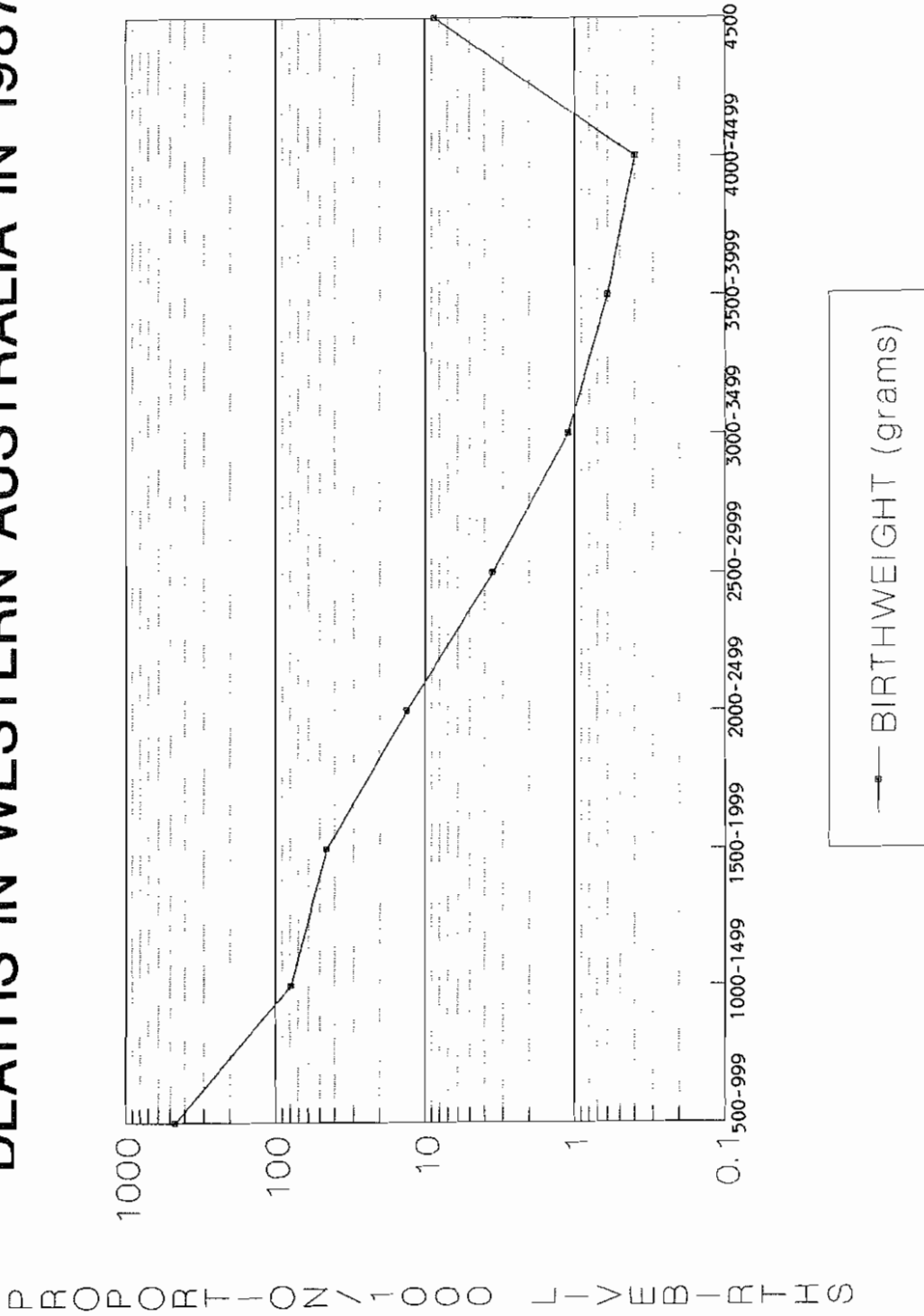
Plurality	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Live Births	Prop ⁿ
	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ			
Singleton	76	20842	3.6	7	1305	5.4	7	1272	5.5	90	23419	3.8
Twins	13	513	25.3	-	23	-	-	26	-	13	562	23.1
Triplets	-	23	-	-	-	-	-	-	-	-	23	-
TOTAL	89	21378	4.2	7	1328	5.3	7	1298	5.4	103	24004	4.3

Excludes births <500 grams birthweight.

¹ Proportion/1000 livebirths.

FIGURE IV

BIRTHWEIGHT DISTRIBUTION OF NEONATAL DEATHS IN WESTERN AUSTRALIA IN 1987.



Excludes births less than 500 grams birthweight.

SOURCE: MIDWIVES' NOTIFICATION SYSTEM

5.2.4 Maternal Race and Birthweight

In general terms, as reported for stillbirths, neonatal mortality proportions for all races fell as birthweight rose. The proportion of low birthweight neonatal deaths among babies born to Aboriginal mothers (37.9/1000) is lower than for low birthweight neonatal deaths of babies born to Caucasian women (53.8/1000) and higher than for babies of women of other races (47.6/1000) (Table 13, Figure IV).

TABLE 13 : NEONATAL MORTALITY BY MATERNAL RACE AND BIRTHWEIGHT DISTRIBUTION IN WESTERN AUSTRALIA IN 1987

Birthweight (grams)	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Live Births	Prop ⁿ
	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ			
500 - 999	36	73	493.2	-	6	-	2	3	(666.7)	38	82	463.4
1000 - 1499	8	107	74.8	1	12	(83.3)	1	8	(125.0)	10	127	78.7
1500 - 1999	10	235	42.6	1	21	(47.6)	1	10	(100.0)	12	266	45.1
2000 - 2499	9	757	11.9	3	93	(32.3)	-	63	-	12	913	13.1
< 2500	63	1172	53.8	5	132	37.9	4	84	(47.6)	72	1388	51.9
2500 - 2999	8	3180	2.5	2	317	(6.3)	3	244	(12.3)	13	3741	3.5
3000 - 3499	10	8016	1.2	-	480	-	-	556	-	10	9052	1.1
3500 - 3999	4	6598	(0.6)	-	298	-	-	331	-	4	7227	(0.6)
4000 - 4499	1	2092	(0.5)	-	82	-	-	74	-	1	2248	(0.4)
> 4500	3	320	(9.4)	-	19	-	-	9	-	3	348	(8.6)
TOTAL	89	21378	4.2	7	1328	5.3	7	1298	5.4	103	24004	4.3

Excludes births <500 grams birthweight.

¹ Proportion/1000 livebirths.

() Where n<5 proportion has been bracketed.

5.2.5 Maternal Race and Age at Neonatal Death

The majority (84.5%) of neonatal deaths occurred in the first week of life, (72.8%) occurring within the first 48 hours of life. Among babies of Aboriginal women a lower percentage of neonatal deaths occurred in the first seven days of life compared with babies born to Caucasian women or women of other races (Table 14).

TABLE 14 : AGE AT NEONATAL DEATHS BY MATERNAL RACE IN WESTERN AUSTRALIA
IN 1987

Age at Death	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
< day 1	38	42.7	1	14.3	3	42.9	42	40.8
day 1	21	23.6	-	-	1	14.3	22	21.3
day 2	10	11.2	1	14.3	-	-	11	10.7
day 3	3	3.4	1	14.3	-	-	4	3.9
day 4	3	3.4	-	-	-	-	3	2.9
day 5	1	1.1	1	14.3	-	-	2	1.9
day 6	2	2.2	-	-	1	14.3	3	2.9
day 7	-	-	-	-	-	-	-	-
day <1-7	78	87.6	4	57.1	5	71.4	87	84.5
day 8-14	8	9.0	1	14.3	1	14.3	10	9.7
day 15-21	2	2.2	1	14.3	1	14.3	4	3.9
day 22-28	1	1.1	1	14.3	-	-	2	1.9
TOTAL	89	100.0	7	100.0	7	100.0	103	100.0

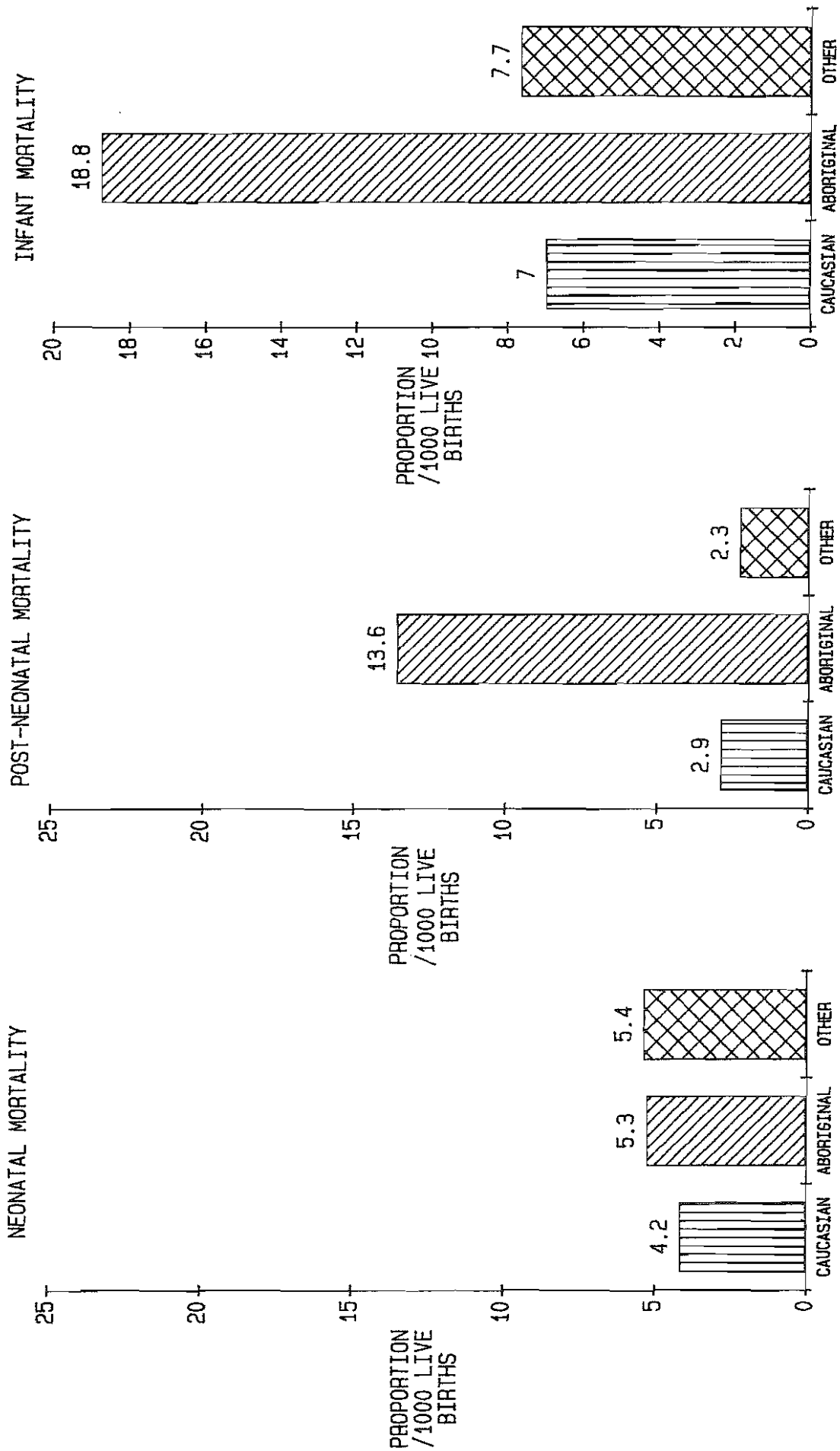
Excludes births <500 grams birthweight.

5.2.6 Causes of Neonatal Deaths

Lethal congenital malformation in 37 babies (35.9%) and low birthweight in 48 babies (46.6%) were the main causes of neonatal death in the 1987 birth cohort.

The cause of more than half (57.1%) of neonatal deaths among babies of Aboriginal mothers were recorded as lethal congenital malformation (Table 15).

FIGURE V
 NEONATAL, POST-NEONATAL AND INFANT MORTALITY FOR
 ABORIGINALS AND NON-ABORIGINALS IN WESTERN AUSTRALIA IN 1987



Excludes births less than 500 grams birthweight.

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

TABLE 15 : CAUSE OF NEONATAL DEATH BY MATERNAL RACE IN WESTERN AUSTRALIA
IN 1987

Cause of Death	Maternal Race						Total	
	Caucasian		Aboriginal		Other		No.	%
	No.	%	No.	%	No.	%		
Lethal Congenital Malformation	30	33.7	4	57.1	3	42.9	37	35.9
Low Birthweight (<2500grams)	45	50.6	1	14.3	2	28.6	48	46.6
Asphyxia	6	6.7	1	14.3	1	14.3	8	7.8
Pregnancy conditions	-	-	-	-	-	-	-	-
Infections	2	2.2	-	-	-	-	2	1.9
Hydrops fetalis	-	-	-	-	-	-	-	-
Other	4	4.5	-	-	-	-	4	3.9
Sudden Infant Deaths	-	-	1	14.3	1	14.3	2	1.9
Unknown	2	2.2	-	-	-	-	2	1.9
TOTAL	89	100.0	7	100.0	7	100.0	103	100.0

Excludes births <500 grams birthweight.

5.3 Post Neonatal Deaths

There were 82 post-neonatal deaths identified amongst the 1987 livebirths, a proportion of 3.4/1000 livebirths (Table 16 and Table 31).

Post-neonatal mortality for babies of Aboriginal women was 13.6/1000 livebirths which is more than four times the figures of 2.9/1000 for babies of Caucasian women and 2.3/1000 for babies born to women of other races (Table 16, Table 31 and Figure IV).

Post-neonatal deaths in relation to Statistical Divisions of maternal residence are shown in Table 16. It should be noted however, that due to small numbers of births in each country division the proportions do vary from year to year and may be considered unrepresentative.

TABLE 16 : POST-NEONATAL AND INFANT MORTALITY BY STATISTICAL DIVISION OF MATERNAL RESIDENCE AND MATERNAL RACE IN WESTERN AUSTRALIA IN 1987

Statistical Division	Maternal Race												Total			
	Caucasian				Aboriginal				Other				Post neonatal No.	Infant No.	Propn	
	Post neonatal No.	Propn	Infant No.	Propn	Post neonatal No.	Propn	Infant No.	Propn	Post neonatal No.	Propn	Infant No.	Propn				
Perth	47	3.2	106	7.1	6	16.7	7	19.5	3	(2.9)	8	7.7	56	3.4	121	7.5
Southwest	3	(1.6)	10	5.4	1	(23.3)	1	(23.3)	-	-	1	(27.8)	4	(2.1)	12	6.2
Lower Great Southern	2	(2.6)	3	(3.9)	1	(29.4)	2	(58.8)	-	-	-	-	3	(3.7)	5	6.1
Upper Great Southern	1	(2.8)	2	(5.7)	1	(26.3)	2	(52.6)	-	-	-	-	2	(5.1)	4	10.1
Midlands	1	(1.3)	3	(3.8)	-	-	-	-	-	-	-	-	1	(1.2)	3	(3.5)
South Eastern	3	(3.4)	10	11.2	1	(10.0)	1	(10.0)	-	-	-	-	4	(3.9)	11	10.7
Central	4	(4.8)	10	12.0	3	(22.2)	3	(22.2)	-	-	-	-	7	(7.0)	13	12.9
Pilbara	-	-	4	(4.8)	-	-	-	-	-	-	-	-	-	-	4	3.6
Kimberley	-	-	2	(9.3)	5	12.7	9	(22.9)	-	-	-	-	5	(8.0)	11	17.7
Outside WA	-	-	-	-	-	-	-	-	-	-	1	(200.0)	-	-	1	(43.5)
TOTAL	61	2.9	150	7.0	18	13.6	25	18.8	3	2.3	10	7.7	82	3.4	185	7.7

1 Post-neonatal death proportion/1000 livebirths.

2 Infant death proportion/1000 livebirths.

() Where n<5 proportion has been bracketed.

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

5.3.1 Maternal Race and Maternal Age

Overall, 11 of the 82 post neonatal deaths were babies of teenage women, representing a proportion of 7.4/1000 livebirths. Among neonatal deaths of babies born to Aboriginal women however, less than a quarter were to teenage mothers with a proportion of 9.9/1000 livebirths (Table 17).

TABLE 17 : POST-NEONATAL DEATHS BY MATERNAL RACE AND MATERNAL AGE IN WESTERN AUSTRALIA IN 1987

Maternal Age	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Live Births	Prop ⁿ
	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ			
< 15	-	32	-	-	46	-	-	-	-	-	78	-
16	1	77	13.0	1	59	16.9	-	2	-	2	138	14.5
17	1	160	6.3	1	90	11.1	-	6	-	2	256	7.8
18	2	317	6.3	-	87	-	-	12	-	2	416	4.8
19	3	468	6.4	2	124	16.1	-	14	-	5	606	8.3
< 19	7	1054	6.6	4	406	9.9	-	34	-	11	1494	7.4
20-24	20	4999	4.0	9	468	19.2	1	226	4.4	30	5693	5.3
25-29	22	8652	2.5	3	294	10.2	1	441	2.3	26	9387	2.8
30-34	10	5088	2.0	2	119	16.8	1	409	2.4	13	5616	2.3
35-39	2	1379	1.5	-	37	-	-	171	-	2	1587	1.3
40-44	-	197	-	-	4	-	-	17	-	-	218	-
> 45	-	9	-	-	-	-	-	-	-	-	9	-
TOTAL	61	21378	2.9	18	1328	13.6	3	1298	2.3	82	24004	3.4

Excludes births <500 grams birthweight.

¹ Proportion/1000 livebirths.

5.3.2 Maternal Race and Conjugal State

Higher proportions of post-neonatal mortality were recorded for babies of single women (6.7/1000) and babies of separated, divorced or widowed women (5.0/1000), than for women socially supported by a male partner in a marriage or defacto relationship (3.0/1000). (Table 18).

TABLE 18 : POST-NEONATAL DEATHS BY MATERNAL RACE AND CONJUGAL STATE IN WESTERN AUSTRALIA IN 1987

Conjugal State	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Live Births	Prop ⁿ
	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ			
Single	10	1881	5.3	7	589	11.9	-	65	-	17	2535	6.7
Married/defacto	49	19139	2.6	11	716	15.4	3	1217	2.5	63	21072	3.0
² Other	2	358	5.6	-	23	-	-	16	-	2	397	5.0
TOTAL	61	21378	2.9	18	1328	13.6	3	1298	2.3	82	24004	3.4

Excludes births <500 grams birthweight.

¹ Proportion/1000 livebirths.

² Other includes separated, divorced and widowed.

5.3.3 Maternal Race and Parity

Over one quarter (26.8%) of babies who died in the post-neonatal period were born to primiparous mothers, and more than half (57.3%) were to women with a parity of 1-2. The proportions for these groups were 2.4/1000 for primiparous women, 3.8/1000 for women with parity 1-2, 5.4/1000 for women with parity 3-4 and 6.2/1000 for women with parity of 5 or more (Table 19).

TABLE 19 : POST-NEONATAL DEATHS BY MATERNAL RACE AND PARITY IN WESTERN AUSTRALIA IN 1987

Parity	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Live Births	Prop ⁿ
	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ			
0	18	8420	2.1	2	397	5.0	2	514	3.9	22	9331	2.4
1 - 2	34	11089	3.1	12	547	21.9	1	684	1.5	47	12320	3.8
3 - 4	9	1678	5.4	2	274	7.3	-	80	-	11	2032	5.4
> 5	-	191	-	2	110	18.2	-	20	-	2	321	6.2
TOTAL	61	21378	2.9	18	1328	13.6	3	1298	2.3	82	24004	3.4

Excludes births <500 grams birthweight.

¹ Proportion/1000 livebirths.

5.3.4 Maternal Race and Plurality

Examination of the 82 post-neonatal deaths in 1987 by plurality revealed that for singleton births the proportion was 3.4/1000 and for multiple births the proportion was 5.3/1000 livebirths. Among twin babies of Caucasian women the post-neonatal death proportion was 5.8/1000. (Table 20).

TABLE 20 : POST-NEONATAL DEATHS BY MATERNAL RACE AND PLURALITY IN WESTERN AUSTRALIA IN 1987

Plurality	Maternal Race									Total		
	Caucasian			Aboriginal			Other					
	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ
Singleton	58	20842	2.8	18	1305	13.8	3	1272	2.4	79	23419	3.4
Twins	3	513	5.8	-	23	-	-	26	-	3	562	5.3
Triplets	-	23	-	-	-	-	-	-	-	-	23	-
TOTAL	61	21378	2.9	18	1328	13.6	3	1298	2.3	82	24004	3.4

Excludes births <500 grams birthweight.
 1 Proportion/1000 livebirths.

5.3.5 Maternal Race and Birthweight

Overall the trend was for post neonatal mortality proportions to increase as birthweight fell. The post-neonatal proportion for low birthweight babies of Aboriginal mothers (15.2/1000) was higher than the proportion for low birthweight babies of Caucasian women (9.4/1000) and babies of women of other races (11.9/1000). (Table 21).

TABLE 21 : POST-NEONATAL MORTALITY BY MATERNAL RACE AND BIRTHWEIGHT DISTRIBUTION IN WESTERN AUSTRALIA IN 1987

Birthweight (grams)	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Live Births	Prop ⁿ
	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ			
500 - 999	6	73	82.2	-	6	-	-	3	-	6	82	73.2
1000 - 1499	2	107	(18.7)	-	12	-	1	8	(125.0)	3	127	(23.6)
1500 - 1999	-	235	-	-	21	-	-	10	-	-	266	-
2000 - 2499	3	757	(4.0)	2	93	(21.5)	-	63	-	5	913	5.5
< 2500	11	1172	9.4	2	132	(15.2)	1	84	(11.9)	14	1388	10.1
2500 - 2999	12	3180	3.8	6	317	18.9	1	244	(4.1)	19	3741	5.1
3000 - 3499	21	8016	2.6	5	480	10.4	-	556	-	26	9052	2.9
3500 - 3999	13	6598	2.0	5	298	16.8	1	331	(3.0)	19	7227	2.6
4000 - 4499	3	2092	(1.4)	-	82	-	-	74	-	3	2248	(1.3)
> 4500	1	320	(3.1)	-	19	-	-	9	-	1	348	(2.9)
TOTAL	61	21378	2.9	18	1328	13.6	3	1298	(2.3)	82	24004	3.4

Excludes births <500 grams birthweight.

¹ Proportion/1000 livebirths.

() Where n<5 proportion has been bracketed.

5.3.6 Causes of Post Neonatal Death

The major cause of post-neonatal deaths in Western Australia continued to be Sudden Infant Death Syndrome (61.0%) (Table 22).

Lethal congenital malformation remained the second biggest known cause to which 8 (9.8%) post-neonatal deaths were attributed. The percentage of post-neonatal deaths due to infection has increased from 8.4% in 1986 to 9.8% in 1987. This increase was a reflection of the percentage of post-neonatal deaths among babies of Aboriginal women being 5 deaths (27.8%) in 1987 compared with 3 deaths (25.0%) in 1986 attributed to infection (Table 22).

TABLE 22 : CAUSE OF POST-NEONATAL DEATH BY MATERNAL RACE IN WESTERN AUSTRALIA IN 1987

Cause of Death	Maternal Race						Total 1987		Total 1986	
	Caucasian		Aboriginal		Other		No.	%	No.	%
	No.	%	No.	%	No.	%				
Sudden Infant Death Syndrome	41	67.2	9	50.0	-	-	50	61.0	47	66.2
Lethal Congenital Malformation	6	9.8	1	5.6	1	33.3	8	9.8	12	16.9
Infection - Respiratory	-	-	4	22.2	-	-	4	4.9	5	7.0
Meningitis	2	3.3	1	5.6	-	-	3	3.7	-	-
Other	1	1.6	-	-	-	-	1	1.2	1	1.4
Other	11	18.0	2	11.1	2	66.7	15	18.3	5	7.0
Unknown	-	-	1	5.6	-	-	1	1.2	1	1.4
TOTAL	61	100.0	18	100.0	3	100.0	82	100.0	71	100.0

Excludes births <500 grams birthweight.

5.3.7 Seasonal Incidence of Post Neonatal Deaths

Examination of the causes of post-neonatal death by months of the year during which these deaths occurred confirms that most Sudden Infant Deaths (35 babies, 70.0%), were observed during the cooler months from April to September. Deaths among babies with lethal congenital malformations also were more numerous during this time (Table 23).

TABLE 23 : CAUSE OF POST-NEONATAL DEATH BY SEASONAL INCIDENCE IN WESTERN AUSTRALIA IN 1987

Cause of Death	Jan - Mar		Apr - Jun		Jul - Sep		Oct - Dec		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Sudden Infant Death Syndrome	5	45.5	15	65.2	20	71.4	10	50.0	50	61.0
Lethal Congenital Malformation	1	9.0	4	17.4	1	3.6	2	10.0	8	9.8
Infection	1	9.0	1	4.3	4	14.3	2	10.0	8	9.8
Other/Unknown	4	36.4	3	13.0	3	10.7	6	30.0	16	19.5
TOTAL	11	100.0	23	100.0	28	100.0	20	100.0	82	100.0

Excludes births <500 grams birthweight.

SOURCE: MIDWIVES' NOTIFICATION SYSTEM
REGISTRAR GENERAL'S OFFICE

6. PERINATAL MORTALITY IN WESTERN AUSTRALIA IN THE 1987 BIRTH COHORT

6.1 Perinatal Mortality

There were 237 perinatal deaths identified in the 1987 birth cohort which gave a perinatal mortality proportion of 9.8/1000 total births (Table 4 and Table 24). This compared with a proportion of 11.5/1000 in 1986. Among babies born to Aboriginal women the proportion (14.9/1000) was higher than for perinatal deaths of babies of Caucasian women (9.5/1000) and for perinatal deaths of babies born to women of other races (10.0/1000) (Table 24).

TABLE 24 : STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY BY MATERNAL RACE IN WESTERN AUSTRALIA IN 1987

Type of Death	Maternal Race						Total	
	Caucasian		Aboriginal		Other		No.	Prop ⁿ
	No.	Prop ⁿ	No.	Prop ⁿ	No.	Prop ⁿ		
Stillbirth/1000 Total Births	115	5.4	13	9.7	6	4.6	134	5.6
Neonatal/1000 Livebirths	89	4.2	7	5.3	7	5.4	103	4.3
Perinatal/1000 Total Births	204	9.5	20	14.9	13	10.0	237	9.8

Excludes births <500 grams birthweight.

Perinatal deaths in relation to Statistical Divisions of maternal residence are shown in Table 4. It should be noted however, that due to small numbers of births in each country division the proportions do vary on an annual basis. An example of this is for the Kimberley Division where the proportion of perinatal mortality increased from 7 deaths (13.0/1000) in 1986 to 9 deaths (14.4/1000) in 1987 (Table 4).

6.2 Maternal Race and Maternal Age

Perinatal mortality is lowest for babies of women aged 25-29 years, (7.6/1000 total births) and the risk increases toward the extremes of the fertile age group.

Twenty three (15.3/1000) perinatal deaths were among babies of women in their teenage years. Another 31 (16.8/1000) perinatal deaths were among babies of women 35 years or older. (Table 25).

TABLE 25 : PERINATAL DEATHS BY MATERNAL RACE AND MATERNAL AGE IN WESTERN AUSTRALIA IN 1987

Maternal Age	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Total Births	Prop ⁿ
	No.	Total Births	Prop ⁿ	No.	Total Births	Prop ⁿ	No.	Total Births	Prop ⁿ			
< 15	2	32	62.5	-	46	-	-	-	-	2	78	25.6
16	3	79	38.0	1	60	16.7	-	2	-	4	141	28.4
17	3	161	18.6	1	91	11.0	-	6	-	4	258	15.5
18	2	317	6.3	5	89	56.2	-	12	-	7	418	16.7
19	4	469	8.5	2	125	16.0	-	14	-	6	608	9.9
< 19	14	1058	13.2	9	411	21.9	-	34	-	23	1503	15.3
20-24	49	5024	9.8	6	473	12.7	3	227	13.2	58	5724	10.1
25-29	68	8692	7.8	2	295	6.8	2	443	4.5	72	9430	7.6
30-34	48	5116	9.4	2	120	16.7	3	409	7.3	53	5645	9.4
35-39	19	1392	13.6	1	38	26.3	5	174	28.7	25	1604	15.6
40-44	5	201	24.9	-	4	-	-	17	-	5	222	22.5
> 45	1	10	100.0	-	-	-	-	-	-	1	10	100.0
TOTAL	204	21493	9.5	20	1341	14.9	13	1304	10.0	237	24138	9.8

Excludes births <500 grams birthweight.

¹ Proportion/1000 total births.

6.3 Maternal Race and Parity

The perinatal mortality proportion to primiparous women was 10.0/1000 and the proportion for babies born to women with a parity of 1 to 2 was 9.0/1000. The highest proportion of perinatal deaths (21.6/1000) was recorded among babies of Aboriginal women with a parity of 3 to 4 (Table 26).

TABLE 26 : PERINATAL DEATHS BY MATERNAL RACE AND PARITY IN WESTERN AUSTRALIA IN 1987

Parity	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Total Births	Prop ⁿ
	No.	Total Births	Prop ⁿ	No.	Total Births	Prop ⁿ	No.	Total Births	Prop ⁿ			
0	84	8468	9.9	6	399	15.0	4	516	7.8	94	9383	10.0
1 - 2	95	11146	8.5	8	554	14.4	9	688	13.1	112	12388	9.0
3 - 4	21	1686	12.5	6	278	21.6	-	80	-	27	2044	13.2
> 5	4	193	20.7	-	110	-	-	20	-	4	323	12.4
TOTAL	204	21493	9.5	20	1341	14.9	13	1304	10.0	237	24138	9.8

Excludes births <500 grams birthweight.

¹ Proportion/1000 total births.

6.4 Maternal Race and Birthweight

As in the 1986 birth cohort, two thirds of all perinatal deaths 170 (114.4/1000) were babies of low birthweight (<2500 grams).

In general terms the perinatal mortality in all racial groups increased as birthweight fell, the exception being for babies in >4500 gram categories. Proportions in races other than for babies of Caucasian women are based on small numbers and therefore statistically unreliable. The optimal birthweight for babies' survival was between 4000-4499 grams. (Table 27).

TABLE 27 : PERINATAL DEATHS BY MATERNAL RACE AND BIRTHWEIGHT DISTRIBUTION
IN WESTERN AUSTRALIA IN 1987

Birthweight (grams)	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Total Births	Prop ⁿ
	No.	Total	Prop ⁿ	No.	Total	Prop ⁿ	No.	Total	Prop ⁿ			
500 - 999	81	118	686.4	6	12	500.0	3	4	(750.0)	90	134	671.6
1000 - 1499	22	121	181.8	1	12	(83.3)	3	10	(300.0)	26	143	181.8
1500 - 1999	21	246	85.4	3	23	(130.4)	1	10	(100.0)	25	279	89.6
2000 - 2499	23	771	29.8	4	94	(42.6)	2	65	(30.8)	29	930	31.2
< 2500	147	1256	117.0	14	141	99.3	9	89	101.1	170	1486	114.4
2500 - 2999	22	3194	6.9	2	317	(6.3)	3	244	(12.3)	27	3755	7.2
3000 - 3499	18	8024	2.2	2	482	(4.1)	1	557	(1.8)	21	9063	2.3
3500 - 3999	11	6605	1.7	1	299	(3.3)	-	331	-	12	7235	1.7
4000 - 4499	3	2094	(1.4)	-	82	-	-	74	-	3	2250	1.3
> 4500	3	320	(9.4)	1	20	(50.0)	-	9	-	4	349	(11.5)
TOTAL	204	21493	9.5	20	1341	14.9	13	1304	10.0	237	24138	9.8

Excludes births <500 grams birthweight.

¹ Proportion/1000 total births.

() Where n<5 proportion has been bracketed.

6.5 Maternal Race and Babies Sex

There were 128 (10.3/1000) male and 108 (9.2/1000) female perinatal deaths among those babies born in 1987. There was one additional stillborn baby of indeterminate sex.

Among babies born to Caucasian women the perinatal death proportion for males (10.2/1000) was higher than for the perinatal death proportion for females (8.6/1000). For babies of Aboriginal women the perinatal death proportion for males (11.7/1000) was lower than the perinatal death proportion for females (18.2/1000). The proportion of perinatal deaths among male babies of women of other races (10.5/1000) was higher than the perinatal death proportion for females (9.4/1000) (Table 28).

TABLE 28 : PERINATAL DEATHS BY MATERNAL RACE AND SEX IN WESTERN AUSTRALIA IN 1987

Sex	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Total Births	Prop ⁿ
	No.	Total Births	Prop ⁿ	No.	Total Births	Prop ⁿ	No.	Total Births	Prop ⁿ			
Male	113	11083	10.2	8	683	11.7	7	665	10.5	128	12431	10.3
Female	90	10409	8.6	12	658	18.2	6	639	9.4	108	11706	9.2
Indeterminate	1	1	-	-	-	-	-	-	-	1	1	-
TOTAL	204	21493	9.5	20	1341	14.9	13	1304	10.0	237	24138	9.8

Excludes births <500 grams birthweight.

¹ Proportion/1000 total births.

6.6 Maternal Race and Conjugal State

One eighth (12.2/1000) of perinatal deaths were among babies of women reported as socially unsupported by a male partner (Table 29). Although this represents a decline since the 1986 cohort report (14.7/1000) the increased social acceptance of defacto relationships may have influenced reporting.

TABLE 29 : PERINATAL DEATHS BY MATERNAL RACE AND CONJUGAL STATE IN WESTERN AUSTRALIA IN 1987

Conjugal State	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Total Births	Prop ⁿ
	No.	Total Births	Prop ⁿ	No.	Total Births	Prop ⁿ	No.	Total Births	Prop ⁿ			
Single	26	1896	13.7	7	594	11.8	2	66	30.3	35	2556	13.7
Married/defacto	175	19237	9.1	13	724	18.0	11	1222	9.0	199	21183	9.4
² Other	3	360	8.3	-	23	-	-	16	-	3	399	7.5
TOTAL	204	21493	9.5	20	1341	14.9	13	1304	10.0	237	24138	9.8

Excludes births <500 grams birthweight.

¹ Proportion/1000 total births.

² Other includes separated, divorced and widowed.

7. INFANT MORTALITY IN WESTERN AUSTRALIA IN THE 1987 BIRTH COHORT

7.1 Infant Deaths

There were 185 infant deaths identified amongst the 24,004 livebirths in 1987 (Table 16). Of these, 103 were neonatal deaths and 82 were post-neonatal deaths. The infant mortality proportion for Western Australia in 1987 was 7.7/1000 livebirths (Table 16 and Table 30).

Infant mortality among babies born to Aboriginal women (18.8/1000) was more than twice that for babies born to non-Aboriginal women (Table 42, Figure V). The difference between these groups has been reduced from 18.9/1000 in 1985 and 12.5/1000 in 1986 to 11.7/1000 in 1987.

7.2 Maternal Race and Maternal Age

Babies of teenage women are at greatest risk of dying within 12 months of birth (16.7/1000). The infant mortality proportion for babies of Aboriginal teenage mothers (19.7/1000) was higher than for babies of Caucasian teenage mothers (16.1/1000) (Table 30).

TABLE 30 : INFANT DEATHS BY MATERNAL RACE AND MATERNAL AGE IN WESTERN AUSTRALIA IN 1987

Maternal Age	Maternal Race									Total		
	Caucasian			Aboriginal			Other					
	No.	Live-	Prop ⁿ	No.	Live-	Prop ⁿ	No.	Live-	Prop ⁿ	No.	Live-	Prop ⁿ
	Births			Births			Births			Births		
< 15	2	32	62.5	-	46	-	-	-	-	2	78	25.6
16	2	77	26.0	1	59	16.9	-	2	-	3	138	21.7
17	3	160	18.8	1	90	11.1	-	6	-	4	256	15.6
18	4	317	12.6	3	87	34.5	-	12	-	7	416	16.8
19	6	468	12.8	3	124	24.2	-	14	-	9	606	14.9
< 19	17	1054	16.1	8	406	19.7	-	34	-	25	1494	16.7
20-24	44	4999	8.8	10	468	21.4	3	226	13.3	57	5693	10.0
25-29	50	8652	5.8	4	294	13.6	1	441	2.3	55	9387	5.9
30-34	30	5088	5.9	3	119	25.2	4	409	9.8	37	5616	6.6
35-39	8	1379	5.8	-	37	-	2	171	11.7	10	1587	6.3
40-44	1	197	5.1	-	4	-	-	17	-	1	218	4.6
> 45	-	9	-	-	-	-	-	-	-	-	9	-
TOTAL	150	21378	7.0	25	1328	18.8	10	1298	7.7	185	24004	7.7

Excludes births <500 grams birthweight.

¹ Proportion/1000 livebirths.

7.3 Maternal Race and Conjugal State

The infant mortality proportion (12.2/1000) among babies born to single women is greater than the proportion for babies of women in a marriage or defacto relationship (7.2/1000). However, among babies born to Aboriginal women the proportions of infant mortality for babies of single women (15.3/1000) was lower than for babies of married/defacto women (22.3/1000). (Table 31).

TABLE 31 : INFANT DEATHS BY MATERNAL RACE AND CONJUGAL STATE IN WESTERN AUSTRALIA IN 1987

Conjugal State	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Live-Births	Prop ⁿ
	No.	Live-Births	Prop ⁿ	No.	Live-Births	Prop ⁿ	No.	Live-Births	Prop ⁿ			
Single	21	1881	11.2	9	589	15.3	1	65	15.4	31	2535	12.2
Married/defacto	126	19139	6.6	16	716	22.3	9	1217	7.4	151	21072	7.2
² Other	3	358	8.4	-	23	-	-	16	-	3	397	7.6
TOTAL	150	21378	7.0	25	1328	18.8	10	1298	7.7	185	24004	7.7

Excludes births <500 grams birthweight.

¹ Proportion/1000 livebirths.

² Other includes separated, divorced and widowed.

7.4 Maternal Race and Parity

The highest proportion of infant deaths were among babies of women whose parity was 3 to 4 (12.8/1000) and 5 or more (12.5/1000). Six of these infant deaths were babies of Aboriginal mothers raising their proportion to 15.6/1000 livebirths (Table 32).

TABLE 32 : INFANT DEATHS BY MATERNAL RACE AND PARITY IN WESTERN AUSTRALIA IN 1987

Parity	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Live- Births	Prop ⁿ
	No.	Live- Births	Prop ⁿ	No.	Live- Births	Prop ⁿ	No.	Live- Births	Prop ⁿ			
0	54	8420	6.4	6	397	15.1	4	514	7.8	64	9331	6.9
1 - 2	72	11089	6.5	13	547	23.8	6	684	8.8	91	12320	7.4
3 - 4	22	1678	13.1	4	274	14.6	-	80	-	26	2032	12.8
> 5	2	191	10.5	2	110	18.2	-	20	-	4	321	12.5
TOTAL	150	21378	7.0	25	1328	18.8	10	1298	7.7	185	24004	7.7

Excludes births <500 grams birthweight.

1 Proportion/1000 livebirths.

7.5 Maternal Race and Plurality

Infant mortality for multiple births (28.5/1000) was almost four times the proportion for singleton births (7.2/1000). The infant death proportion (31.2/1000) for twin babies born to Caucasian women in 1987 was lower than the proportion (40.4/1000) in 1986. There were no infant deaths among twin births to either Aboriginal women or women of other races (Table 33).

TABLE 33 : INFANT DEATHS BY MATERNAL RACE AND PLURALITY IN WESTERN AUSTRALIA IN 1987

Plurality	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Live- Births	Prop ⁿ
	No.	Live- Births	Prop ⁿ	No.	Live- Births	Prop ⁿ	No.	Live- Births	Prop ⁿ			
Singleton	134	20842	6.4	25	1305	19.2	10	1272	7.9	169	23419	7.2
Twins	16	513	31.2	-	23	-	-	26	-	16	562	28.5
Triplets	-	23	-	-	-	-	-	-	-	-	23	-
TOTAL	150	21378	7.0	25	1328	18.8	10	1298	7.7	150	24004	7.7

Excludes births <500 grams birthweight.

1 Proportion/1000 livebirths.

7.6 Maternal Race and Babies Sex

Infant deaths were proportionately 8.6/1000 male and 6.8/1000 female. Among babies born to Caucasian women the infant death proportion for males (8.2/1000) was higher than the infant death proportion for females (5.8/1000). For babies of Aboriginal mothers the infant death proportion for males (14.8/1000) was lower than the infant death proportion for females (23.0/1000) and for infants of women of other races the infant death proportion for males (9.1/1000) was higher than the infant death proportion for females (6.3/1000) (Table 34).

TABLE 34: INFANT DEATHS BY MATERNAL RACE AND SEX IN WESTERN AUSTRALIA IN 1987

Sex	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Live-	Prop ⁿ
	No.	Live-	Prop ⁿ	No.	Live-	Prop ⁿ	No.	Live-	Prop ⁿ			
Male	90	11022	8.2	10	676	14.8	6	662	9.1	106	12360	8.6
Female	60	10356	5.8	15	652	23.0	4	636	6.3	79	11644	6.8
TOTAL	150	21378	7.0	25	1328	18.8	10	1298	7.7	185	24004	7.7

Excludes births <500 grams birthweight.
 1 Proportion/1000 livebirths.

7.7 Maternal Race and Birthweight

Low birthweight (less than 2500 grams) babies comprised almost half of all infant deaths. A proportion of 62.0/1000 livebirths was recorded for low birthweight babies. Babies with birthweight of 4000-4499 grams showed higher chance of survival with an infant mortality proportion of 1.8/1000. There was minimal difference in infant mortality proportions of low birthweight babies between racial groups. (Table 35).

TABLE 35 : INFANT MORTALITY BY MATERNAL RACE AND BIRTHWEIGHT DISTRIBUTION IN WESTERN AUSTRALIA IN 1987

Birthweight (grams)	Maternal Race									Total		
	Caucasian			Aboriginal			Other			No.	Live Births	Prop ⁿ
	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ	No.	Live Births	Prop ⁿ			
500 - 999	42	73	575.3	-	6	-	2	3	(666.7)	44	82	536.6
1000 - 1499	10	107	93.5	1	12	(83.3)	2	8	(250.0)	13	127	102.4
1500 - 1999	10	235	42.6	1	21	(47.6)	1	10	(100.0)	12	266	45.1
2000 - 2499	12	757	15.9	5	93	53.8	-	63	-	17	913	18.6
< 2500	74	1172	63.1	7	132	53.0	5	84	59.5	86	1388	62.0
2500 - 2999	20	3180	6.3	8	317	25.2	4	244	(16.4)	32	3741	8.6
3000 - 3499	31	8016	3.9	5	480	10.4	-	556	-	36	9052	4.0
3500 - 3999	17	6598	2.6	5	298	16.8	1	331	(3.0)	23	7227	3.2
4000 - 4499	4	2092	(1.9)	-	82	-	-	74	-	4	2248	(1.8)
> 4500	4	320	(12.5)	-	19	-	-	9	-	4	348	(11.5)
TOTAL	150	21378	7.0	25	1328	18.8	10	1298	7.7	185	24004	7.7

Excludes births <500 grams birthweight.

(1) Proportion/1000 livebirths.

() Where n<5 proportion has been bracketed.

7.8 Maternal Race and Age at Infant Death

Over half (57.8%) of the infant deaths occurred in the neonatal period, with most (87.6%) deaths occurring within 24 weeks of birth.(Table 36).

TABLE 36: INFANT DEATHS BY MATERNAL RACE AND AGE AT DEATH IN WESTERN AUSTRALIA IN 1987

Age at Death in Weeks	Maternal Race						Total	
	Caucasian		Aboriginal		Other		No.	%
	No.	%	No.	%	No.	%		
1 - 4 weeks	93	62.0	7	28.0	7	70.0	107	57.8
5 - 8 weeks	16	10.7	1	4.0	1	10.0	18	9.7
9 -12 weeks	12	8.0	4	16.0	1	10.0	17	9.2
13-16 weeks	5	3.3	1	4.0	1	10.0	7	3.8
17-20 weeks	10	6.7	-	-	-	-	10	5.4
21-24 weeks	-	-	3	12.0	-	-	3	1.6
25-52 weeks	14	9.3	9	36.0	-	-	23	12.4
TOTAL	150	100.0	25	100.0	10	100.0	185	100.0

Excludes births <500 grams birthweight.

Proportion/1000 livebirths

7.9 Causes of Infant Death

The major causes of infant deaths remain lethal congenital malformations for 45 (24.3%) babies, Sudden Infant Death Syndrome for 52 (28.1%) and low birthweight (<2500 grams) for 48 (26.0%) babies. Infection remained a significant cause of Aboriginal infant mortality among babies of Aboriginal mothers (Table 37).

TABLE 37 : CAUSE OF INFANT DEATHS AND MATERNAL RACE IN WESTERN AUSTRALIA IN 1987

Cause of Death	Maternal Race						Total	
	Caucasian		Aboriginal		Other		No.	%
	No.	%	No.	%	No.	%		
Lethal Congenital Malformation	36	24.0	5	20.0	4	40.0	45	24.3
Low Birthweight (<2500 grams)	45	30.0	1	4.0	2	20.0	48	26.0
Asphyxia	6	4.0	1	4.0	1	10.0	8	4.3
Pregnancy conditions	-	-	-	-	-	-	-	-
Infections	5	3.3	5	20.0	-	-	10	5.4
Hydrops Fetalis	-	-	-	-	-	-	-	-
Other	15	10.0	2	8.0	2	20.0	19	10.3
Sudden Infant Deaths	41	27.3	10	40.0	1	10.0	52	28.1
Unknown	2	1.3	1	4.0	-	-	3	1.6
TOTAL	150	100.0	25	100.0	10	100.0	185	100.0

Excludes births <500 grams birthweight.

TABLE 38 : PERINATAL AND INFANT MORTALITY BY MATERNAL AGE PLURALITY AND SEX IN WESTERN AUSTRALIA IN 1987

	Perinatal Mortality			Infant Mortality		
	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total
	No. Births Propn	No. Births Propn	No. Births Propn	No. Births Propn	No. Births Propn	No. Births Propn
Maternal Age <15	- 46 -	2 32 (62.5)	2 78 (25.6)	- 46 -	2 32 (62.5)	2 78 (25.6)
16-19	9 365 24.7	12 1060 11.3	21 1425 14.7	8 360 22.2	15 1056 14.2	23 1416 16.2
20-29	8 768 10.4	122 14386 8.5	130 15154 8.6	14 762 18.4	98 14318 6.8	112 15080 7.4
30-39	3 158 (19.0)	75 7091 10.6	78 7249 10.8	3 156 (19.2)	44 7047 6.2	47 7203 6.5
>40	- 4 -	6 228 26.3	6 232 25.9	- 4 -	1 223 (4.5)	1 227 (4.4)
Plurality Singleton	19 1317 14.4	190 22221 8.6	209 23538 8.9	25 1305 19.2	144 22114 6.5	169 23419 7.2
Multiple	1 24 (41.7)	27 576 46.9	28 600 46.7	- 23 -	16 562 28.5	16 585 27.4
Sex Male	8 683 11.7	120 11748 10.2	128 12431 10.3	10 676 14.8	96 11684 8.2	106 12360 8.6
Female	12 658 18.2	96 11048 8.7	108 11706 9.2	15 652 23.0	64 10992 5.8	79 11644 6.8

Excludes births <500 grams birthweight.

- 1 Perinatal death proportion/1000 total births.
 - 2 Infant death proportion/1000 livebirths.
- () Where n<5 proportion has been bracketed.

TABLE 39 : NEONATAL, POST-NEONATAL AND INFANT MORTALITY BY MATERNAL RACE
IN WESTERN AUSTRALIA IN 1987

Type of Death	Maternal Race						Total	
	Caucasian		Aboriginal		Other		No.	Prop ⁿ
	No.	Prop ⁿ	No.	Prop ⁿ	No.	Prop ⁿ		
Neonatal/ 1000 Livebirths	89	4.2	7	5.3	7	5.4	103	4.3
Post-Neonatal/ 1000 Livebirths	61	2.9	18	13.6	3	2.3	82	3.4
Infant/ 1000 Livebirths	150	7.0	25	18.8	10	7.7	185	7.7

Excludes births <500 grams birthweight.

8. BIRTHS, PERINATAL AND INFANT MORTALITY IN WESTERN AUSTRALIA, 1980-1987

8.1 Crude Birth Rates and Total Births, 1980-1987

The crude birth rate for Western Australia has remained relatively stable from 1980 to 1987, at between 16.0/1000 livebirths and 16.9/1000 livebirths.

Consideration of racial groups shows similar stable trends. The crude birth rate among Aboriginal women (32.5/1000 livebirths) in 1987, showed little change from 1986 (31.3/1000 livebirths). Among non-Aboriginal women the crude birth rate ranged between 16.5/1000 livebirths in 1981 and 15.6/1000 livebirths in 1987 (Table 40, Figure VI).

TABLE 40 : CRUDE BIRTH RATES FOR ABORIGINAL AND NON-ABORIGINAL WESTERN AUSTRALIAN BIRTHS, 1980-1987

Year	Aboriginal			Non-Aboriginal			Total		
	Live-Births	Pop ⁿ	Crude Birth Rate	Live-Births	Pop ⁿ	Crude Birth Rate	Live-Births	Pop ⁿ	Crude Birth Rate
1980	1029	32598	31.6	19595	1236470	15.8	20624	1269068	16.2
1981	1093	33547	32.6	20948	1266509	16.5	22041	1300056	16.9
1982	1113	34552	32.2	21071	1304347	16.1	22184	1338899	16.6
1983	1135	35464	32.0	21737	1333586	16.3	22872	1369050	16.7
1984	1176	36724	32.0	21607	1354513	15.9	22783	1391237	16.4
1985	1235	37992	32.5	21903	1380572	15.9	23138	1418564	16.3
1986	1230	39285	31.3	22463	1419734	15.8	23693	1459019	16.2
1987	1328	40926	32.5	22676	1455133	15.6	24004	1496059	16.0

SOURCE : MIDWIVES' NOTIFICATION SYSTEM
 AUSTRALIAN BUREAU OF STATISTICS - Cat. No. 3201.0.
 CHILD AND COMMUNITY HEALTH SERVICES - Aboriginal population data.

8.2.1 Stillbirths, Neonatal and Perinatal Mortality, 1980-1987

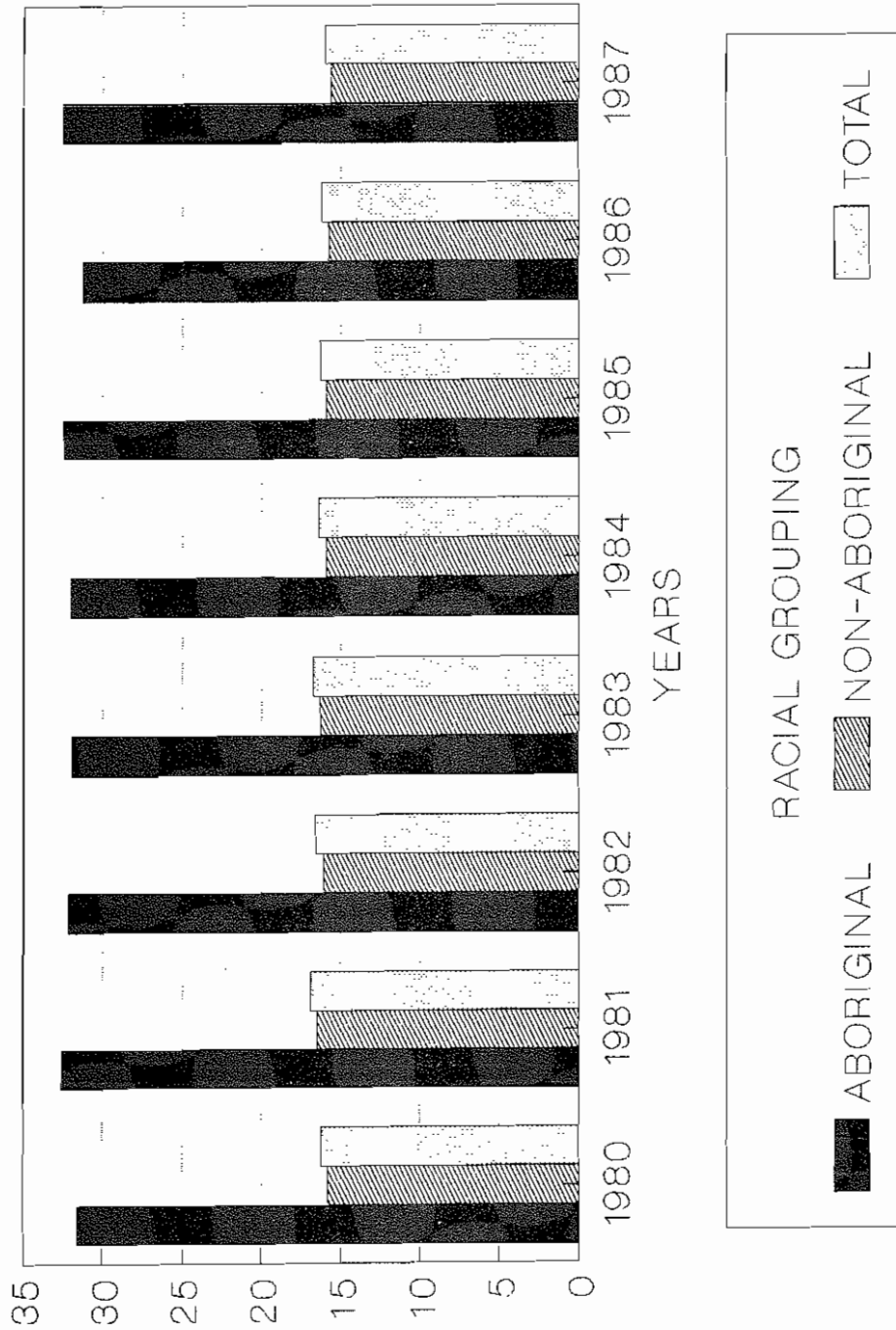
Western Australian stillbirth proportions showed a general downward trend from 7.5/1000 total births in 1980 to 5.6/1000 in 1987 (Table 41).

Consideration of stillbirth proportions and racial groups showed stillbirths among babies of non-Aboriginal women followed this trend while the proportions decreased from 7.2/1000 in 1980 to 5.3/1000 in 1987. Among babies of Aboriginal women, stillbirth proportions were less consistent in their decline and remained approximately double the proportion for stillbirths among babies of non-Aboriginal women (Table 41).

FIGURE VI

CRUDE BIRTH RATES AND RACIAL GROUPING FOR WESTERN AUSTRALIAN BIRTHS, 1980-1987

PROPORTION / 1000 LIVED BIRTHS



Excludes births less than 500 grams birthweight.

SOURCE: MIDWIVES' NOTIFICATION SYSTEM
 AUSTRALIAN BUREAU OF STATISTICS
 COMMUNITY AND CHILD HEALTH SERVICES

TABLE 41 : STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY FOR ABORIGINAL AND NON-ABORIGINAL BIRTHS IN WESTERN AUSTRALIA 1980-1987

Year	Stillbirths				Neonatal Deaths				Perinatal Deaths									
	Aboriginal		Non-Aboriginal		Aboriginal		Non-Aboriginal		Aboriginal		Non-Aboriginal		Total					
	No.	(1)	No.	(1)	No.	(2)	No.	(2)	No.	(2)	No.	(3)	No.	(3)				
1980	12	11.5	143	7.2	155	7.5	21	20.4	104	5.3	125	6.1	33	31.7	247	12.5	280	13.5
1981	22	19.7	131	6.2	153	6.9	15	13.7	103	4.9	118	5.4	37	33.2	234	11.1	271	12.2
1982	16	14.2	139	6.6	155	6.9	17	15.3	101	4.8	118	5.3	33	29.2	240	11.3	273	12.2
1983	14	12.2	143	6.5	157	6.8	11	9.7	97	4.5	108	4.7	25	21.8	240	11.0	265	11.5
1984	16	13.4	118	5.4	134	5.8	15	12.8	101	4.7	116	5.1	31	26.0	219	10.1	250	10.9
1985	14	11.2	136	6.2	150	6.4	13	10.5	96	4.4	109	4.7	27	21.6	232	10.5	259	11.1
1986	16	12.8	130	5.7	146	6.1	13	10.6	116	5.2	129	5.4	29	23.3	246	10.9	275	11.5
1987	13	9.7	121	5.3	134	5.6	7	5.3	96	4.2	103	4.3	20	14.9	217	9.5	237	9.8

Excludes births < 500 grams birthweight.

1980-1983 based on year of death.

1984-1987 based on year of birth.

(1) Stillbirth Proportions/1000 total birchs.

(2) Neonatal Death Proportion/1000 livebirths.

(3) Perinatal Death Proportion/1000 total births.

SOURCE : MIDWIVES' NOTIFICATION SYSTEM

REGISTRAR GENERAL'S OFFICE

CHILD AND COMMUNITY HEALTH SERVICES

8.2.2 Neonatal Mortality

The neonatal mortality proportion for babies born to Aboriginal women remained higher than the neonatal mortality proportion for babies born to non-Aboriginal women, but the gap reduced significantly.

The proportion of neonatal mortality among babies of Aboriginal women was greatly reduced during the eight year period from 1980-1987. The proportions were 20.4/1000 livebirths in 1980 reducing to 5.3/1000 livebirths in 1987. For babies of non-Aboriginal women, neonatal mortality proportions reduced from 5.3/1000 in 1980 to 4.2/1000 in 1987 (Table 41, Figure IX).

8.2.3 Perinatal Mortality

Comparison of perinatal mortality for 1984, 1985, 1986 and 1987, the four years where the birth cohort method was employed, showed that overall the proportion has decreased from 10.9/1000 total births in 1984 to 9.8/1000 in 1987. An overall reduction of 3.7/1000 (13.5 in 1980 to 9.8 in 1987) occurred over eight years. It was apparent that the reduction in the perinatal mortality among babies of Aboriginal women from 33.2/1000 in 1981 to 14.9/1000 in 1987, was greater than among babies born to non-Aboriginal women (Table 41).

8.3 Neonatal, Post-neonatal and Infant Mortality, 1980-1987

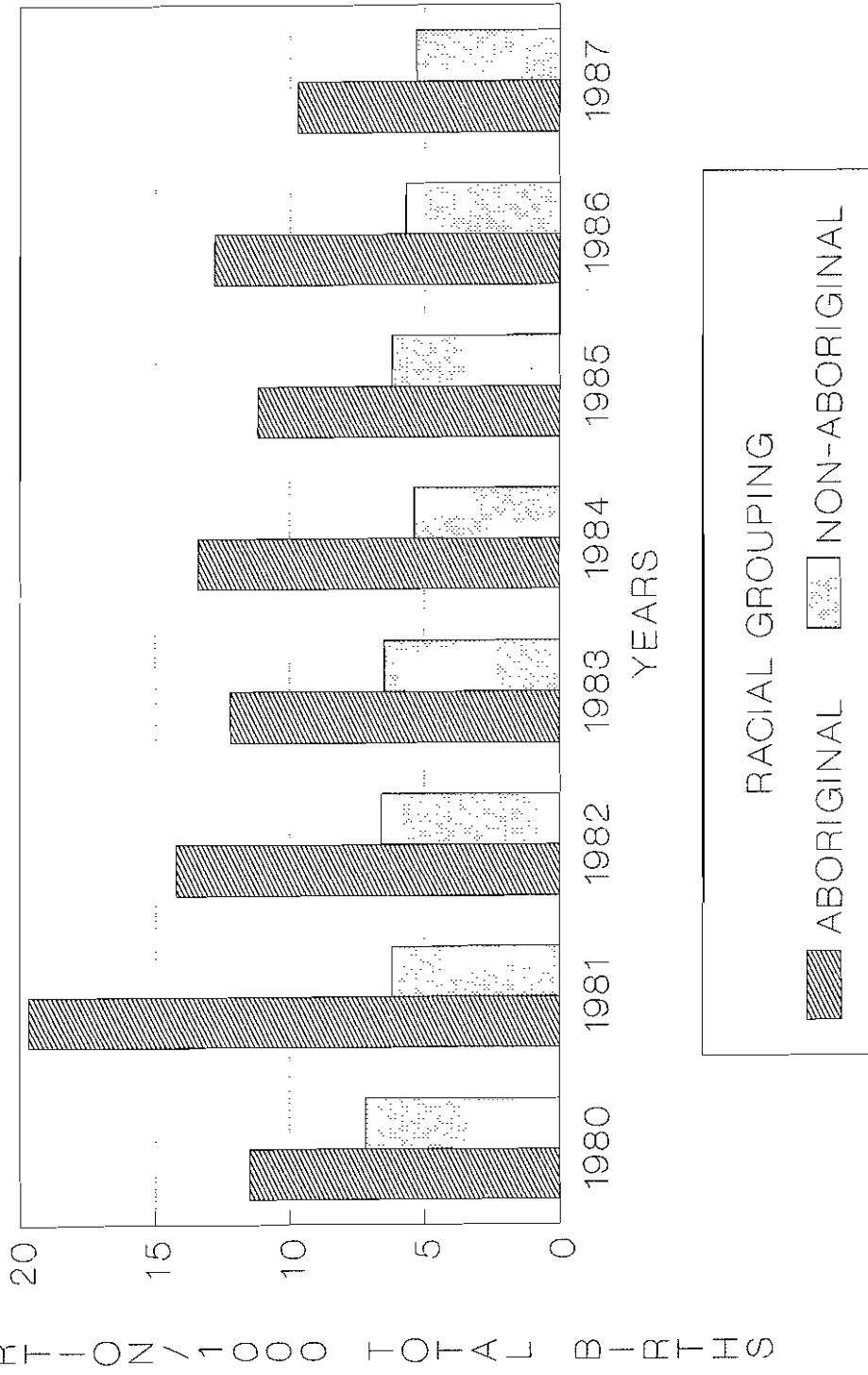
Over the eight year period from 1980 to 1987 neonatal and infant mortality proportions reduced in Western Australia. Post neonatal mortality proportion showed minimal change over the same period. The neonatal mortality proportion reduced from 6.1/1000 in 1980 to 4.3/1000 in 1987. Proportions for post-neonatal deaths increased slightly from 3.2/1000 in 1980 to 3.4/1000 in 1987, and infant mortality proportions reduced from 9.3/1000 in 1980 to 7.7/1000 in 1987 (Table 42, Figure X, Figure XI).

Among babies of Aboriginal women a reduction in infant mortality from 31.1/1000 in 1980 to 18.8/1000 in 1987 was shown (Table 42).

Infant death proportions among babies of Aboriginal women at well over double the proportion for babies of non-Aboriginal women, should be noted for the differences in age at death (Table 36) and the cause of death (Table 37). The proportion of deaths of babies born to Aboriginal women during the postneonatal period was far greater than among deaths of babies of non-Aboriginal women.

FIGURE VII

STILLBIRTH PROPORTIONS AND RACIAL GROUPING OF BIRTHS IN WA. 1980-87.

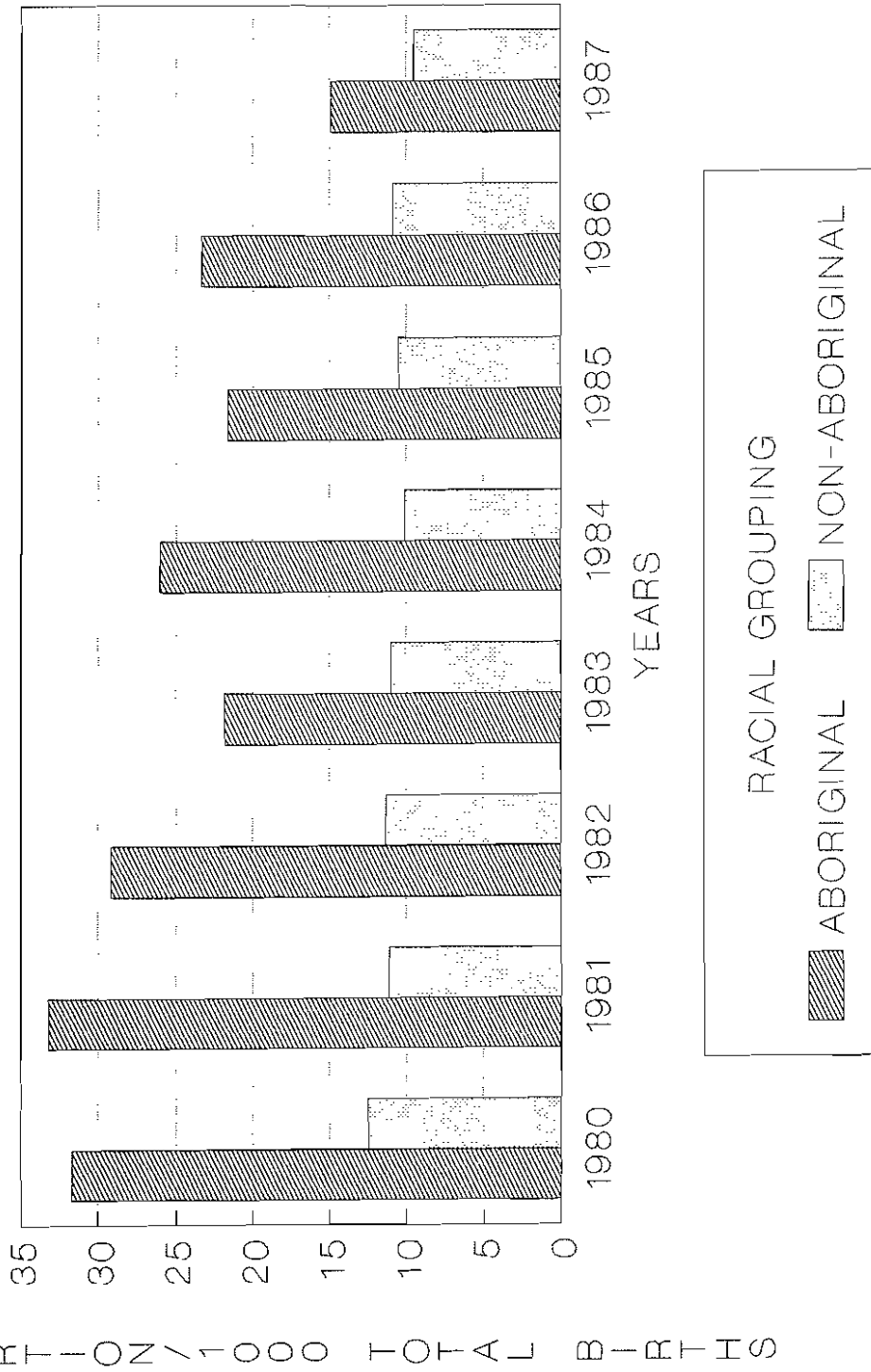


Excludes births less than 500 grams birthweight.

SOURCE: MIDWIVES' NOTIFICATION SYSTEM
REGISTRAR GENERAL'S OFFICE

FIGURE VIII

PERINATAL MORTALITY AND RACIAL GROUPING FOR WESTERN AUSTRALIAN BIRTHS, 1980-1987



Excludes births less than 500 grams birthweight.

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

TABLE 42 : NEONATAL, POST-NEONATAL AND INFANT MORTALITY FOR ABORIGINAL AND NON-ABORIGINAL BIRTHS IN WESTERN AUSTRALIA, 1980-1987

Year	Neonatal			Post-neonatal Deaths			Infant Deaths											
	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total									
	No.	Prop ⁿ	No. Prop ⁿ	No.	Prop ⁿ	No. Prop ⁿ	No.	Prop ⁿ	No. Prop ⁿ									
1980	21	20.4	104	5.3	125	6.1	11	10.7	55	2.8	66	3.2	32	31.1	159	8.1	191	9.3
1981	15	13.7	103	4.9	118	5.4	6	5.5	63	3.0	69	3.1	21	19.2	166	7.9	187	8.5
1982	17	15.3	101	4.8	118	5.3	11	9.9	69	3.3	80	3.6	28	25.2	170	8.1	198	8.9
1983	11	9.7	97	4.5	108	4.7	17	15.0	59	2.7	76	3.3	28	24.7	156	7.2	184	8.0
1984	15	12.8	101	4.7	116	5.1	14	11.9	75	3.5	89	3.9	29	24.7	176	8.1	205	9.0
1985	13	10.5	96	4.4	109	4.7	19	15.4	58	2.6	77	3.3	32	25.9	154	7.0	186	8.0
1986	13	10.6	116	5.2	129	5.4	12	9.8	59	2.6	71	3.0	25	20.3	175	7.8	200	8.4
1987	7	5.3	96	4.2	103	4.3	18	13.6	64	2.8	82	3.4	25	18.8	160	7.1	185	7.7

Excludes births <500 grams birthweight.

1980-1983 based on year of death.

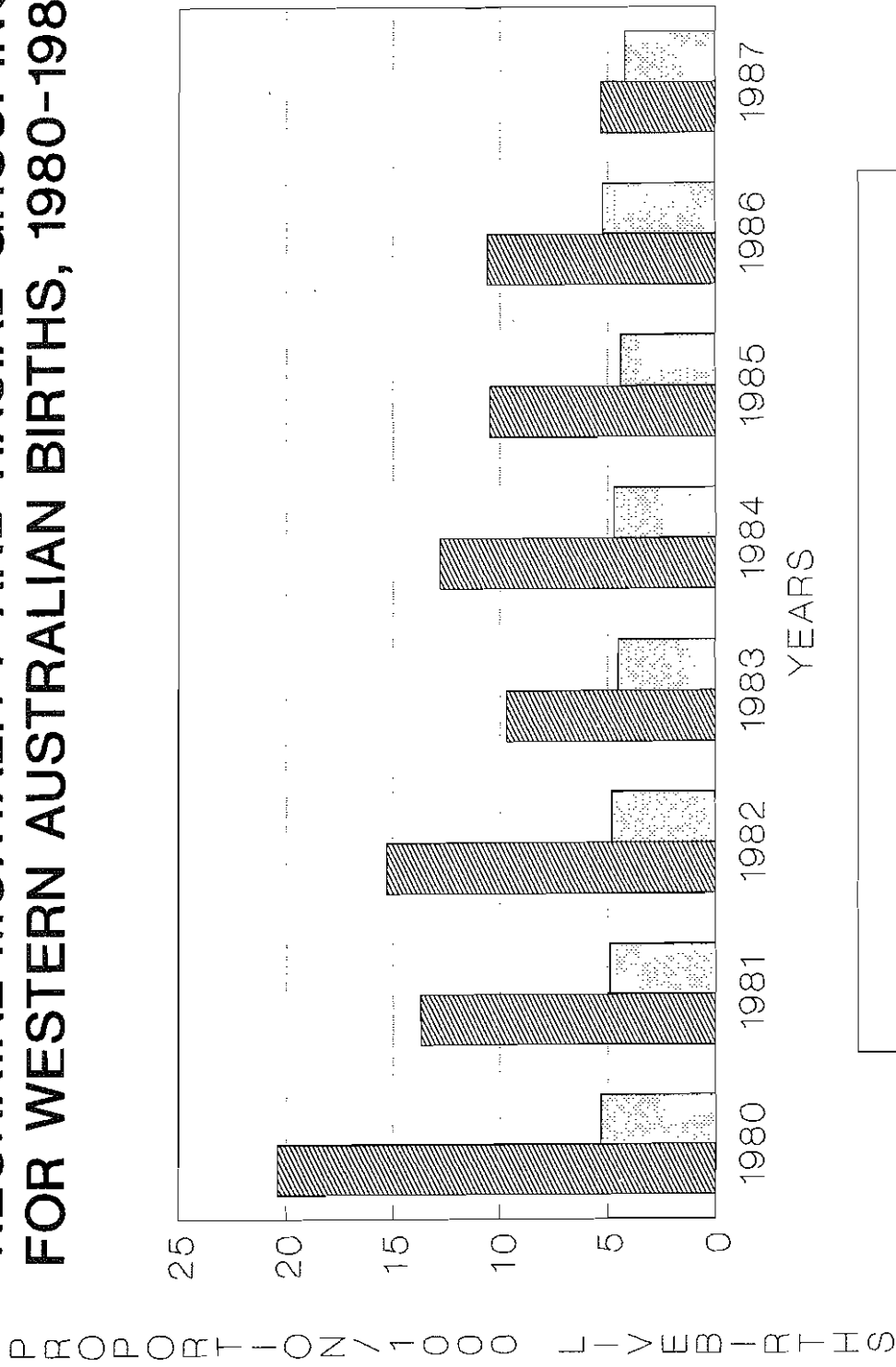
1984-1987 based on year of birth.

(1) Neonatal, Postneonatal and Infant Death Proportion/1000 livebirths.

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

FIGURE IX

NEONATAL MORTALITY AND RACIAL GROUPING FOR WESTERN AUSTRALIAN BIRTHS, 1980-1987

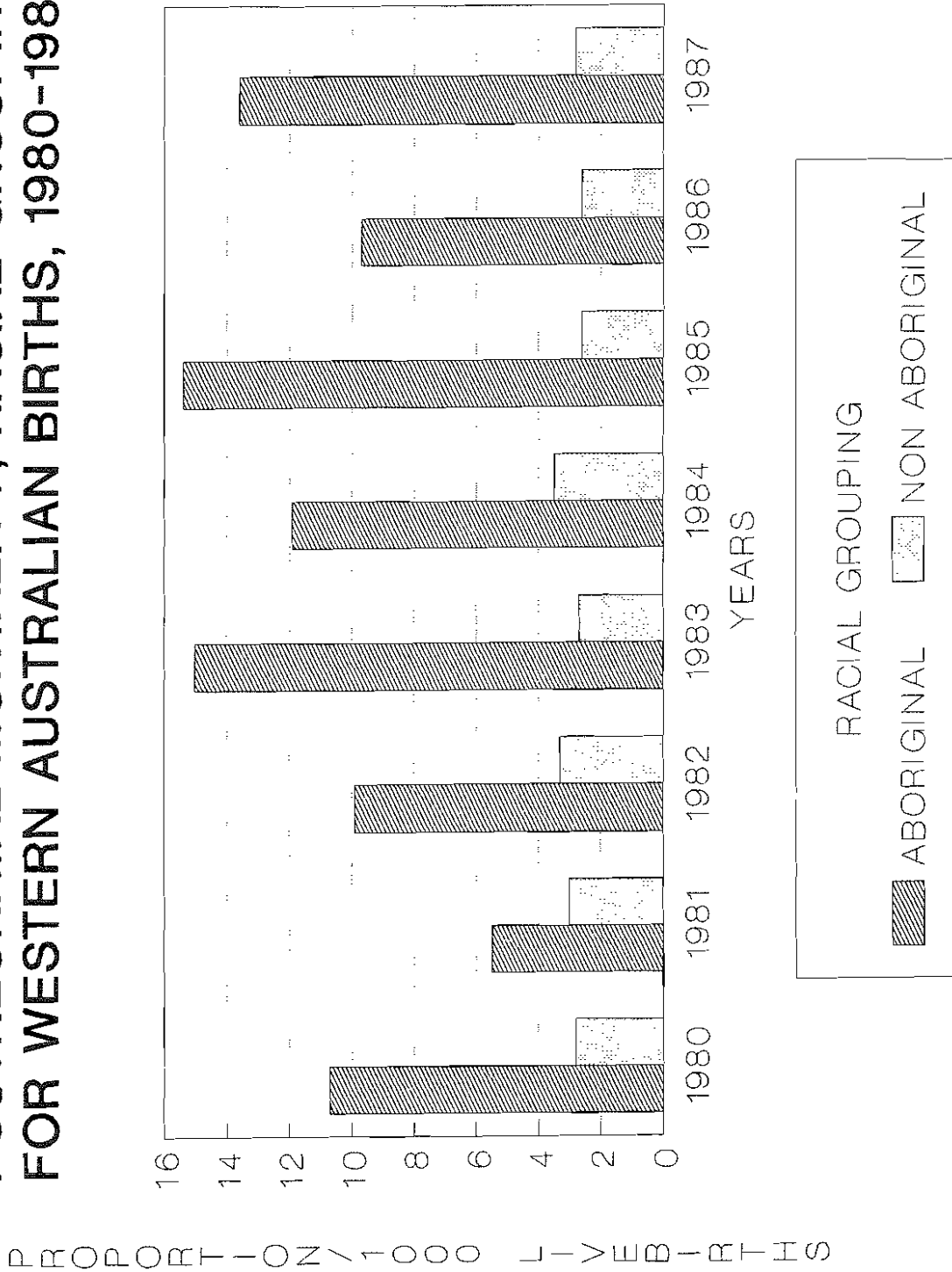


Excludes births less than 500 grams birthweight.

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

FIGURE X

POSTNEONATAL MORTALITY, RACIAL GROUPING
FOR WESTERN AUSTRALIAN BIRTHS, 1980-1987

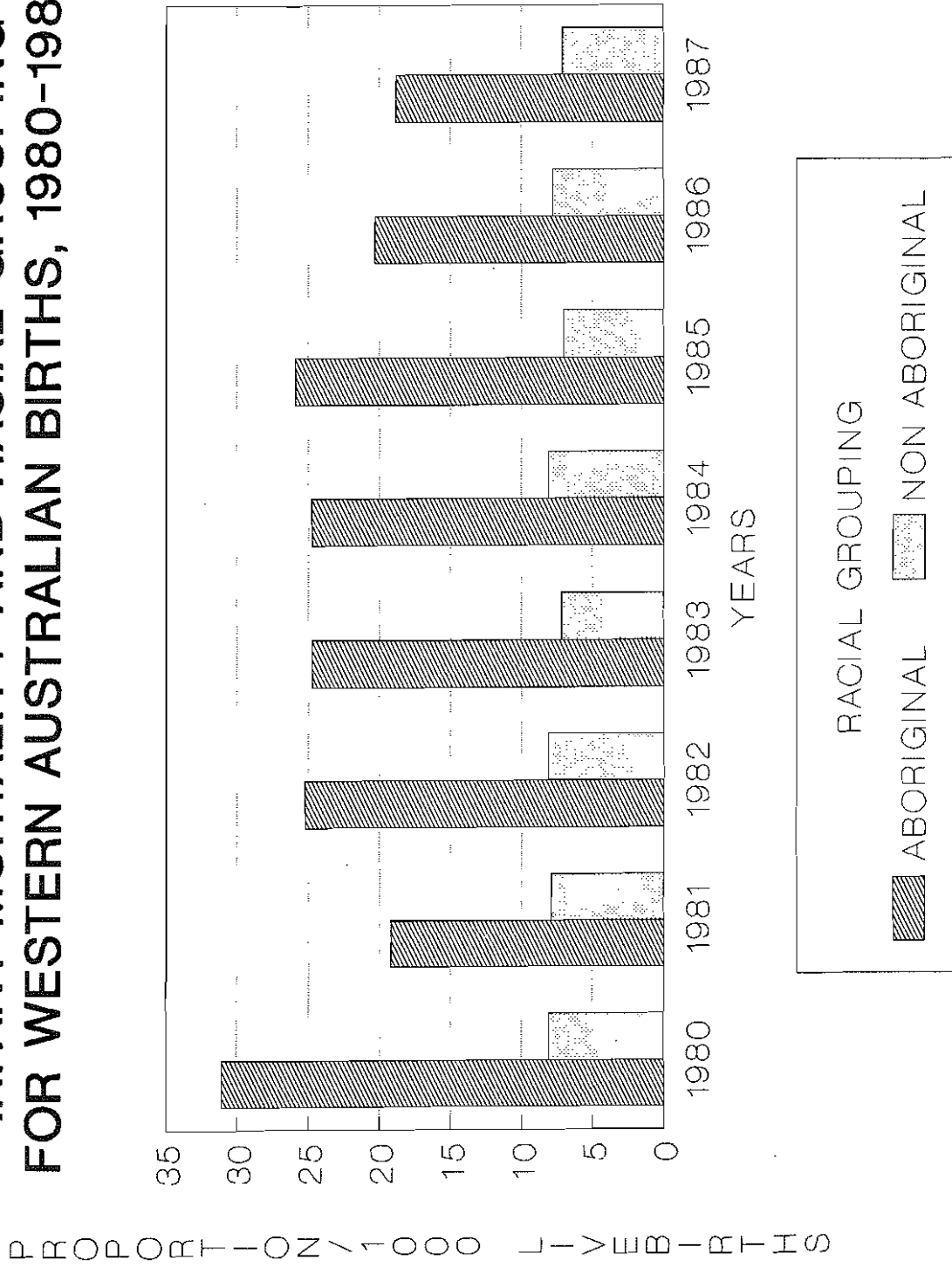


Excludes births less than 500 grams birthweight.

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

FIGURE XI

INFANT MORTALITY AND RACIAL GROUPING FOR WESTERN AUSTRALIAN BIRTHS, 1980-1987



Excludes births less than 500 grams birthweight.

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

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