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THE 1985 WESTERN AUSTRALIAN BIRTH COHORT

Perinatal and Infant Mortality
Identified by Maternal Race

CORALIE HILL, R.N., R.M., B.Appl.Sci (Nursing), F.C.N.A.
Epidemiology Branch

with

Special Article Contribution by
JOAN WINCH, R.N., R.M., C.H.N., Dip.Appl.Sci (Nursing)
Aboriginal Medical Service

August 1987

 *Western Australia*
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TABLE OF CONTENTS

PAGE

SUMMARY	ii
ACKNOWLEDGEMENTS	iv
1. <u>INTRODUCTION</u>	1
2. <u>DEFINITIONS</u>	2
3. <u>DATA COLLECTION</u>	4
4. <u>STILLBIRTHS, NEONATAL AND POST-NEONATAL MORTALITY IN WESTERN AUSTRALIA IN THE 1985 BIRTH COHORT</u>	7
4.1 Stillbirths	7
4.2 Neonatal Deaths	17
4.3 Post-Neonatal Deaths	28
5. <u>PERINATAL MORTALITY IN WESTERN AUSTRALIA IN THE 1985 BIRTH COHORT</u>	38
6. <u>INFANT MORTALITY IN WESTERN AUSTRALIA IN THE 1985 BIRTH COHORT</u>	43
7. <u>BIRTHS IN WESTERN AUSTRALIA IN 1985</u>	51
7.1 Births	51
7.2 Livebirths	52
7.3 Crude Birth Rate	52
7.4 Fertility Rates	56
8. <u>BIRTHS, PERINATAL AND INFANT MORTALITY IN WESTERN AUSTRALIA, 1980-1985</u>	59
8.1 Livebirths, Stillbirths and Total Births, 1980-1985	59
8.2 Stillbirths, Neonatal and Perinatal Mortality, 1980-1985	61
8.3 Neonatal, Post-Neonatal and Infant Mortality, 1980-1985	66
<u>REFERENCES</u>	69
<u>BIBLIOGRAPHY</u>	70
<u>APPENDICES</u>	71
<u>ABORIGINAL MATERNAL AND CHILD HEALTH - JOAN WINCH</u>	74

SUMMARY

In Western Australia in 1985 the Midwives' Notification System identified 23,288 births to 23,015 women. Of these babies, 150 were stillborn, 109 died within 28 days and 77 died in the post-neonatal period.

The overall stillbirth proportion was 6.4/1000 total births; for Aboriginals it was 11.2 and for non-Aboriginals it was 6.2. Of all women who experienced a stillbirth 17.4% were unsupported, 53.2% were primiparas and 7.4% were teenagers. The cause was unexplained for 39.3% of stillbirths and 15.3% were attributed to lethal congenital malformations.

Neonatal mortality was 4.7/1000 livebirths; for Aboriginals it was 10.5 and for non-Aboriginals it was 4.4. Compared with 1984, neonatal mortality was higher in 1985 in the Statistical Division of Upper Great Southern (13.6) and lower in the Kimberley (9.9).

Perinatal mortality was 11.1/1000 total births and for Aboriginals it was 21.6 compared with 10.5 for non-Aboriginals. Perinatal mortality amongst Aboriginals 16-19 years of age (10.5) was lower than for non-Aboriginals in the same age group (16.9). For multiple births perinatal mortality (53.8) was much higher than for singletons (10.1). All multiple perinatal deaths were caucasian.

Post-neonatal mortality was 3.3/1000 livebirths and for Aboriginals it was six times greater (15.4). In the Kimberley post-neonatal mortality was 17.8/1000 livebirths which is a rise from 11.2 in 1984. Sudden Infant Death Syndrome accounted for 42.9% of post-neonatal deaths and most of these deaths occurred in the winter months. The most worrying change amongst post-neonatal deaths was the increase in the percentage of Aboriginal babies who died from infection; 14.3% in 1984 to 47.7% in 1985.

Infant mortality was 8.0/1000 livebirths and for Aboriginals it was 25.9. The highest infant death proportion was seen in infants of Aboriginal women aged 20-29 years (31.9). For women of all races however the highest risk for infant death was found in the 16-19 year age group. Infant mortality for multiple births was higher (36.1) than for singletons (7.4). A slightly higher proportion of infant deaths occurred amongst Aboriginal females (27.7) than males (24.1). This finding was unusual but could not be claimed to be significant. Aboriginal infant mortality in birthweight categories 3000-3999 grams was six times higher than for non-Aboriginals. The major causes of infant deaths were low birthweight, lethal congenital malformation, Sudden Infant Death Syndrome and infection.

Aboriginal infants still experience higher proportions of perinatal and infant mortality than non-Aboriginal infants. Aboriginal perinatal mortality however, has fallen more rapidly than that for non-Aboriginal infants. Post-neonatal infant mortality proportions have not improved at all in Aboriginal infants.

While these figures highlight some areas of improvement there are other areas of concern which have been identified. There is still much research to be done before many of the questions related to problems such as unexplained stillbirth, prematurity, congenital malformations and Sudden Infant Death Syndrome are answered, and the hope for improved perinatal and infant health, particularly amongst Aboriginal births, is realised. There is also much to be done in the area of improved living conditions for Aboriginals in order to prevent unnecessary deaths of liveborn babies.

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FIGURES

PAGE

I	CRUDE BIRTH RATE, PERINATAL AND INFANT MORTALITY BY STATISTICAL DIVISION OF MATERNAL RESIDENCE IN WESTERN AUSTRALIA IN 1985.	5
II	STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY FOR ABORIGINALS AND NON-ABORIGINALS IN WESTERN AUSTRALIA IN 1985.	8
III	BIRTHWEIGHT DISTRIBUTION OF STILLBIRTHS IN WESTERN AUSTRALIA IN 1985.	15
IV	BIRTHWEIGHT DISTRIBUTION OF NEONATAL DEATHS IN WESTERN AUSTRALIA IN 1985.	24
V	NEONATAL, POST-NEONATAL AND INFANT MORTALITY FOR ABORIGINALS AND NON-ABORIGINALS IN WESTERN AUSTRALIA IN 1985.	29
VI	FERTILITY RATES BY AGE FOR ABORIGINAL AND NON-ABORIGINAL WOMEN IN WESTERN AUSTRALIA IN 1985.	57
VII	STILLBIRTH PROPORTION FOR ABORIGINAL AND NON-ABORIGINAL BIRTHS IN WESTERN AUSTRALIA, 1980-1985.	62
VIII	NEONATAL MORTALITY FOR ABORIGINAL AND NON-ABORIGINAL BIRTHS IN WESTERN AUSTRALIA, 1980-1985.	63
IX	PERINATAL MORTALITY FOR ABORIGINAL AND NON-ABORIGINAL BIRTHS IN WESTERN AUSTRALIA, 1980-1985.	64
X	POST-NEONATAL MORTALITY FOR ABORIGINAL AND NON-ABORIGINAL BIRTHS IN WESTERN AUSTRALIA, 1980-1985.	67
XI	INFANT MORTALITY FOR ABORIGINAL AND NON-ABORIGINAL BIRTHS IN WESTERN AUSTRALIA, 1980-1985.	68

TABLES

PAGE

1.	STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY BY STATISTICAL DIVISION OF MATERNAL RESIDENCE AND MATERNAL RACE IN WESTERN AUSTRALIA IN 1985.	6
2.	STILLBIRTHS BY MATERNAL RACE AND MATERNAL AGE IN WESTERN AUSTRALIA IN 1985.	9
3.	STILLBIRTHS BY MATERNAL RACE AND CONJUGAL STATE IN WESTERN AUSTRALIA IN 1985.	10
4.	STILLBIRTHS BY MATERNAL RACE AND PARITY IN WESTERN AUSTRALIA IN 1985.	11
5.	PLURALITY AND CONDITION AT BIRTH BY MATERNAL RACE IN WESTERN AUSTRALIA IN 1985.	12
6.	STILLBIRTHS BY MATERNAL RACE AND SEX IN WESTERN AUSTRALIA IN 1985.	13
7.	STILLBIRTH PROPORTION BY MATERNAL RACE AND BIRTHWEIGHT DISTRIBUTION IN WESTERN AUSTRALIA IN 1985.	14
8.	CAUSE OF STILLBIRTH BY MATERNAL RACE IN WESTERN AUSTRALIA IN 1985.	16
9.	NEONATAL DEATHS BY MATERNAL RACE AND MATERNAL AGE IN WESTERN AUSTRALIA IN 1985.	18
10.	NEONATAL DEATHS BY MATERNAL RACE AND CONJUGAL STATE IN WESTERN AUSTRALIA IN 1985.	19
11.	NEONATAL DEATHS BY MATERNAL RACE AND PARITY IN WESTERN AUSTRALIA IN 1985.	20
12.	NEONATAL DEATHS BY MATERNAL RACE AND PLURALITY IN WESTERN AUSTRALIA IN 1985.	21
13.	NEONATAL DEATHS BY MATERNAL RACE AND SEX IN WESTERN AUSTRALIA IN 1985.	22

TABLES cont.

PAGE

14.	NEONATAL MORTALITY BY MATERNAL RACE AND BIRTHWEIGHT DISTRIBUTION IN WESTERN AUSTRALIA IN 1985.	23
15.	AGE AT NEONATAL DEATH BY MATERNAL RACE IN WESTERN AUSTRALIA IN 1985.	25
16.	CAUSE OF NEONATAL DEATH BY MATERNAL RACE IN WESTERN AUSTRALIA IN 1985.	26
17.	NEONATAL, POST-NEONATAL AND INFANT MORTALITY BY STATISTICAL DIVISION OF MATERNAL RESIDENCE AND MATERNAL RACE IN WESTERN AUSTRALIA IN 1985.	27
18.	POST-NEONATAL DEATHS BY MATERNAL RACE AND MATERNAL AGE IN WESTERN AUSTRALIA IN 1985.	30
19.	POST-NEONATAL DEATHS BY MATERNAL RACE AND CONJUGAL STATE IN WESTERN AUSTRALIA IN 1985.	31
20.	POST-NEONATAL DEATHS BY MATERNAL RACE AND PARITY IN WESTERN AUSTRALIA IN 1985.	32
21.	POST-NEONATAL DEATHS BY MATERNAL RACE AND PLURALITY IN WESTERN AUSTRALIA IN 1985.	33
22.	POST-NEONATAL DEATHS BY MATERNAL RACE AND SEX IN WESTERN AUSTRALIA IN 1985.	34
23.	POST-NEONATAL MORTALITY BY MATERNAL RACE AND BIRTHWEIGHT DISTRIBUTION IN WESTERN AUSTRALIA IN 1985.	35
24.	CAUSE OF POST-NEONATAL DEATH BY MATERNAL RACE IN WESTERN AUSTRALIA IN 1985.	36
25.	CAUSE OF POST-NEONATAL DEATH BY MONTH OF DEATH IN WESTERN AUSTRALIA IN 1985.	37
26.	STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY BY MATERNAL RACE IN WESTERN AUSTRALIA IN 1985.	38

TABLES cont.

PAGE

27.	PERINATAL AND INFANT MORTALITY BY MATERNAL RACE, PLURALITY AND SEX IN WESTERN AUSTRALIA IN 1985.	39
28.	PERINATAL DEATHS BY MATERNAL RACE AND MATERNAL AGE IN WESTERN AUSTRALIA IN 1985.	41
29.	PERINATAL DEATHS BY MATERNAL RACE AND BIRTHWEIGHT DISTRIBUTION IN WESTERN AUSTRALIA IN 1985.	42
30.	NEONATAL, POST-NEONATAL AND INFANT MORTALITY BY MATERNAL RACE IN WESTERN AUSTRALIA IN 1985.	43
31.	INFANT DEATHS BY MATERNAL RACE AND MATERNAL AGE IN WESTERN AUSTRALIA IN 1985.	44
32.	INFANT DEATHS BY MATERNAL RACE AND CONJUGAL STATE IN WESTERN AUSTRALIA IN 1985.	45
33.	INFANT DEATHS BY MATERNAL RACE AND PARITY IN WESTERN AUSTRALIA IN 1985.	46
34.	INFANT DEATHS BY MATERNAL RACE AND PLURALITY IN WESTERN AUSTRALIA IN 1985.	47
35.	INFANT DEATHS BY MATERNAL RACE AND SEX IN WESTERN AUSTRALIA IN 1985.	48
36.	INFANT DEATHS BY MATERNAL RACE AND BIRTHWEIGHT DISTRIBUTION IN WESTERN AUSTRALIA IN 1985.	49
37.	INFANT MORTALITY BY MATERNAL RACE AND AGE AT DEATH IN WESTERN AUSTRALIA IN 1985.	50
38.	LIVEBIRTHS AND TOTAL BIRTHS BY STATISTICAL DIVISION OF MATERNAL RESIDENCE AND MATERNAL RACE IN WESTERN AUSTRALIA IN 1985.	53
39.	MATERNAL AGE OF WOMEN CONFINED IN WESTERN AUSTRALIA IN 1985.	54

TABLES cont.

PAGE

- | | | |
|-----|---|----|
| 40. | FERTILITY RATES FOR ABORIGINAL AND NON-ABORIGINAL WOMEN IN WESTERN AUSTRALIA IN 1985. | 55 |
| 41. | LIVEBIRTHS, STILLBIRTHS AND TOTAL BIRTHS FOR ABORIGINAL AND NON-ABORIGINAL BIRTHS IN WESTERN AUSTRALIA, 1980-1985. | 58 |
| 42. | STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY FOR ABORIGINAL AND NON-ABORIGINAL BIRTHS IN WESTERN AUSTRALIA, 1980-1985. | 60 |
| 43. | NEONATAL, POST-NEONATAL AND INFANT MORTALITY FOR ABORIGINAL AND NON-ABORIGINAL BIRTHS IN WESTERN AUSTRALIA, 1980-1985. | 65 |

1. INTRODUCTION

This second annual report of perinatal and infant mortality identified by maternal race describes the results of a cohort study of babies born in Western Australia in 1985.

The format of using numerators and denominators defined by year of birth in calculating proportions of babies who subsequently die within twelve months was introduced in the 1984 Western Australian Birth Cohort and has been continued in this report.

This report contains perinatal and infant mortality measures prior to 1984 and these were calculated using the year of death method.

2. DEFINITIONS

Birthweight

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

Low Birthweight

A birthweight of less than 2500 grams

Very Low Birthweight

A birthweight of less than 1500 grams

Extremely Low Birthweight

A birthweight of less than 1000 grams

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 births per 1000 woman-years to women aged between 15-44 years.

Infant Death

The death of a liveborn infant within the first year of life.

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

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

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

Perinatal Mortality - is the number of stillbirths and neonatal deaths per 1000 total births in a year.

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

Infant Mortality - is the number of infant deaths per 1000 livebirths 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.

Perinatal Death

Is a stillbirth or neonatal death.

Postneonatal Death

Is the death of a liveborn infant occurring after the ~~first month~~^{28th day} and within the first year of life.

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, not that of the baby or of the father of the baby.

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

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

Other - includes Asian, Indian, Polynesian, etc.

Stillbirth

Is the complete expulsion or extraction from its mother, of a product of conception of at least 20 weeks gestation or 400 grams birthweight, which after separation did not show any sign of life.

3. DATA COLLECTION

The Western Australian Midwives Notification System forms the basis of this second 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 abovementioned sources, the data relating to number of deaths in this report is complete.

Lists of stillbirths, neonatal deaths and post-neonatal deaths were drawn up manually identifying babies by as many crosschecking variables as were available including mother's name, baby's name, date of birth, date of death, age at death, time of death for stillbirths, cause of death, whether autopsy performed, place of birth and place of death.

A computer file for deaths was then created and linked to the Midwives' Notification System resulting in 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).

FIGURE I

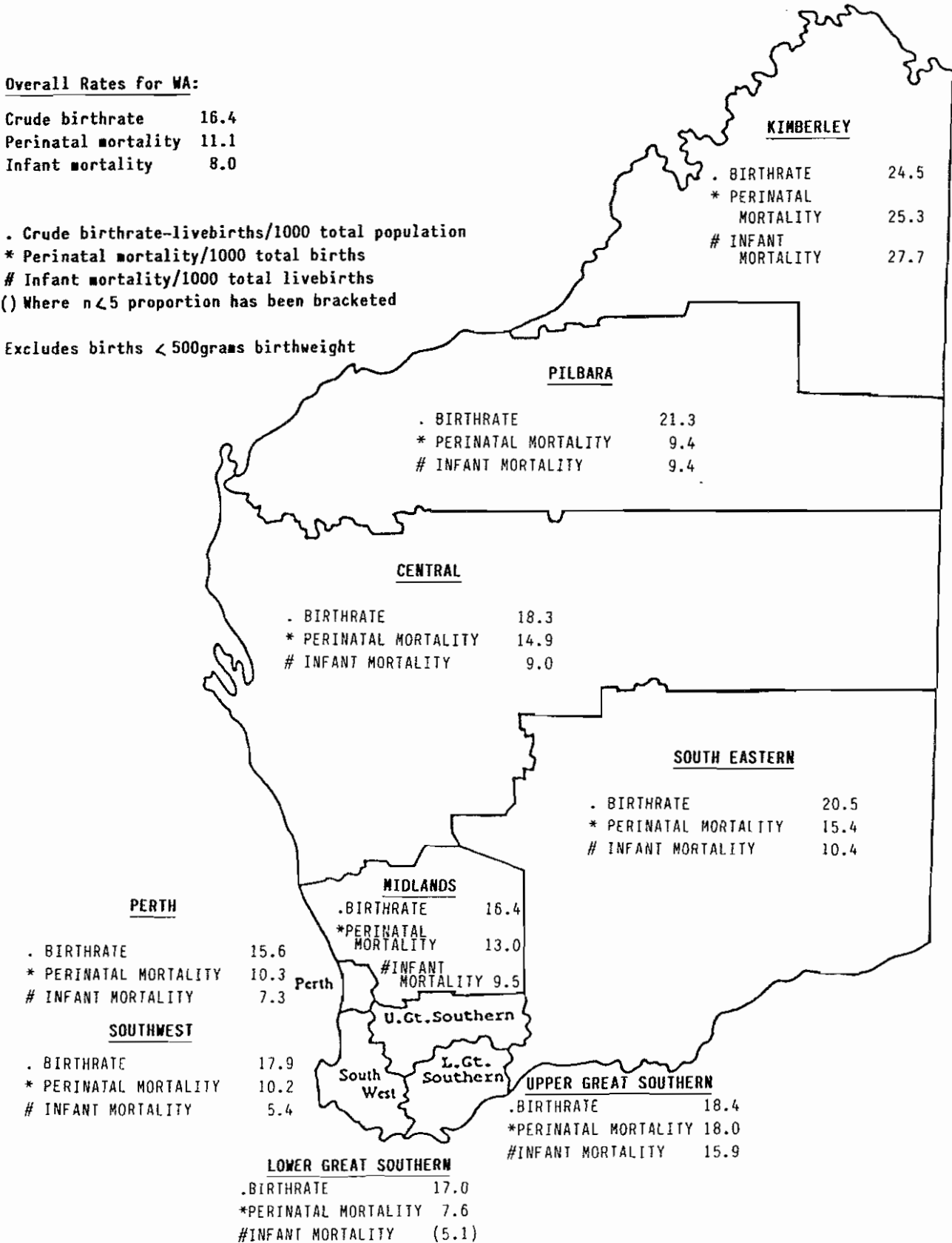
CRUDE BIRTH RATE, PERINATAL AND INFANT MORTALITY
BY STATISTICAL DIVISION OF MATERNAL RESIDENCE FOR BIRTHS
IN WESTERN AUSTRALIAN IN 1985

Overall Rates for WA:

Crude birthrate 16.4
Perinatal mortality 11.1
Infant mortality 8.0

. Crude birthrate-livebirths/1000 total population
* Perinatal mortality/1000 total births
Infant mortality/1000 total livebirths
() Where n<5 proportion has been bracketed

Excludes births < 500grams birthweight



SOURCES:
MIDWIVES' NOTIFICATION SYSTEM
REGISTRAR GENERAL'S OFFICE
AUSTRALIAN BUREAU OF STATISTICS

TABLE 1

STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY
BY STATISTICAL DIVISION OF MATERNAL RESIDENCE
AND MATERNAL RACE IN WESTERN AUSTRALIA IN 1985

Statistical Division	Maternal Race														Total							
	Caucasian						Aboriginal						Other		Still- births	Neo- natal	Peri- natal					
	Still- births	Neo- natal	Peri- natal	Still- births	Neo- natal	Peri- natal	Still- births	Neo- natal	Peri- natal	Still- births	Neo- natal	Other	Still- births	Neo- natal				Peri- natal				
	No. (1)	No. (2)	No. (1)	No. (1)	No. (2)	No. (1)	No. (1)	No. (2)	No. (1)	No. (1)	No. (2)	No. (1)	No. (1)	No. (2)	No. (1)	No. (2)	No. (1)					
Perth	82	67	149	10.4	2	(6.0)	4	(12.0)	6	17.9	4	(4.2)	1	(1.1)	5	5.3	88	5.6	72	4.6	160	10.3
Southwest	14	7.1	6	3.0	20	10.1	0	-	1	(19.6)	1	(19.6)	0	-	0	-	14	6.8	7	3.4	21	10.2
Lower Great Southern	3	(4.1)	1	(1.4)	4	(5.4)	0	-	1	(35.7)	1	(41.7)	0	-	1	(41.7)	4	(5.1)	2	(2.5)	6	7.6
Upper Great Southern	2	(4.9)	6	14.7	8	19.5	0	-	0	-	0	-	0	-	0	-	2	(4.5)	6	13.6	8	18.0
Midlands	5	6.4	3	(3.9)	8	10.2	0	-	3	(54.5)	3	(54.5)	0	-	0	-	5	5.9	6	7.1	11	13.0
South Eastern	9	10.9	4	(4.9)	13	15.7	2	(17.9)	0	-	2	(17.9)	0	-	0	-	11	11.3	4	(4.2)	15	15.4
Central	6	7.6	2	(2.5)	8	10.1	4	(22.1)	0	-	4	(22.1)	2	(57.1)	1	(30.3)	12	11.9	3	(3.0)	15	14.9
Pilbara	1	(1.2)	4	(4.9)	5	6.1	2	(15.9)	0	-	2	(15.9)	3	(24.2)	0	-	6	5.6	4	(3.8)	10	9.4
Kimberley	4	(22.7)	1	(5.8)	5	28.4	4	(12.2)	4	(12.2)	8	24.2	0	-	0	-	8	15.6	5	9.9	13	25.3
Outside WA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	126	6.0	94	4.5	220	10.6	14	11.2	13	10.5	27	21.6	10	8.2	2	1.6	150	6.4	109	4.7	259	11.1

Excludes births less than 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

4. STILLBIRTHS, NEONATAL AND POST-NEONATAL MORTALITY IN WESTERN AUSTRALIA IN THE 1985 BIRTH COHORT

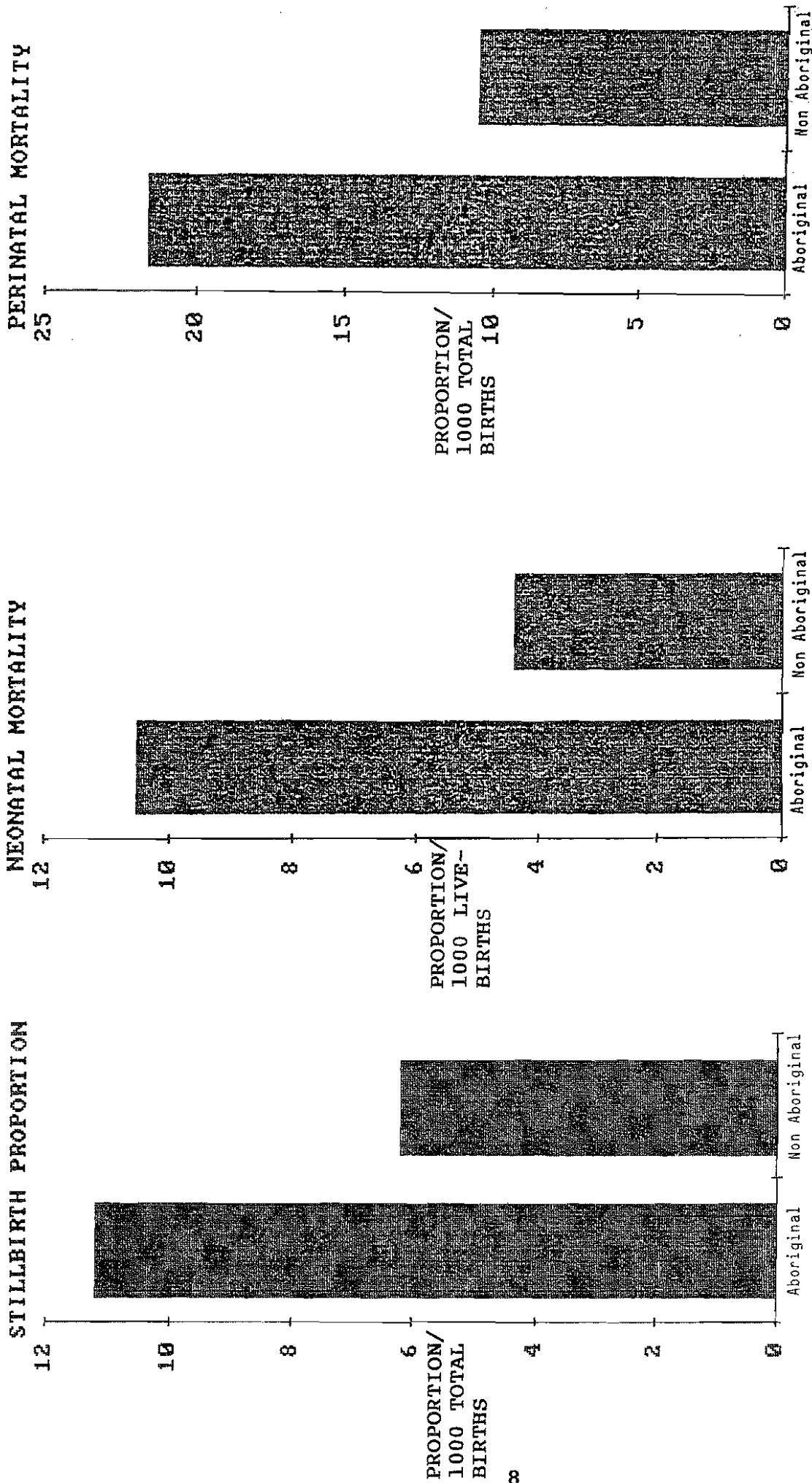
4.1 Stillbirths

There were 150 stillbirths in Western Australia during 1985 which were equal to or greater than 500 grams birthweight. The stillbirth proportion for the state was 6.4/1000 total births (Table 1).

Aboriginal stillbirth mortality was 11.2 compared with 6.2 for non-Aboriginals (Table 26 and Figure II).

Examination of stillbirths by Statistical Division of maternal residence indicated that the highest proportion was observed in the Kimberley (15.6) as it was in 1984 (16.5) (Table 1).¹ In the Central Statistical Division the stillbirth proportion in 1985 was 11.9 compared with 6.6 in 1984. In Perth the stillbirth proportion was 5.6 in 1985 and 4.9 in 1984.¹

FIGURE II STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY FOR ABORIGINALS AND NON-ABORIGINALS IN WESTERN AUSTRALIA IN 1985



Excludes births less than 500 grams birthweight

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

TABLE 2

**STILLBIRTHS BY MATERNAL RACE AND MATERNAL AGE
IN WESTERN AUSTRALIA IN 1985**

Maternal Age	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
≤15	1	0.8	0	0	0	0	1	0.7
16	2	1.6	1	7.1	0	0	3	2.0
17	2	1.6	1	7.1	0	0	3	2.0
18	3	2.4	0	0	0	0	3	2.0
19	1	0.8	0	0	0	0	1	0.7
≤19	9	7.2	2	14.2	0	0	11	7.4
20-24	38	30.2	4	28.6	3	30.0	45	30.0
25-29	42	33.3	3	21.4	4	40.0	49	32.7
30-34	27	21.4	4	28.6	1	10.0	32	21.3
35-39	8	6.3	1	7.1	1	10.0	10	6.7
40-44	2	1.6	0	0	1	10.0	3	2.0
≥45	0	0	0	0	0	0	0	0
TOTAL	126	100.0	14	100.0	10	100.0	150	100.0

Excludes births <500 grams birthweight

Seven percent of stillbirths were to teenagers and two percent to women over 40 years. The greater percentage of women (62.7%) who experienced stillbirth were aged between 20-29 years (Table 2), however, these women were in the lowest risk group for perinatal mortality as seen in Table 27.

TABLE 3

**STILLBIRTHS BY MATERNAL RACE AND CONJUGAL STATE
IN WESTERN AUSTRALIA IN 1985**

Conjugal State	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Single	17	13.5	5	35.7	0	0	22	14.7
Married/defacto	105	83.3	9	64.3	10	100.0	124	82.7
*Other	4	3.2	0	0	0	0	4	2.7
TOTAL	126	100.0	14	100.0	10	100.0	150	100.0

Excludes births <500 grams birthweight
*Other includes separated, divorced and widowed

Seventeen percent of stillbirths were born to women who were socially unsupported by a male partner (Table 3). This figure represents an increase of seven percent since the 1984 birth cohort report.

TABLE 4

**STILLBIRTHS BY MATERNAL RACE AND PARITY
IN WESTERN AUSTRALIA IN 1985**

Parity	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
0	71	56.3	4	28.6	5	50.0	80	53.3
1-2	48	38.1	7	50.0	4	40.0	59	39.3
3-5	6	4.8	2	14.3	1	10.0	9	6.0
≥6	1	0.8	1	7.1	0	0	2	1.3
TOTAL	126	100.0	14	100.0	10	100.0	150	100.0

Excludes births <500 grams birthweight

Fifty three percent of stillbirths were to primiparous women which is an increase of 8.5% since 1984.¹ There was a 10.6% fall in the percentage of stillbirths to women whose parity was three or more (Table 4).

TABLE 5

**PLURALITY AND CONDITION AT BIRTH BY MATERNAL RACE
IN WESTERN AUSTRALIA IN 1985**

Plurality and Condition at Birth	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	(4)	No.	(5)	No.	(6)	No.	
SINGLETON								(1)
Livebirths	20205		1219		1187		22611	
Stillbirths	114	5.6	14	11.3	10	8.3	138	6.1
TOTAL	20319		1233		1197		22749	
MULTIPLE*								(2)
Livebirths	487		16		24		527	
Stillbirths	12	24.0	0	-	0	-	12	22.3
TOTAL	499		16		24		539	
TOTAL								(3)
Livebirths	20692		1235		1211		23138	
Stillbirths	126	6.0	14	11.2	10	8.2	150	6.4
TOTAL	20818		1249		1221		23288	

Excludes births <500 grams birthweight

*Includes 1 single twin whose birthweight was >500 grams

- (1) Singleton stillbirth proportion/1000 total singleton births
- (2) Multiple stillbirth proportion/1000 total multiple births
- (3) Total stillbirth proportion/1000 total births
- (4) Caucasian stillbirth proportion
- (5) Aboriginal stillbirth proportion
- (6) Other races' stillbirth proportion

Twelve of the 150 stillborn babies in 1985 were multiple births (Table 5) and this figure represents 4.5% of all multiple births for that year.² All stillborn multiple births were to women of Caucasian race.

TABLE 6

STILLBIRTHS BY MATERNAL RACE AND SEX
IN WESTERN AUSTRALIA IN 1985

Sex	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Male	72	57.1	8	57.1	7	70.0	87	58.0
Female	54	42.9	6	42.9	3	30.0	63	42.0
TOTAL	126	100.0	14	100.0	10	100.0	150	100.0

Excludes births < 500 grams birthweight

Over half (58.0%) of all stillbirths were males (Table 6).

TABLE 7

**STILLBIRTH PROPORTION BY MATERNAL RACE AND BIRTHWEIGHT
DISTRIBUTION IN WESTERN AUSTRALIA IN 1985**

Birthweight (grams)	Maternal Race							
	Caucasian		Aboriginal		Other		Total	
	No.	(1)	No.	(1)	No.	(1)	No.	(1)
500-999	37	336.4	6	352.9	3	(428.6)	46	343.3
1000-1499	15	116.3	2	(87.0)	0	-	17	106.3
1500-1999	15	66.4	1	(40.0)	2	(117.6)	18	67.2
2000-2499	17	22.8	2	(19.0)	1	(23.3)	20	22.4
<2500	84	69.3	11	64.7	6	80.0	101	69.3
2500-2999	22	6.8	0	-	2	(7.5)	24	6.3
3000-3499	13	1.7	1	(2.1)	2	(3.8)	16	1.8
3500-3999	5	0.8	0	-	0	-	5	0.7
4000-4499	2	(1.1)	2	(33.9)	0	-	4	(2.1)
≥4500	0	-	0	-	0	-	0	-
TOTAL	126	6.1	14	11.2	10	8.2	150	6.4

Excludes births < 500 grams birthweight

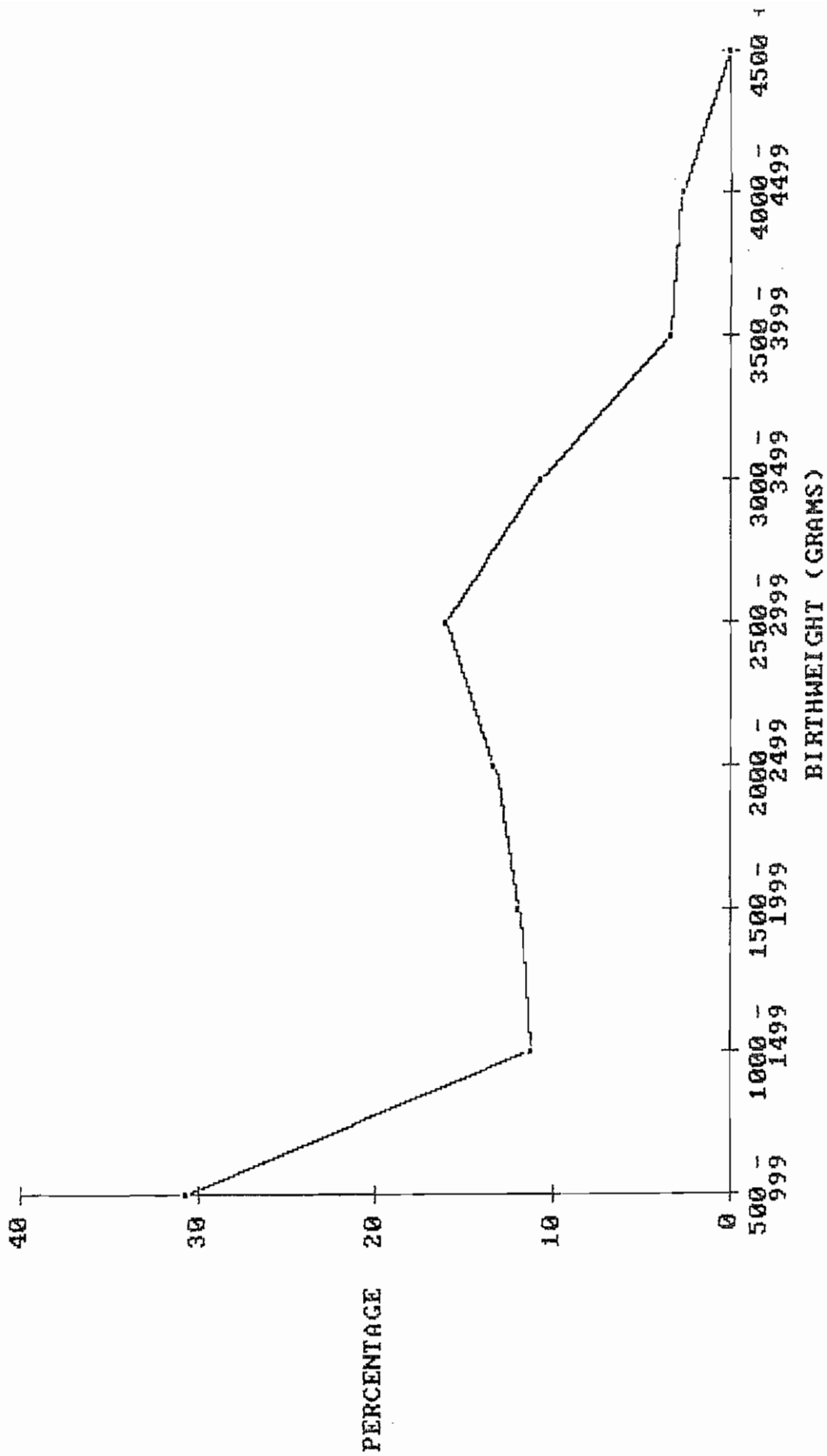
(1) Proportion/1000 total births.

() Where n<5 proportion has been bracketed.

The stillbirth proportion for all races fell steadily as birthweight rose. The lowest risk for stillbirth is in the birthweight categories 3000 grams and over (Table 7). An appreciable percentage of stillbirths occurred in categories over 2500 grams and particularly between 2500-2999 grams (Figure III).

FIGURE III

BIRTHWEIGHT DISTRIBUTION OF STILLBIRTHS IN
WESTERN AUSTRALIA IN 1985



Excludes births less than 500 grams birthweight
SOURCE: MIDWIVES' NOTIFICATION SYSTEM

TABLE 8

**CAUSE OF STILLBIRTH BY MATERNAL RACE
IN WESTERN AUSTRALIA IN 1985**

Cause of Death	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Lethal congenital malformation	22	17.5	1	7.1	0	0	23	15.3
Extremely low birth-weight (<1000g)*	27	21.4	4	28.6	3	30.0	34	22.7
Unknown	47	37.3	7	50.0	5	50.0	59	39.3
Maternal:								
Obstetric	0	0	0	0	0	0	0	0
Medical	3	2.4	0	0	1	10.0	4	2.7
Hypertension	6	4.8	0	0	0	0	6	4.0
Placenta and cord	18	14.3	1	7.1	1	10.0	20	13.3
Other	3	2.4	1	7.1	0	0	4	2.7
TOTAL	126	100.0	14	100.0	10	100.0	150	100.0

Excludes births < 500 grams birthweight

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

The distribution of stillbirth causes follows a similar pattern to 1984¹ with the largest categories being unknown causes (39.3%) and extremely low birthweight of less than 1000 grams (22.7%). There was an increase in the percentage of lethal congenital malformations from 11.3% in 1984¹ to 15.3% in 1985. This distribution of causes was similar for all races (Table 8).

The high percentage of unexplained stillbirths could be reduced if autopsies were performed on more babies. Information obtained may then provide some of the answers to this vexing problem and therefore lead to some effective preventive measures to reduce the unchanging stillbirth proportion.

Eighty seven (58%) of stillbirths were antepartum deaths, 41 (27.3%) were intrapartum deaths and in 22 (14.7%) the time of death was unknown.

4.2 Neonatal Deaths

There were 109 neonatal deaths amongst the 1985 livebirths. The overall neonatal mortality proportion was 4.7/1000 livebirths. For Aboriginals neonatal mortality was 10.5 which is more than twice the rate for non-Aboriginals of 4.4 (Table 26, Table 30 and Figure II).

Neonatal mortality in the Kimberley has fallen from 13.1 livebirths in 1984 to 9.9 in 1985. The highest proportion of neonatal deaths in 1985 was in the Statistical Division of Upper Great Southern (13.6) (Table 1).

TABLE 9

**NEONATAL DEATHS BY MATERNAL RACE AND MATERNAL AGE
IN WESTERN AUSTRALIA IN 1985**

Maternal Age	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
<15	0	0	0	0	0	0	0	0
16	2	2.1	0	0	0	0	2	1.8
17	2	2.1	0	0	0	0	2	1.8
18	3	3.2	2	15.4	0	0	5	4.6
19	2	2.1	0	0	0	0	2	1.8
<19	9	9.5	2	15.4	0	0	11	10.0
20-24	14	14.9	5	38.5	0	0	19	17.4
25-29	33	35.1	4	30.8	1	50.0	38	34.9
30-34	30	31.9	1	7.7	1	50.0	32	29.4
35-39	8	8.5	1	7.7	0	0	9	8.3
40-44	0	0	0	0	0	0	0	0
≥45	0	0	0	0	0	0	0	0
TOTAL	94	99.9	13	100.0	2	100.0	109	100.0

Excludes births < 500 grams birthweight

Of the livebirths who died within 28 days one in ten were born to teenagers. The majority of neonatal deaths were to women aged 25-29 years (34.9%) (Table 9).

TABLE 10

**NEONATAL DEATHS BY MATERNAL RACE AND CONJUGAL STATE
IN WESTERN AUSTRALIA IN 1985**

Conjugal State	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Single	11	11.7	3	23.1	0	0	14	12.8
Married/defacto	82	87.2	10	76.9	2	100.0	94	86.2
*Other	1	1.1	0	0	0	0	1	0.9
TOTAL	94	100.0	13	100.0	2	100.0	109	100.0

Excludes births < 500 grams birthweight
*Other includes separated, divorced and widowed

Almost fourteen percent of women whose baby died in the neonatal period were socially unsupported by a male partner (Table 10).

TABLE 11

NEONATAL DEATHS BY MATERNAL RACE AND PARITY
IN WESTERN AUSTRALIA IN 1985

Parity	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
0	44	46.8	2	15.4	0	0	46	42.2
1-2	40	42.6	3	23.1	1	50.0	44	40.4
3-5	10	10.6	5	38.5	1	50.0	16	14.7
≥6	0	0	3	23.1	0	0	3	2.8
TOTAL	94	100.0	13	100.1	2	100.0	109	100.1

Excludes births < 500 grams birthweight

The greater percentage of women whose baby died in the neonatal period were primiparas (42.2%) and almost three percent were grand multiparas (Table 11).

TABLE 12

NEONATAL DEATHS BY MATERNAL RACE AND PLURALITY
IN WESTERN AUSTRALIA IN 1985

Plurality	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Singletons	77	81.9	13	100.0	2	100.0	92	84.4
Twins	11	11.7	0	0	0	0	11	10.1
Triplets	6	6.4	0	0	0	0	6	5.5
TOTAL	94	100.0	13	100.0	2	100.0	109	100.0

Excludes births < 500 grams birthweight

Seventeen (15.6%) of the 109 neonatal deaths were multiple births and all of those babies were born to women of Caucasian race (Table 12).

TABLE 13

NEONATAL DEATHS BY MATERNAL RACE AND SEX
IN WESTERN AUSTRALIA IN 1985

Sex	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Male	52	55.3	6	46.2	1	50.0	59	54.1
Female	42	44.7	7	53.8	1	50.0	50	45.9
TOTAL	94	100.0	13	100.0	2	100.0	109	100.0

Excludes births < 500 grams birthweight

Similar to stillbirths, over half (59%) of the neonatal deaths were male babies (Table 13). Whilst there was an unexpected greater percentage of female aboriginal neonatal deaths, the difference in numbers was so small that it would not have been significant.

TABLE 14

NEONATAL MORTALITY BY MATERNAL RACE AND BIRTHWEIGHT DISTRIBUTION
IN WESTERN AUSTRALIA IN 1985

Birthweight (grams)	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	(1)	No.	(1)	No.	(1)	No.	(1)
500-999	37	506.8	7	636.4	1	(25.0)	45	511.4
1000-1499	15	131.6	1	(47.6)	0	-	16	111.9
1500-1999	5	23.7	0	-	0	-	5	20.0
2000-2499	9	12.3	0	-	0	-	9	10.3
<2500	66	58.5	8	6.3	1	(14.5)	75	55.3
2500-2999	14	4.3	1	(3.6)	0	-	15	4.0
3000-3499	8	1.0	4	(8.5)	0	-	12	1.4
3500-3999	3	0.5	0	-	1	(3.4)	4	(0.6)
4000-4499	3	1.6	0	-	0	-	3	(1.6)
>4500	0	-	0	-	0	-	0	-
TOTAL	94	4.5	13	10.5	2	1.7	109	4.7

Excludes births < 500 grams birthweight

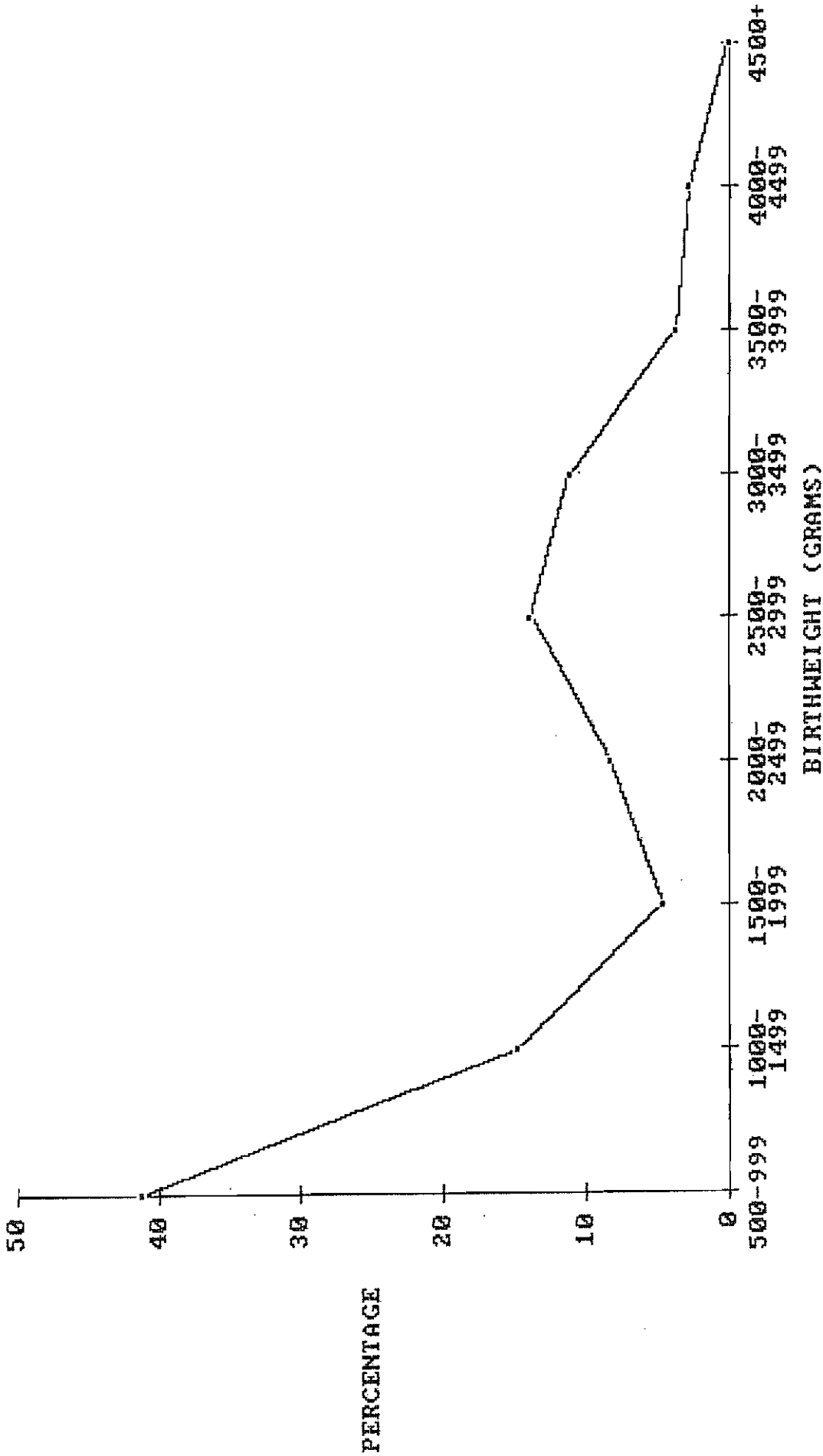
- (1) Proportion/1000 livebirths.
 () Where n<5 proportion has been bracketed.

Similar to stillbirths, neonatal mortality in all races fell as birthweight rose, the lowest risk group being 3500 grams and over (Table 14).

An unusual number and percentage of neonatal deaths occurred in birthweight categories 2500-3499 grams as seen in Figure IV.

FIGURE IV

BIRTHWEIGHT DISTRIBUTION OF NEONATAL DEATHS
IN WESTERN AUSTRALIA IN 1985



Excludes births less than 500 grams birthweight

SOURCE: MIDWIVES' NOTIFICATION SYSTEM

TABLE 15

**AGE AT NEONATAL DEATH BY MATERNAL RACE
IN WESTERN AUSTRALIA IN 1985**

Age at Death	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
< day 1	35	37.2	4	30.8	1	50.0	40	36.7
day 1	17	18.1	3	23.0	1	50.0	21	19.3
day 2	3	3.2	1	7.7	0	0	4	3.7
day 3	3	3.2	0	0	0	0	3	2.7
day 4	3	3.2	1	7.7	0	0	4	3.7
day 5	2	2.1	0	0	0	0	2	1.8
day 6	2	2.1	0	0	0	0	2	1.8
day 7	3	3.2	0	0	0	0	3	2.7
day <1-7	68	72.3	9	69.2	2	100.0	79	72.4
day 8-14	15	16.0	0	0	0	0	15	13.8
day 15-21	8	8.5	2	15.4	0	0	10	9.2
day 22-28	3	3.2	2	15.4	0	0	5	4.6
TOTAL	94	100.0	13	100.0	2	100.0	109	100.0

Excludes births < 500 grams birthweight

Seventy two percent of neonatal deaths occurred in the first week after birth and 56% occurred within 48 hours (Table 15).

TABLE 16

**CAUSE OF NEONATAL DEATH BY MATERNAL RACE
IN WESTERN AUSTRALIA IN 1985**

Cause of Death	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Lethal congenital malformation	37	39.4	2	15.4	2	100.0	41	37.6
Low birthweight (<2500 grams)*	45	7.9	7	53.8	0	0	52	47.7
Asphyxia	4	4.3	0	0	0	0	4	3.7
Pregnancy conditions	1	1.1	0	0	0	0	1	0.9
Infections	1	1.1	1	7.7	0	0	2	1.8
Other	0	0	0	0	0	0	0	0
Sudden Infant Death Syndrome	2	2.1	0	0	0	0	2	1.8
Unknown	4	4.3	3	23.1	0	0	7	6.4
TOTAL	94	100.0	13	100.0	2	100.0	109	100.0

Excludes births < 500 grams birthweight

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

The major causes of neonatal death in the 1985 Cohort were low birthweight (47.7%) and lethal congenital malformation (37.6%) (Table 16).

TABLE 17

POST-NEONATAL AND INFANT MORTALITY
BY STATISTICAL DIVISION OF MATERNAL RESIDENCE
AND MATERNAL RACE IN WESTERN AUSTRALIA IN 1985

Statistical Division	Caucasian			Maternal Race			Other			Total						
	Post neonatal No. (1)	Infant No. (2)	Rate (2)	Aboriginal		Rate (2)	Other		Rate (2)	Post neonatal No. (1)	Infant No. (2)	Rate (2)				
				Post neonatal No. (1)	Infant No. (2)		Post neonatal No. (1)	Infant No. (2)								
Perth	37	2.6	104	7.3	3	(9.0)	7	21.0	1	(1.1)	2	(2.1)	41	2.6	113	7.3
Southwest	2	(1.0)	8	4.1	2	(39.2)	3	(58.8)	0	-	0	0	4	(2.0)	11	5.4
Lower Great Southern	2	(2.7)	3	(4.1)	0	-	1	(35.7)	0	-	0	0	2	(2.5)	4	(5.1)
Upper Great Southern	1	(2.4)	7	17.1	0	-	0	0	0	-	0	0	1	(2.3)	7	15.9
Midlands	2	(2.6)	5	6.4	0	-	3	(54.5)	0	-	0	0	2	(2.4)	8	9.5
South Eastern	4	(4.9)	8	9.8	2	(18.2)	2	(18.2)	0	-	0	0	6	6.3	10	10.4
Central	4	(5.1)	6	7.6	2	(11.3)	2	(11.3)	0	-	1	(30.3)	6	6.0	9	9.0
Pilbara	4	(4.9)	8	9.8	2	(16.1)	2	(16.1)	0	-	0	0	6	5.7	10	9.4
Kimberley	1	(5.8)	2	(11.6)	8	24.5	12	36.7	0	-	0	0	9	17.8	14	27.7
Outside WA	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0	-
TOTAL	57	2.8	151	7.3	19	15.4	32	25.9	1	(0.8)	3	(2.5)	77	3.3	186	8.0

Excludes births less than 500 grams birthweight

(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

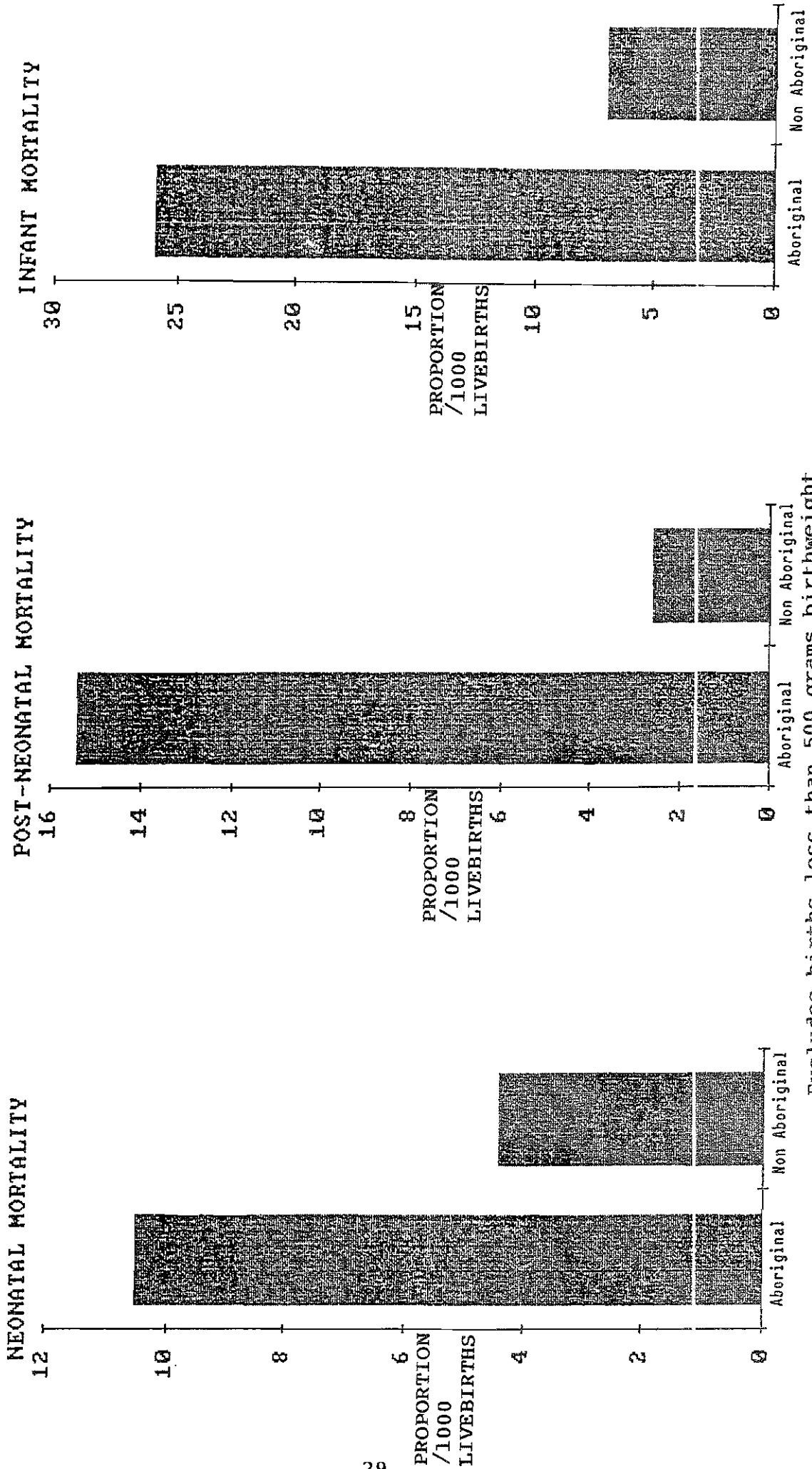
4.3 Post-Neonatal Deaths

There were 77 post-neonatal deaths identified amongst the 1985 livebirths, a proportion of 3.3/1000 livebirths (Table 17 and Table 30).

Post-neonatal mortality for Aboriginals was 15.4 which is 6 times the proportion for non-Aboriginals (2.6) (Table 30 and Figure V).

The pattern of post-neonatal mortality by Statistical Division was similar in 1985 to that in 1984. The Kimberley had the highest proportion and this increased from 11.2 in 1984 to 17.8 in 1985.

FIGURE V NEONATAL, POST-NEONATAL AND INFANT MORTALITY FOR ABORIGINALS AND NON-ABORIGINALS IN WESTERN AUSTRALIA IN 1985



Excludes births less than 500 grams birthweight
 SOURCE: MIDWIVES' NOTIFICATION SYSTEM
 REGISTRAR GENERAL'S OFFICE
 COMMUNITY AND CHILD HEALTH SERVICES

TABLE 18

POST-NEONATAL DEATHS BY MATERNAL RACE AND MATERNAL AGE
IN WESTERN AUSTRALIA IN 1985

Maternal Age	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
<15	1	0.5	0	0	0	0	1	0.4
16	4	1.8	1	3.7	0	0	5	1.9
17	4	1.8	1	3.7	0	0	5	1.9
18	6	2.7	2	7.4	0	0	8	3.1
19	3	1.4	0	0	0	0	3	1.2
<19	18	8.2	4	14.8	0	0	22	8.5
20-24	52	23.6	9	33.3	3	25.0	64	24.7
25-29	75	34.1	7	25.9	5	41.7	87	33.6
30-34	57	25.9	5	18.5	2	16.7	64	24.7
35-39	16	7.3	2	7.4	1	8.3	19	7.3
40-44	2	0.9	0	0	1	8.3	3	1.2
≥45	0	0	0	0	0	0	0	0
TOTAL	220	100.0	27	100.0	12	100.0	259	100.0

Excludes births < 500 grams birthweight

Over eight percent of post-neonatal deaths were to teenage women (Table 18) compared with 20% in 1984.¹

Of the Aboriginal neonatal deaths 14.8% were to teenage mothers (Table 18) compared with 35.7% in 1984.¹

TABLE 19

POST-NEONATAL DEATHS BY MATERNAL RACE AND CONJUGAL STATE
IN WESTERN AUSTRALIA IN 1985

Conjugal State	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Single	9	15.8	5	26.3	0	0	14	18.2
Married/defacto	47	82.5	14	73.7	1	100.0	62	80.5
*Other	1	1.8	0	0	0	0	1	1.3
TOTAL	57	100.0	19	100.0	1	100.0	77	100.0

Excludes births < 500 grams birthweight
*Other includes separated, divorced and widowed

Nineteen percent of women whose baby died between 1 month and 12 months in 1985 were socially unsupported by a male partner (Table 19). This is 9% fewer than for 1984.¹

TABLE 20

POST-NEONATAL DEATHS BY MATERNAL RACE AND PARITY
IN WESTERN AUSTRALIA IN 1985

Parity	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
0	23	40.4	4	21.1	0	0	27	35.1
1-2	28	49.1	12	63.2	1	100.0	41	53.2
3-5	6	10.5	3	15.8	0	0	9	11.7
>6	0	0	0	0	0	0	0	0
TOTAL	57	100.0	19	100.0	1	100.0	77	100.0

Excludes births < 500 grams birthweight

Thirty five percent of women whose baby died in the post-neonatal period were primiparas (Table 20) and this is an increase of 10% on 1984 figures.¹

TABLE 21

**POST-NEONATAL DEATHS BY MATERNAL RACE AND PLURALITY
IN WESTERN AUSTRALIA IN 1985**

Plurality	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Singletons	55	96.5	19	100.0	1	100.0	75	97.4
Twins	1	1.8	0	0	0	0	1	1.3
Triplets	1	1.8	0	0	0	0	1	1.3
TOTAL	57	100.0	19	100.0	1	100.0	77	100.0

Excludes births < 500 grams birthweight

Examination of post-neonatal deaths by plurality revealed a small percentage (2.6%) were multiple births and these babies were born to mothers of Caucasian race (Table 21).

TABLE 22

POST-NEONATAL DEATHS BY MATERNAL RACE AND SEX
IN WESTERN AUSTRALIA IN 1985

Sex	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Male	31	54.4	9	47.4	1	100.0	41	53.2
Female	26	45.6	10	52.6	0	0	36	46.8
TOTAL	57	100.0	19	100.0	1	100.0	77	100.0

Excludes births < 500 grams birthweight

Of the post-neonatal deaths identified in the 1985 birth cohort, more than half (53.2%) were male (Table 22). This trend is similar to stillbirths and neonatal deaths (Table 6 and Table 13).

TABLE 23

**POST-NEONATAL MORTALITY BY MATERNAL RACE AND
BIRTHWEIGHT DISTRIBUTION IN WESTERN AUSTRALIA IN 1985**

Birthweight (grams)	Maternal Race							
	Caucasian		Aboriginal		Other		Total	
	No.	(1)	No.	(1)	No.	(1)	No.	(1)
500-999	2	(27.4)	1	(90.9)	0	-	3	(34.1)
1000-1499	1	(8.8)	0	-	0	-	1	(7.0)
1500-1999	2	(9.5)	2	(83.3)	0	-	4	(16.0)
2000-2499	10	13.7	2	(19.4)	0	-	12	13.7
<2500	15	13.3	5	31.4	0	-	20	14.7
2500-2999	6	1.9	3	(10.8)	0	-	9	2.4
3000-3499	21	2.7	5	10.6	1	(1.9)	27	3.1
3500-3999	14	2.2	5	19.7	0	-	19	2.7
4000-4499	1	(0.5)	1	(17.5)	0	-	2	(1.0)
≥4500	0	-	0	-	0	-	0	-
TOTAL	57	2.8	19	15.4	1	(0.8)	77	3.3

Excludes births < 500 grams birthweight

(1) Proportion/1000 livebirths.

() Where n<5 proportion has been bracketed.

Aboriginal post-neonatal mortality in the heavier birthweight categories (3000-3999 grams) is particularly high compared with caucasians.

TABLE 24

CAUSE OF POST-NEONATAL DEATH BY MATERNAL RACE
IN WESTERN AUSTRALIA IN 1985

Cause of Death	Maternal Race						Total	Total 1984		
	Caucasian		Aboriginal		Other					
	No.	%	No.	%	No.	%	No.	%		
Sudden Infant Death Syndrome	27	47.4	6	31.6	0	0	33	42.9	47	52.8
Lethal Congenital Malformation	21	36.8	2	10.5	0	0	23	29.9	19	21.3
Infection									6	6.7
Respiratory	2	3.5	6	31.6	0	0	8	10.4		
Meningitis	0	0	1	5.3	1	100.0	2	2.6		
Other	0	0	2	10.5	0	0	2	2.6		
Other	7	12.3	2	10.5	0	0	9	11.7	15	16.9
Unknown	0	0	0	0	0	0	0	0	2	2.2
TOTAL	57	100.0	19	100.0	1	100.0	77	100.0	89	100.0

Excludes births < 500 grams birthweight

The major cause of post-neonatal deaths in Western Australia continues to be Sudden Infant Death Syndrome (42.9%) (Table 24).

Lethal congenital malformation remains the second biggest cause to which 29.9% of post-neonatal deaths were attributed (Table 24). The percentage of infections causing post-neonatal death have increased from 6.7% in 1984 to 15.6% in 1985 which is a cause for concern. This increase was a reflection of the percentage of Aboriginal post-neonatal deaths (47.4%) attributed to infection in 1985 compared with 1984 (14.3%). A breakdown of the types of infection causing post-neonatal death shows that eight out of the twelve were respiratory tract infections. Six out of those eight respiratory infections occurred in babies of Aboriginal mothers. Two babies died of meningitis in the post-neonatal period and two died of other infections (Table 24).

TABLE 25

CAUSE OF POST-NEONATAL DEATH BY MONTHS OF DEATH
IN WESTERN AUSTRALIA IN 1985

	Jan-Mar		Apr-Jun		Jul-Sep		Oct-Dec		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Sudden Infant Death Syndrome	3	9.0	10	30.3	15	45.4	5	15.1	33	100.0
Lethal Congenital Malformation	2	8.7	6	26.1	10	43.5	5	21.7	23	100.0
Infection	1	8.3	7	58.3	2	16.7	2	16.7	12	100.0
Other/unknown	1	11.1	2	22.2	3	33.3	3	33.3	9	100.0
TOTAL	7	9.1	25	32.5	30	39.0	15	19.5	77	100.0

Excludes births < 500 grams birthweight

SOURCE: MIDWIVES' NOTIFICATION SYSTEM
REGISTRAR GENERAL'S OFFICE

Examination of the causes of post-neonatal death by months of the year during which these deaths occurred confirms that most Sudden Infant Deaths (75%) were observed during the cooler months from April to September. Babies with lethal congenital malformations were also more likely to die during this time (Table 25).

5. PERINATAL MORTALITY IN WESTERN AUSTRALIA IN THE 1985 BIRTH COHORT

TABLE 26

STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY BY MATERNAL RACE IN WESTERN AUSTRALIA IN 1985

Type of Death	Maternal Race		
	Aboriginal n=27	Non-Aboriginal n=232	Total n=259
Stillbirth/ 1000 total births	11.2	6.2	6.4
Neonatal/ 1000 livebirths	10.5	4.4	4.7
Perinatal/ 1000 total births	21.6	10.5	11.1

Excludes births < 500 grams birthweight

There were 259 perinatal deaths identified in the 1985 birth cohort which is a perinatal mortality proportion of 11.1/1000 total births (Table 1).

Perinatal mortality for Aboriginals was 21.6 which was double the proportion of 10.5 for non-Aboriginals (Table 26 and Figure II).

Referring back to Table 1, the Kimberley Statistical Division had the highest perinatal mortality (25.3) but there were several other Divisions with high proportions. They are Upper Great Southern (18.0), South Eastern (15.4), Central (14.9) and Midlands (13.0).

There has been a notable increase in the perinatal mortality in Upper Great Southern (10.4) in 1984 and Midlands (7.7) in 1984. Divisions where perinatal mortality has decreased are South Eastern (18.1) in 1984 and the Pilbara (16.3) in 1984. These proportions, however, are based on very small numbers and are therefore expected to be unstable.

TABLE 27

PERINATAL AND INFANT MORTALITY BY MATERNAL AGE,
PLURALITY AND SEX IN WESTERN AUSTRALIA IN 1985

	Perinatal Mortality				Infant Mortality						
	Aboriginal		Non-Aboriginal		Aboriginal		Non-Aboriginal		Total		
	No.	(1)	No.	(1)	No.	(2)	No.	(2)	No.	(2)	
Maternal Age	≤ 15	0	-	1	(38.5)	1	(13.3)	0	-	0	-
	16-19	4	(10.5)	17	16.9	21	15.1	14	14.0	21	15.3
	20-29	16	23.0	135	9.3	151	9.9	86	6.0	108	7.1
	30-39	7	62.5	76	12.1	83	12.9	53	8.5	56	8.8
	> 40	0	-	3	(16.4)	3	(15.6)	1	(5.6)	1	(5.3)
Plurality	Singleton	27	21.9	203	9.4	230	10.1	135	6.3	167	7.4
	Multiple	0	-	29	55.4	29	53.8	19	37.2	19	36.1
Sex	Male	14	22.2	132	11.7	146	12.3	85	7.6	100	8.5
	Female	13	21.0	100	9.3	113	9.9	69	6.4	86	7.6

Excludes births less than 500grams birthweight

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

Perinatal mortality is lowest for women aged 20-29 (9.9/1000 total births) and the risk increases towards the extremes of the fertile age group. This pattern is reflected in proportions for non-Aboriginal women (16.9) but for Aboriginal teenagers perinatal mortality was surprisingly low (10.5) (Table 27).

As expected perinatal mortality for multiple births (53.8) is very much higher than for singleton births (10.1) and as noted earlier in this report, all of the multiple perinatal deaths were caucasians (Table 27).

The greater proportion of perinatal deaths were males (12.3) compared with females (9.9). In both sexes Aboriginal perinatal mortality was double that for non-Aboriginals (Table 27).

TABLE 28

**PERINATAL DEATHS BY MATERNAL RACE AND MATERNAL AGE
IN WESTERN AUSTRALIA IN 1985**

Maternal Age	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
<15	1	0.5	0	0	0	0	1	0.4
16	4	1.8	1	3.7	0	0	5	1.9
17	4	1.8	1	3.7	0	0	5	1.9
18	6	2.7	2	7.4	0	0	8	3.1
19	3	1.4	0	0	0	0	3	1.6
<19	18	8.2	4	14.8	0	0	22	8.9
20-24	52	23.4	9	33.3	3	25.0	64	24.7
25-29	75	33.8	7	25.9	5	41.7	87	33.6
30-34	57	25.7	5	18.5	2	16.7	64	24.7
35-39	16	7.2	2	7.4	1	8.3	19	7.3
40-44	2	0.9	0	0	1	8.3	3	1.6
≥45	0	0	0	0	0	0	0	0
TOTAL	220	100.0	27	100.0	12	100.0	259	100.0

Excludes births < 500 grams birthweight

Twenty two perinatal deaths (8.9%) were to women in their teenage years and the same percentage of perinatal deaths were to women over 35 years of age (Table 28).

TABLE 29

**PERINATAL DEATHS BY MATERNAL RACE AND
BIRTHWEIGHT DISTRIBUTION IN WESTERN AUSTRALIA IN 1985**

Birthweight (grams)	Maternal Race							
	Caucasian		Aboriginal		Other		Total	
	No.	(1)	No.	(1)	No.	(1)	No.	(1)
500-999	74	672.7	13	764.7	4	(571.4)	91	679.1
1000-1499	30	232.6	3	(130.4)	0	-	33	206.3
1500-1999	20	88.5	1	(40.0)	2	(117.6)	23	85.8
2000-2499	26	34.8	2	(19.0)	1	(23.3)	29	32.4
<2500	150	123.8	19	111.8	7	93.3	176	120.8
2500-2999	36	11.1	1	(3.6)	2	(7.5)	39	10.3
3000-3499	21	2.7	5	10.6	2	(3.8)	28	3.2
3500-3999	8	1.2	0	-	1	(3.3)	9	1.3
4000-4499	5	2.7	2	(33.9)	0	-	7	3.6
≥4500	0	-	0	-	0	-	0	-
TOTAL	220	10.6	27	21.6	12	9.8	259	11.1

Excludes births < 500 grams birthweight

(1) Proportion/1000 total births.

() Where n<5 proportion has been bracketed.

As in 1984,¹ two thirds of all perinatal deaths were babies of low birthweight (< 2500 grams) (Table 29).

Table 29 demonstrates the expected occurrence that perinatal mortality in all racial groups rises as birthweight falls, particularly in categories <3000 grams. Proportions in races other than caucasian are based on small numbers and are therefore unreliable. This table shows that the optimal birthweight group is between 3500-4000 grams.

TABLE 30

**NEONATAL, POST-NEONATAL AND INFANT MORTALITY BY
MATERNAL RACE IN WESTERN AUSTRALIA IN 1985**

Type of Death	Maternal Race		
	Aboriginal n=32	Non- Aboriginal n=154	Total n=186
Neonatal/ 1000 livebirths	10.5	4.4	4.7
Post-Neonatal/ 1000 livebirths	15.4	2.6	3.3
Infant/ 1000 livebirths	25.9	7.0	8.0

Excludes births < 500 grams birthweight

6. INFANT MORTALITY IN WA IN THE 1985 BIRTH COHORT

There were 186 infant deaths identified amongst the 1985 livebirths (Table 17). Of these, 109 were neonatal deaths and 77 were post-neonatal deaths. The infant mortality proportion for Western Australia in 1985 was 8.0/1000 livebirths (Table 17 and Table 30).

The Aboriginal infant mortality was 25.9 which when compared with the proportion for non-Aboriginals (7.0) is three and a half times greater (Table 30 and Figure V).

The Statistical Divisions with the highest infant mortality were Kimberley (27.7) and Upper Great Southern (15.9) (Table 17).

TABLE 31

**INFANT DEATHS BY MATERNAL RACE AND MATERNAL AGE
IN WESTERN AUSTRALIA IN 1985**

Maternal Age	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
≤15	0	0	0	0	0	0	0	0
16	3	2.0	0	0	0	0	3	1.6
17	3	2.0	1	3.1	0	0	4	2.2
18	4	2.6	5	15.6	0	0	9	4.8
19	4	2.6	1	3.1	0	0	5	2.7
≤19	14	9.2	7	21.8	0	0	21	11.3
20-24	33	21.9	15	46.9	0	0	48	25.8
25-29	52	34.4	7	21.9	1	33.3	60	32.3
30-34	41	27.2	2	6.3	2	66.7	45	24.2
35-39	10	6.6	1	3.1	0	0	11	5.9
40-44	1	0.7	0	0	0	0	1	0.5
≥45	0	0	0	0	0	0	0	0
TOTAL	151	100.0	32	100.0	3	100.0	186	100.0

Excludes births < 500 grams birthweight

Eleven percent of infant deaths were to teenage women (Table 31).

Women in the 16-19 year age group are at greatest risk statistically to have a baby die within 12 months. Although infant mortality for these Aboriginal teenagers (18.4/1000 livebirths) is higher than for non-Aboriginals (14.0), the proportion for Aboriginal women in their twenties (31.9) is even greater (Table 27).

TABLE 32

**INFANT DEATHS BY MATERNAL RACE AND CONJUGAL STATE
IN WESTERN AUSTRALIA IN 1985**

Conjugal State	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Single	20	13.2	8	25.0	0	0	28	15.0
Married/defacto	129	85.4	24	75.0	3	100.0	156	83.9
Other*	2	1.3	0	0	0	0	2	1.1
TOTAL	151	99.9	32	100.0	3	100.0	186	100.0

Excludes births < 500 grams birthweight
*Other includes separated, divorced and widowed

Sixteen percent of infant deaths were to women who were socially unsupported by a male partner (Table 32).

TABLE 33

**INFANT DEATHS BY MATERNAL RACE AND PARITY
IN WESTERN AUSTRALIA IN 1985**

Parity	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
0	67	44.4	6	18.8	0	0	73	39.2
1-2	68	45.0	15	46.8	2	66.7	85	45.7
3-5	16	10.6	8	25.0	1	33.3	25	13.4
≥6	0	0	3	9.4	0	0	3	1.6
TOTAL	151	100.0	32	100.0	3	100.0	186	99.9

Excludes births < 500 grams birthweight

Thirty nine percent of infant deaths were to primiparous women and 3 infant deaths occurred to grand multiparous women (Table 33).

TABLE 34

**INFANT DEATHS BY MATERNAL RACE AND PLURALITY
IN WESTERN AUSTRALIA IN 1985**

Plurality	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Singleton	132	87.4	32	100.0	3	100.0	167	89.8
Twins	12	7.9	0	0	0	0	12	6.4
Triplets	7	4.6	0	0	0	0	7	3.8
TOTAL	151	99.9	32	100.0	3	100.0	186	100.0

Excludes births < 500 grams birthweight

Infant mortality amongst multiple births (36.1/1000 total births) is much higher than for singleton births (7.4) (Table 27).

All 19 multiple infant deaths were caucasian (Table 34).

TABLE 35

INFANT DEATHS BY MATERNAL RACE AND SEX
IN WESTERN AUSTRALIA IN 1985

Sex	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
Male	83	55.0	15	46.9	2	66.7	100	53.8
Female	68	45.0	17	53.1	1	33.3	86	46.2
TOTAL	151	100.0	32	100.0	3	100.0	186	100.0

Excludes births < 500 grams birthweight

Table 35 shows that 53.8% of all infant deaths were males. This trend has been demonstrated throughout this report.

Although infant mortality amongst males (8.5/1000 livebirths) is higher than for females (7.6), this pattern is not shown in the proportion for Aboriginals. The difference in the numbers however was so small that it would not have been significant (Table 27).

TABLE 36

**INFANT MORTALITY BY MATERNAL RACE AND
BIRTHWEIGHT DISTRIBUTION IN WESTERN AUSTRALIA IN 1985**

Birthweight (grams)	Maternal Race							
	Caucasian		Aboriginal		Other		Total	
	No.	(1)	No.	(1)	No.	(1)	No.	(1)
500-999	39	534.2	8	727.3	1	(250.0)	48	545.5
1000-1499	16	140.4	1	(47.6)	0	-	17	118.9
1500-1999	7	33.2	2	(83.3)	0	-	9	36.0
2000-2499	19	26.0	2	(19.4)	0	-	21	24.0
<2500	81	71.8	13	81.8	1	(14.5)	95	70.1
2500-2999	20	6.2	4	(14.4)	0	-	24	6.4
3000-3499	29	3.7	9	19.1	1	(1.9)	39	4.4
3500-3999	17	2.7	5	19.7	1	(3.4)	23	3.3
4000-4499	4	(2.2)	1	(17.5)	0	-	5	2.6
≥4500	0	-	0	-	0	-	0	-
TOTAL	151	7.3	32	25.6	3	(2.45)	186	8.0

Excludes births < 500 grams birthweight

(1) Proportion/1000 livebirths.

() Where n<5 proportion has been bracketed.

Aboriginal mortality in birthweight categories 3000-3999 grams was high compared with caucasians and reflected the post-neonatal proportion (Table 36).

TABLE 37

INFANT DEATH BY MATERNAL RACE AND AGE AT DEATH
IN WESTERN AUSTRALIA IN 1985

Age at Death in Days	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
0-28	94	62.3	13	40.6	2	66.7	109	58.6
29-59	10	6.6	5	15.6	0	0	15	8.1
60-90	11	7.3	3	9.4	1	33.3	15	8.1
91-120	13	8.6	2	6.3	0	0	15	8.1
121-151	8	5.3	2	6.3	0	0	10	5.4
152-181	5	3.3	1	3.1	0	0	6	3.2
182-212	3	2.1	2	6.3	0	0	5	2.7
213-242	3	2.0	3	9.4	0	0	6	3.2
243-273	0	0	1	3.1	0	0	1	0.5
274-303	1	0.7	0	0	0	0	1	0.5
304-334	2	1.3	0	0	0	0	2	1.1
335-365	1	0.7	0	0	0	0	1	0.5
TOTAL	151	100.1	32	100.1	3	100.0	186	100.0

Excludes births < 500 grams birthweight

Examination of infant deaths by age at death discloses a similar trend to 1984.¹ Over half (58.6%) of infant deaths were neonatal deaths and 91.5% of infant deaths occurred within 6 months or 182 days (Table 37).

The major causes of infant deaths in Western Australia in the 1985 birth cohort were low birthweight, lethal congenital malformation, Sudden Infant Death Syndrome and infection (Table 16 and Table 24).

7. BIRTHS IN WESTERN AUSTRALIA IN 1985

7.1 Births

In 1985 there were 23,288 babies born whose birthweight was >500 grams. These babies were born to 23,015 women.²

Ninety nine percent of babies were born in hospital, 72.7% (16,935) in metropolitan hospitals and 26.4% (6,139) in country hospitals. Of the non-hospital births, 0.3% (69) were unplanned (born before arrival) and 0.6% (145) were planned supervised homebirths.²

Examination of the 23,288 births showed that 20,818 (89.4%) were born to caucasian mothers, 1,249 (5.4%) were to Aboriginal mothers and 1,221 (5.2%) were to mothers of 'other' races.²

Of the 23,288 total births in Western Australia in 1985, 22,749 (97.7%) were singleton births and 539 (2.3%) were multiple. Included in the multiple births were 8 sets of triplets and 1 single twin whose birthweight was >500g. Thus, 266 pregnancies resulted in 539 babies.²

A breakdown of the 22,749 singleton births shows 20,818 (91.5%) were to Caucasian mothers, 1,249 (5.5%) were to Aboriginal mothers and 1,221 (5.4%) were to mothers of other races. Amongst the 539 multiple births, 499 (92.6%) were to caucasian women, 16 (3.0%) were to Aboriginal women and 24 (4.4%) were to women of other races (Table 5).

Analysis of the condition at birth by plurality shows a singleton stillbirth proportion of 6.1/1000 total singleton births and a multiple stillbirth proportion of 22.3/1000 total multiple births. All of the multiple stillbirths were to Caucasian women (Table 5).

Teenage confinements accounted for 6.3% of all confinements in Western Australia in 1985 (Table 39).² There was a greater percentage of Aboriginal (34%) than non-Aboriginal (4.7%) teenage mothers. Only 0.5% of all caucasian women were aged 16 or younger compared with 9.2% of Aboriginal women. These maternal age differences are further demonstrated by the fertility rates in Table 40 and Figure VI.

The majority of births in Western Australia in 1985 were to women whose usual residence was within the Perth Statistical Division (66.9%) (Table 38), however the crude birth rate for this Division was the lowest in the State (15.5 livebirths/1000 total population) (Figure 1).

Of the 23,288 total births, 6.3% were of low birthweight (<2500 grams) and 1.3% were of very low birthweight (<1500 grams).²

Low birthweight amongst Aboriginal births was 13.6% which was more than double that of non-Aboriginal births (6%).²

These percentages are similar to 1984 figures.¹

7.2 Livebirths

There were 23,138 livebirths in Western Australia in 1985. Included in this total were 20,692 births to Caucasian women, 1,235 to Aboriginal women and 1,211 to women of 'other' races (Table 27).

7.3 Crude Birth Rate

The overall crude birth rate for Western Australia in 1985 was 16.4 livebirths/1000 total population (Figure 1).

The crude birth rate for Aboriginals was 33.8 and for non-Aboriginals it was 16.0.

All rural Statistical Divisions of maternal residence had a higher crude birth rate than Perth. Kimberley Division recorded the highest in the State for 1985 with a crude birth rate of 24.5.

TABLE 38

LIVEBIRTHS AND TOTAL BIRTHS BY STATISTICAL DIVISION
OF MATERNAL RESIDENCE AND MATERNAL RACE IN WESTERN AUSTRALIA IN 1985

Statistical Division	Maternal Race															
	Caucasian				Aboriginal				Other				Total			
	Live-born		Total		Live-born		Total		Live-born		Total		Live-born		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Perth	14201	68.6	14283	68.6	334	27.0	336	26.9	947	78.2	951	77.9	15482	66.9	15570	66.9
Southwest	1964	9.5	1978	9.5	51	4.1	51	4.1	31	2.6	31	2.5	2046	8.8	2060	8.8
Lower Great Southern	734	3.5	737	3.5	28	2.3	28	2.2	23	1.9	24	2.0	785	3.4	789	3.4
Upper Great Southern	409	2.0	411	2.0	29	2.3	29	2.3	3	0.2	3	0.2	441	1.9	443	1.9
Midlands	777	3.8	782	3.8	55	4.5	55	4.4	9	0.7	9	0.7	841	3.6	846	3.6
South Eastern	820	4.0	829	4.0	110	8.9	112	9.0	30	2.5	30	2.5	960	4.1	971	4.2
Central	785	3.8	791	3.8	177	14.3	181	14.5	33	2.7	35	2.9	995	4.3	1007	4.3
Pilbara	813	3.9	814	3.9	124	10.0	126	10.1	121	10.0	124	10.2	1058	4.6	1064	4.6
Kimberley	172	0.8	176	0.8	327	26.5	331	26.5	7	0.6	7	0.6	506	2.2	514	2.2
Outside WA	17	0.1	17	0.1	0	0	0	0	7	0.6	7	0.6	24	0.1	24	0.1
TOTAL	20692	100.0	20818	100.0	1235	100.0	1249	100.0	1211	100.0	1221	100.0	23138	100.0	23288	100.0

Excludes births less than 500 grams birthweight

TABLE 39

**MATERNAL AGE BY MATERNAL RACE FOR WOMEN CONFINED
IN WESTERN AUSTRALIA IN 1985**

Maternal Age	Maternal Race						Total	
	Caucasian		Aboriginal		Other			
	No.	%	No.	%	No.	%	No.	%
<13	1	0.0	3	0.2	0	0	4	0.0
14	5	0.0	15	1.2	0	0	20	0.1
15	18	0.1	31	2.5	2	0.2	51	0.2
16	85	0.4	66	5.3	2	0.2	153	0.7
17	166	0.8	87	7.0	5	0.4	258	1.1
18	269	1.3	119	9.6	5	0.4	393	1.7
19	452	2.2	106	8.5	14	1.2	572	2.5
<19	996	4.8	427	34.4	28	2.3	1451	6.3
20-24	5407	26.3	451	36.3	252	20.8	6110	26.5
25-29	8268	40.2	242	19.5	441	36.5	8951	38.9
30-34	4497	21.9	94	7.6	358	29.6	4949	21.5
35-39	1242	6.0	18	1.4	109	9.0	1369	5.9
40-44	149	0.7	8	0.6	21	1.7	178	0.8
≥45	6	0.0	1	0.1	0	0	7	0.0
TOTAL	20565	100.0	1241	100.0	1209	100.0	23015	100.0

Excludes births < 500 grams birthweight

Teenage confinements accounted for 6.3% of all confinements in Western Australia in 1985 (Table 39).

TABLE 40

FERTILITY RATES FOR ABORIGINAL AND NON-ABORIGINAL WOMEN
IN WESTERN AUSTRALIA IN 1985

Maternal Age	Aboriginal			Non-Aboriginal			Total		
	Total Births	Population	Fertility Rate (1)	Total Births	Population	Fertility Rate (1)	Total Births	Population	Fertility Rate (1)
	15-19	413	2169	190.4	1025	56530	18.1	1438	58699
20-24	453	1890	239.7	5717	57864	98.8	6170	59754	103.3
25-29	244	1504	162.2	8806	57969	151.9	9050	59473	152.2
30-34	94	1160	81.0	4936	57757	85.5	5030	58917	85.4
35-39	18	964	18.7	1366	53716	25.4	1384	54680	25.3
40-44	8	767	10.4	177	41542	4.3	185	42309	4.4
TOTAL	1230	8454	145.5	22027	325378	67.7	23257	333832	69.7

Excludes births less than 500 grams birthweight

(1) Fertility rate-total births/1000 woman-years

SOURCE: MIDWIVES' NOTIFICATION SYSTEM
AUSTRALIAN BUREAU OF STATISTICS

7.4 Fertility Rates

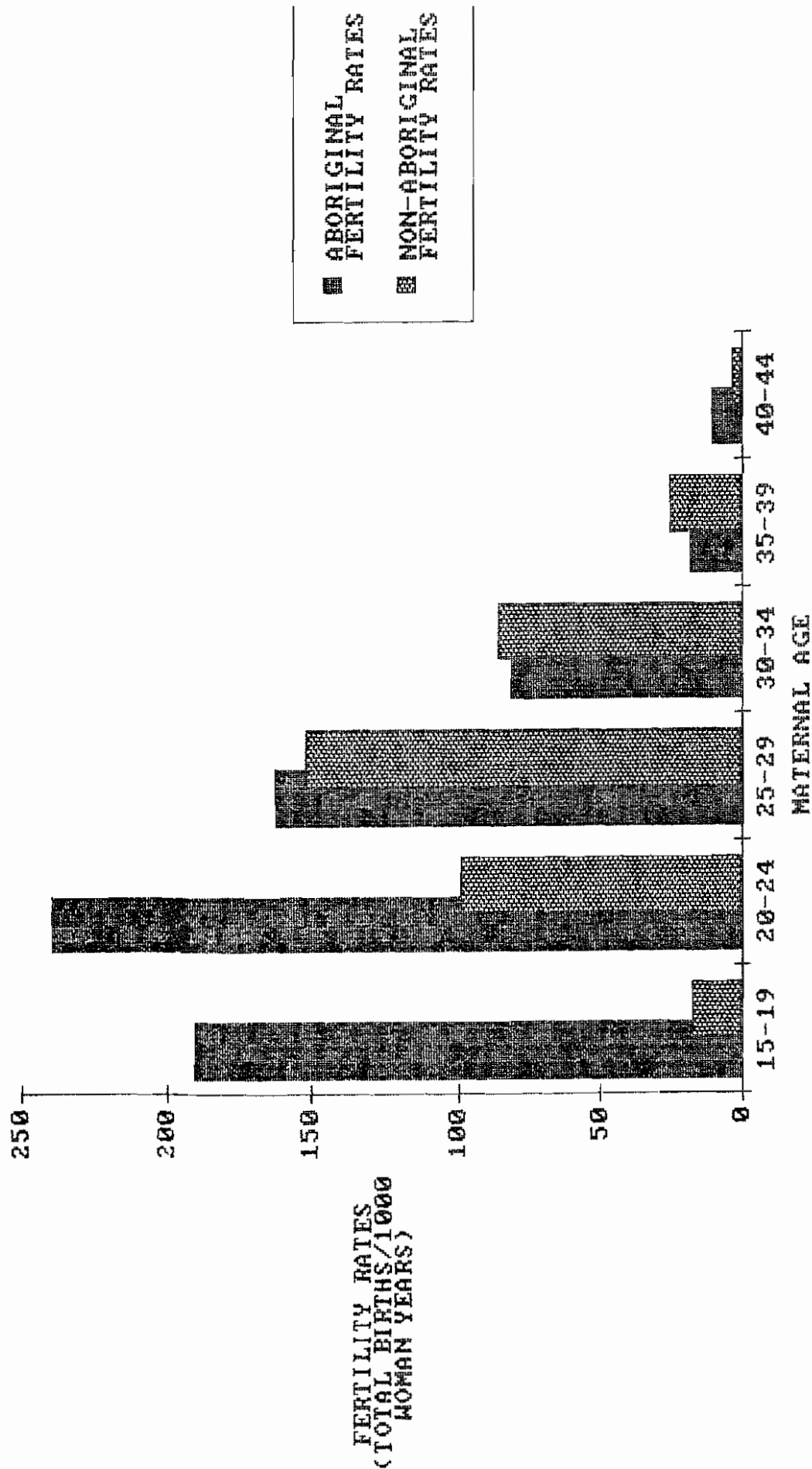
The overall fertility rate in Western Australia in 1985 was 69.7 total births/1000 woman-years (Table 40) compared with a rate of 67.4 in 1984.¹ The fertility rate for Aboriginal women was 145.5 which is more than twice the rate for non-Aboriginal women (67.7) (Table 40).

The overall teenage fertility rate of 24.5 is largely influenced by the Aboriginal rate of 190.4 which is more than 10 times greater than the rate for non-Aboriginal teenagers (Table 40 and Figure VI).

The high fertility rate for Aboriginal teenagers concurs with the low abortion ratio for this group of women.³

FIGURE VI

FERTILITY RATES BY AGE FOR ABORIGINAL AND
NON-ABORIGINAL WOMEN IN WESTERN AUSTRALIA IN
1985



Excludes births less than 500 grams birthweight

SOURCE: MIDWIVES' NOTIFICATION SYSTEM
AUSTRALIAN BUREAU OF STATISTICS

TABLE 41

LIVEBIRTHS, STILLBIRTHS AND TOTAL BIRTHS FOR ABORIGINAL AND NON-ABORIGINAL BIRTHS
IN WESTERN AUSTRALIA, 1980-1985

Year	Livebirths						Stillbirths						Total					
	Aboriginal		Non-Aboriginal		Total		Aboriginal		Non-Aboriginal		Total		Aboriginal		Non-Aboriginal		Total	
	No.	%	No.	%	No.	(1)	No.	(2)	No.	(2)	No.	(2)	No.	%	No.	%	No.	%
1980	1029	5.0	19595	95.0	20624	16.2	12	11.5	143	7.2	155	7.5	1041	5.0	19738	95.0	20779	100.0
1981	1093	5.0	20948	95.0	22041	18.8	22	19.7	131	6.2	153	6.9	1115	5.0	21079	95.0	22194	100.0
1982	1113	5.0	21071	95.0	22184	16.3	16	14.2	139	6.6	155	6.9	1129	5.1	21210	94.9	22339	100.0
1983	1135	5.0	21737	95.0	22872	16.9	14	12.2	143	6.5	157	6.8	1149	5.0	21880	95.0	23029	100.0
1984	1176	5.2	21607	94.8	22783	15.6	16	13.4	118	5.4	134	5.8	1192	5.2	21725	94.8	22917	100.0
1985	1235	5.3	21903	94.7	23138	16.4	14	11.2	136	6.2	150	6.4	1249	5.4	22039	94.6	23288	100.0

Excludes births less than 500 grams birthweight

- (1) CRUDE BIRTH RATE - livebirths/1000 person years
(2) STILLBIRTH PROPORTION/1000 total births

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

8. BIRTHS, PERINATAL AND INFANT MORTALITY IN WESTERN AUSTRALIA, 1980-1985

8.1 Livebirths, Stillbirths and Total Births, 1980-1985

Table 41 demonstrates that the crude birth rate has remained relatively static since 1980. The two notable variations were a rise in 1981 and a fall in 1984.

Table 41 also shows that over the 6 year period from 1980-1985 inclusive, there has been very little change in the percentage of total births or livebirths by race.

There has been a decrease in the overall stillbirth proportion from 7.5 in 1980 to 6.4 in 1985 although the lowest proportion was recorded in 1984. The Aboriginal stillbirth proportion has fluctuated from 19.7 in 1981 to 11.2 in 1985. It is to be hoped that the 1985 figure represents the beginning of a downward trend in Aboriginal stillbirths for the coming years.

TABLE 42

STILLBIRTHS, NEONATAL AND PERINATAL MORTALITY FOR ABORIGINAL
AND NON-ABORIGINAL BIRTHS IN WESTERN AUSTRALIA, 1985

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

Excludes births less than 500 grams birthweight

1980-1983 based on year of death

1984-1985 based on year of birth

(1) Stillbirth Proportions/1000 total births

(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 Stillbirths, Neonatal and Perinatal Mortality, 1980-1985

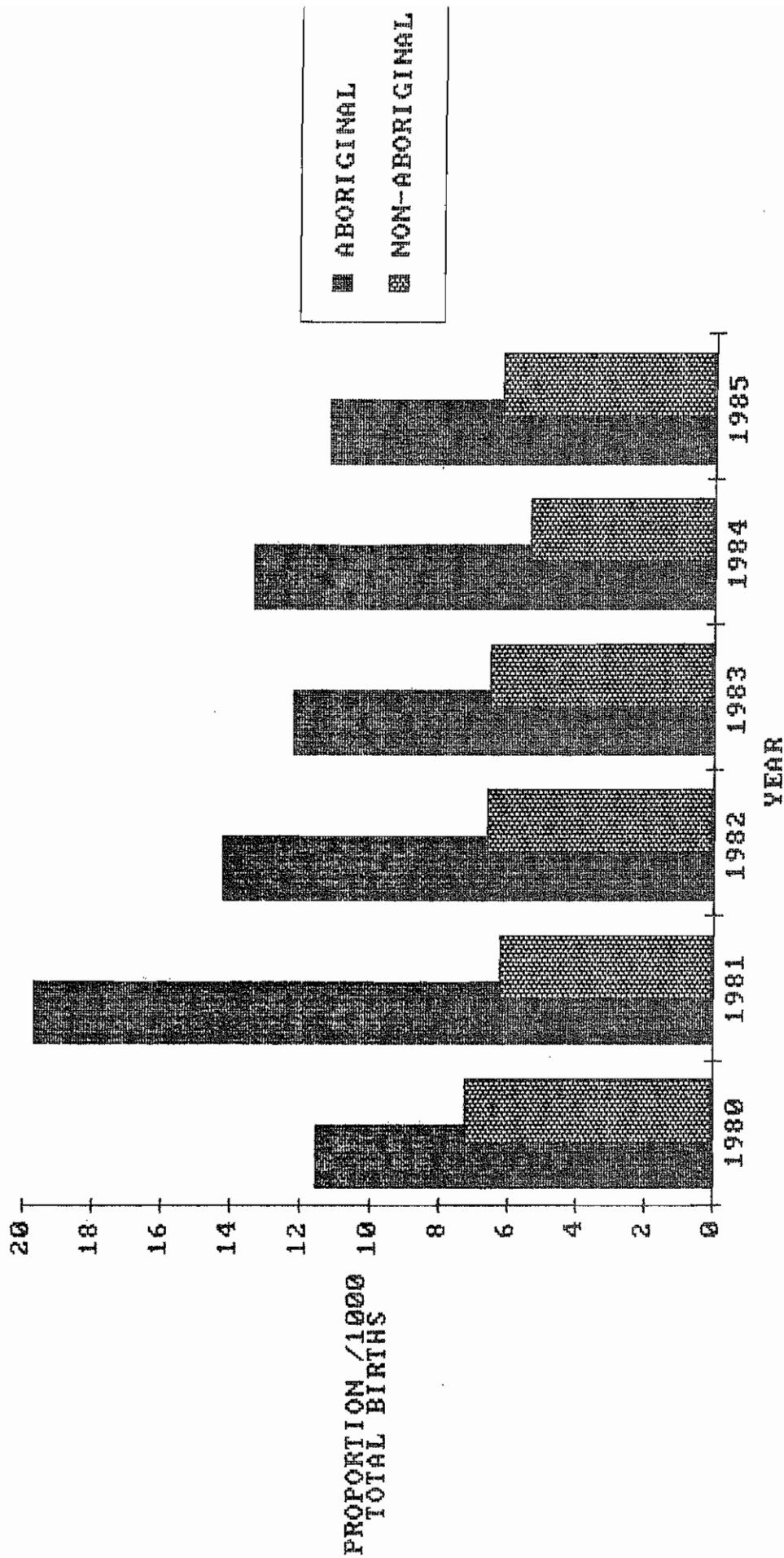
The downward trend of Western Australian stillbirths from 1980 (7.5/1000 total births) to 1984 (5.8) did not continue into 1985 when the stillbirth proportion was 6.4 (Table 42).

A breakdown of this proportion by race revealed that the non-Aboriginal stillbirth proportion increased from 5.4 in 1984 to 6.2 in 1985, but for Aboriginals it decreased from 13.42 in 1984 to 11.2 in 1985 (Table 42). The Aboriginal stillbirth proportion remained around twice that for non-Aboriginals over the six year period as graphically represented in Figure VII.

Neonatal mortality for Aboriginals and non-Aboriginals fell in 1985 compared with the preceding year (Table 42). Neonatal mortality for Aboriginal babies in 1985 was 10.5/1000 livebirths which was almost half the proportion of 1980 (20.4) but was not as low as it was in 1983 (9.7). These fluctuations in proportions are to be expected because only small numbers are involved. Neonatal mortality for Aboriginals remains at more than twice that for non-Aboriginals over the six year period (Figure VIII).

Comparison of perinatal mortality for 1984 and 1985, the two years of the birth cohort where denominators and ascertainment have been similarly accurate, revealed that the overall proportion has increased from 10.9/1000 total births in 1984 to 11.1 in 1985. As reflected in the stillbirth proportion, this increase was observed in non-Aboriginal perinatal mortality (10.5 in 1985 up from 10.1 in 1984) and not in Aboriginal mortality (21.6 in 1985 down from 26.0 in 1984). Aboriginal perinatal mortality, however, remains at more than twice that for non-Aboriginals (Figure IX).

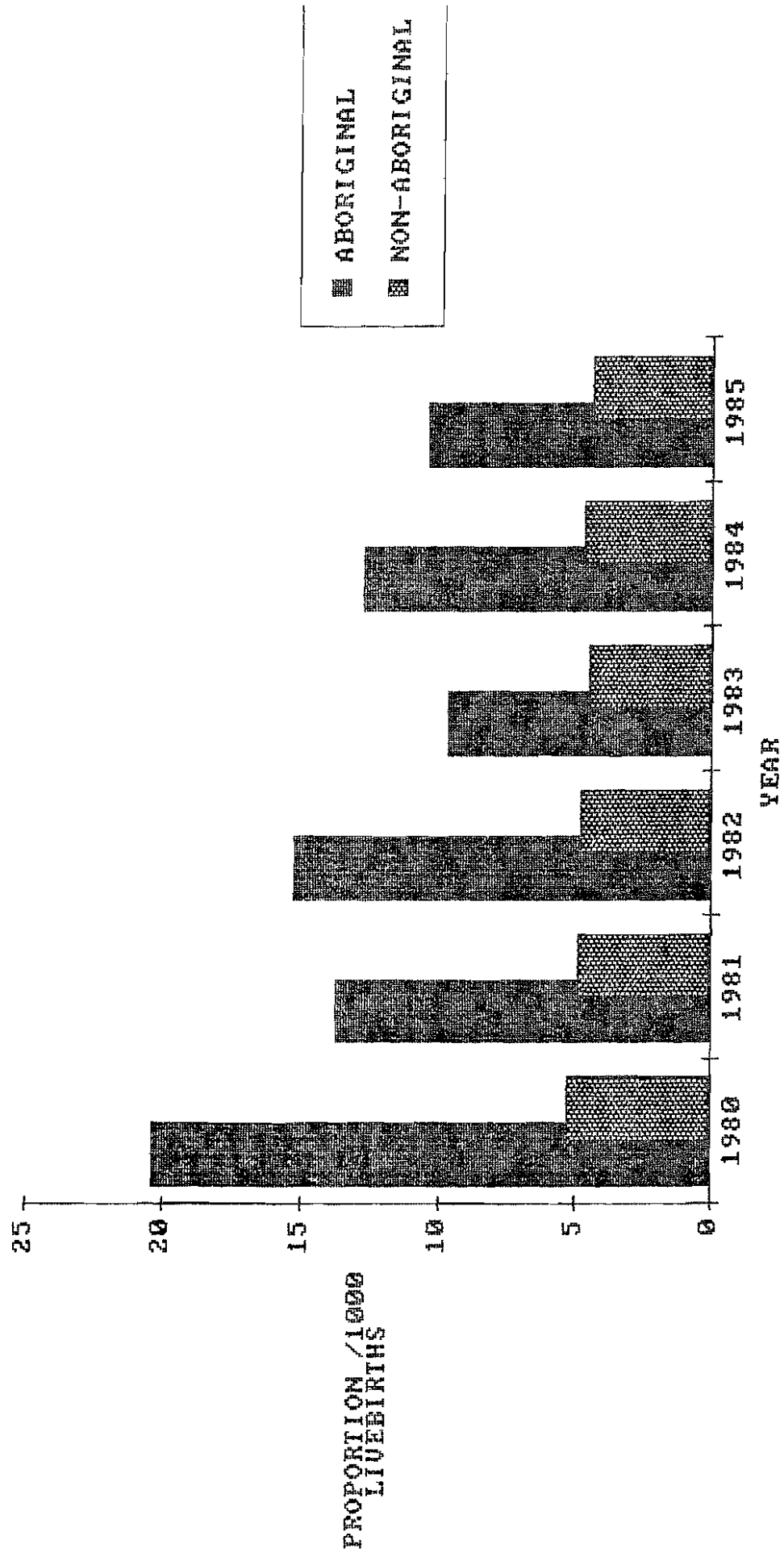
STILLBIRTH PROPORTION FOR ABORIGINAL
AND NON-ABORIGINAL BIRTHS IN WESTERN
AUSTRALIA, 1980-1985



Excludes births less than 500 grams birthweight
SOURCE: MIDWIVES' NOTIFICATION SYSTEM
REGISTRAR GENERAL'S OFFICE

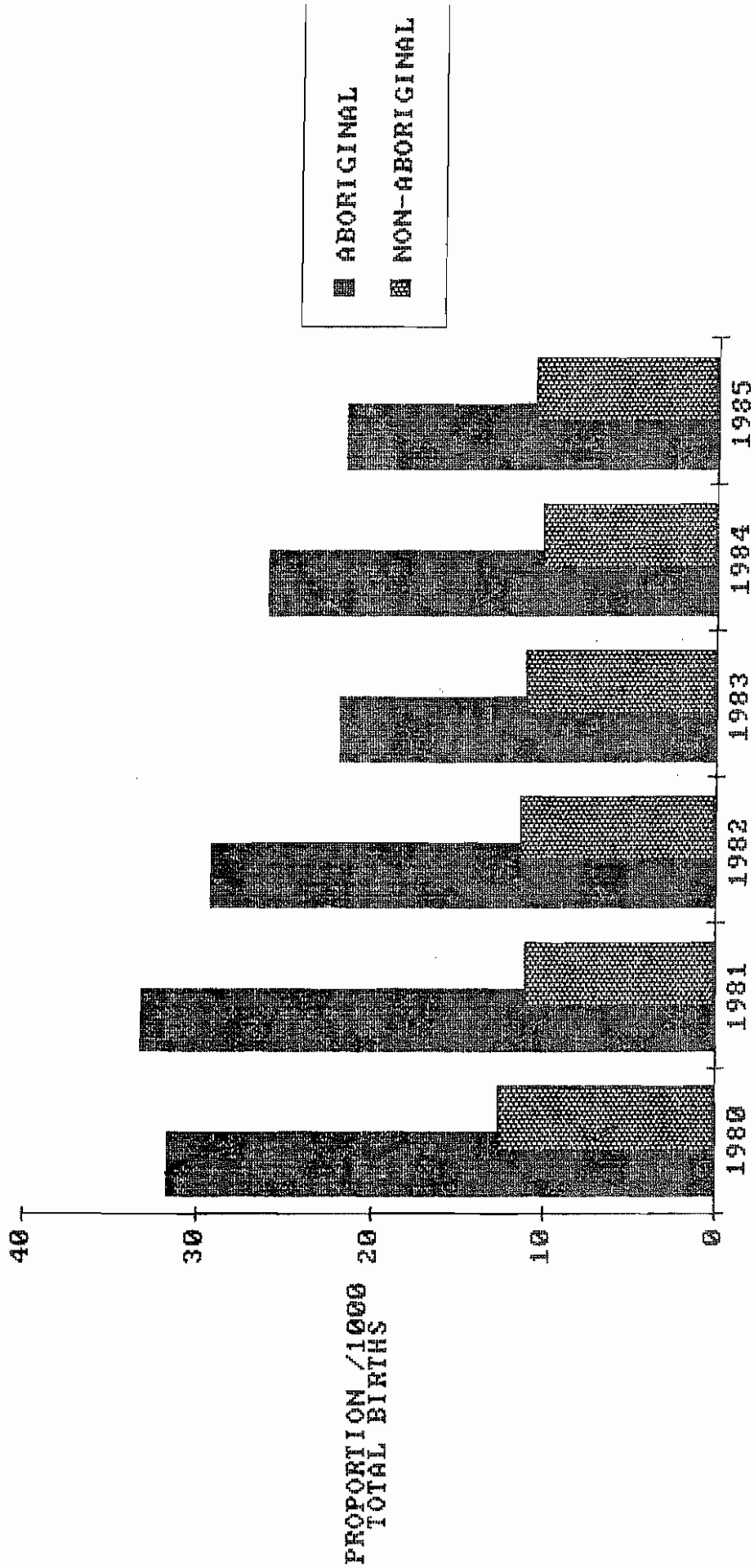
FIGURE VIII

NEONATAL MORTALITY FOR ABORIGINAL AND
NON-ABORIGINAL BIRTHS IN WESTERN
AUSTRALIA, 1980-1985



Excludes births less than 500 grams birthweight
SOURCE: MIDWIVES' NOTIFICATION SYSTEM
REGISTRAR GENERAL'S OFFICE
COMMUNITY AND CHILD HEALTH SERVICES

PERINATAL MORTALITY FOR ABORIGINAL AND
NON-ABORIGINAL BIRTHS IN WESTERN
AUSTRALIA, 1980-1985



Excludes births less than 500 grams birthweight
SOURCE: MIDWIVES' NOTIFICATION SYSTEM
REGISTRAR GENERAL'S OFFICE
COMMUNITY AND CHILD HEALTH SERVICES

TABLE 43

NEONATAL, POST-NEONATAL AND INFANT MORTALITY FOR ABORIGINAL
AND NON-ABORIGINAL BIRTHS IN WESTERN AUSTRALIA, 1985

Year	Neonatal				Post-neonatal Deaths				Infant Deaths										
	Aboriginal		Non-Aboriginal		Aboriginal		Non-Aboriginal		Aboriginal		Non-Aboriginal		Total						
	No.	(1)	No.	(1)	No.	(2)	No.	(2)	No.	(3)	No.	(3)	No.	(3)					
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	15.3	58	2.6	77	3.3	32	25.9	154	7.0	186	8.0	
1986		10.6		5.2															

Excludes births less than 500 grams birthweight

1980-1983 based on year of death

1984-1985 based on year of birth

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

(2) Post-neonatal Death Proportions/1000 livebirths

(3) Infant Death Proportion/1000 Livebirths

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

8.3 Neonatal, Post-neonatal and Infant Mortality, 1980-1985

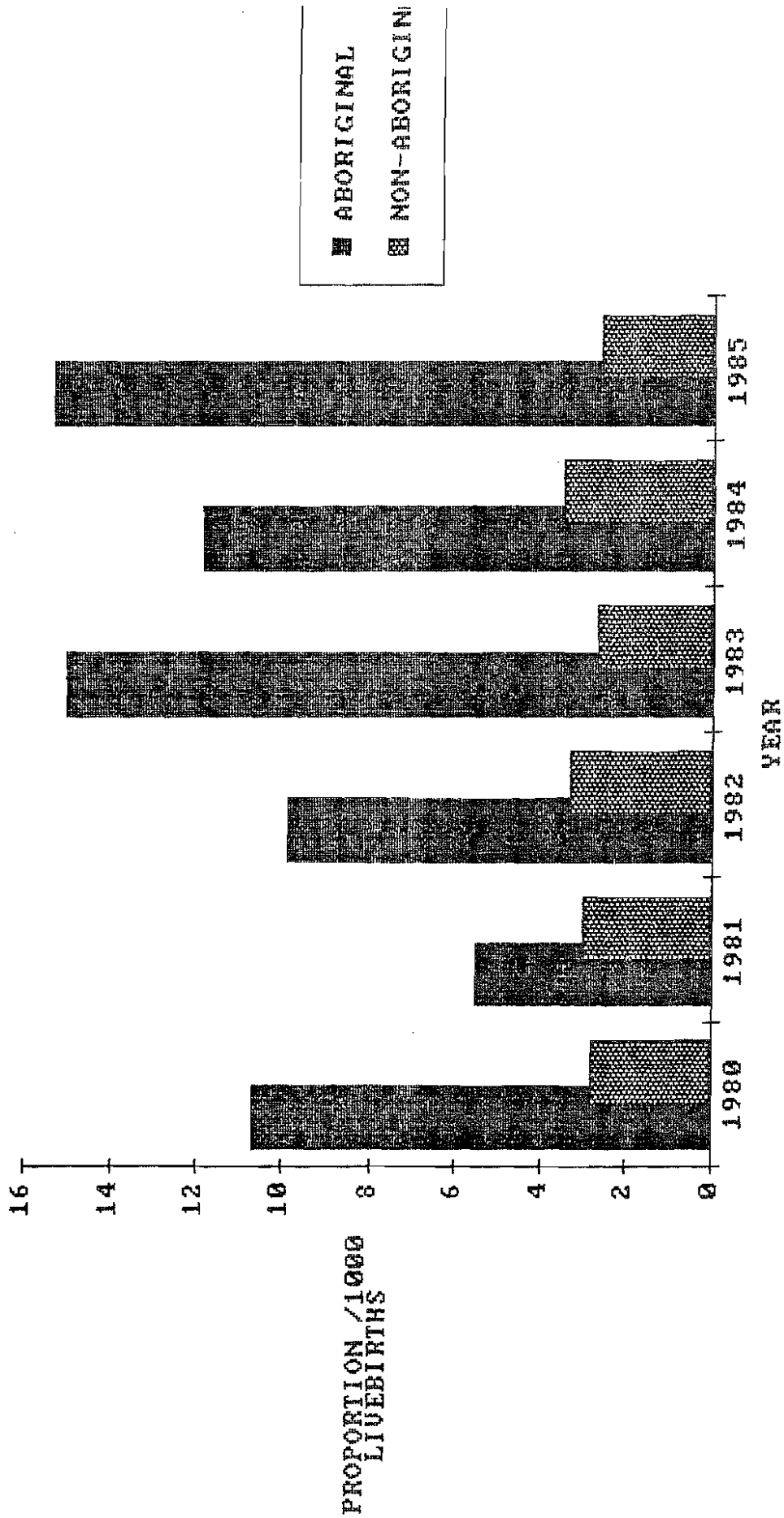
The infant mortality proportion in Western Australia in 1985 was 8.0/1000 livebirths which was equal to 1983 and the lowest proportion recorded (Table 43).

Infant mortality identified by race however disclosed that the improvement was only seen in the non-Aboriginal group. Aboriginal infant mortality increased slightly from 24.7 in 1983 and 1984 to 25.9 in 1985 (Table 43 and Figure XI).

This increase in Aboriginal infant mortality was attributed to the increased proportion of Aboriginal post-neonatal deaths (Figure X). A closer scrutiny of the causes of Aboriginal post-neonatal deaths in Table 24 showed an increase in the number and percentage of babies who died as a result of infection. This identified problem reflects the poor social conditions in which these infants live and is therefore potentially preventable through efforts to improve living standards.⁴

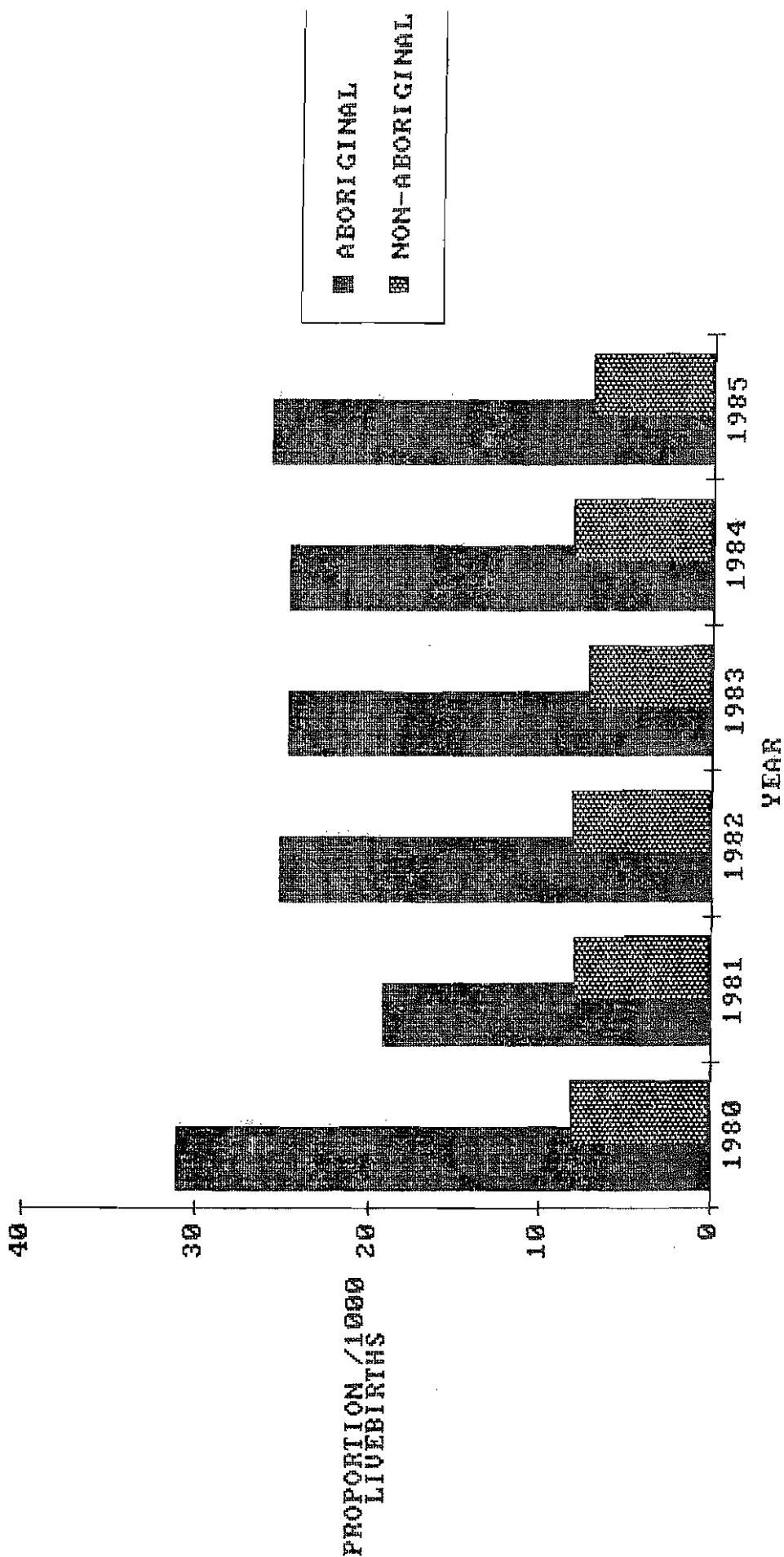
FIGURE X

POSTNEONATAL MORTALITY FOR ABORIGINAL AND NON-ABORIGINAL BIRTHS IN WESTERN AUSTRALIA, 1980-1985



Excludes births less than 500 grams birthweight
 SOURCE: MIDWIVES' NOTIFICATION SYSTEM
 REGISTRAR GENERAL'S OFFICE
 COMMUNITY AND CHILD HEALTH SERVICES

INFANT MORTALITY FOR ABORIGINAL AND
NON-ABORIGINAL BIRTHS IN WESTERN
AUSTRALIA, 1980-1985



Excludes births less than 500 grams birthweight
SOURCE: MIDWIVES' NOTIFICATION SYSTEM
REGISTRAR GENERAL'S OFFICE
COMMUNITY AND CHILD HEALTH SERVICES

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NOTIFICATION OF CASE ATTENDED 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

20 other () H

21 Medical Conditions:

LABOUR AND DELIVERY

23 Onset of Labour:

spontaneous () A

augmented () C

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 Spontaneous Respiration (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 (whole days 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

44246/11/85 - 4M SETS - S:7002

R.G. 364

MEDICAL CERTIFICATE OF CAUSE OF PERINATAL DEATH

To be completed in respect of—
 (i) a child not born alive, of at least 20 weeks gestation or 400 grammes weight
 (ii) a live born child dying within twenty-eight days after birth

Note: Please in relevant boxes thus
PARTICULARS RELATING TO MOTHER

For Office Use Only	
Registration Number	
3	<input type="text"/>
2	<input type="text"/>
8	<input type="text"/>
6	<input type="text"/>
9	<input type="text"/>
10	<input type="text"/>
11	<input type="text"/>
12	<input type="text"/>
14	<input type="text"/>
4	<input type="text"/>
7	<input type="text"/>

1. Full Name..... 2. Age..... years
 3. Address of usual residence.....
 4. Parity.....

PARTICULARS RELATING TO CHILD ABORIGINAL: YES NO

5. Name, if given.....
 6. Sex: Male Female
 7. Place of death.....
 8. Time and date of birth..... a.m. p.m. 19.....
 9. This birth was: Single Twin Triplet
 10. Weight at birth..... grammes
 11. Period of gestation..... completed weeks from first day of last menstrual period to date of delivery

12. HEART BEAT CEASED:
 (a) Before labour commenced
 (b) During labour but before delivery
 (c) Before delivery but not known whether before or during labour
 (d) After delivery
 (e) Not known whether before or after delivery

If heart beat ceased before labour commenced, please estimate how long before--
 hours or days
 If heart beat ceased after delivery, please state time—
 a.m. and date.....
 p.m.

13. BREATHING:
 Did the child breathe after complete expulsion or extraction from the mother?
 Yes No

CAUSE OF DEATH

14. Post mortem: carried out ; to be carried out Yes No
 Is cause of death shown below based on post mortem Yes No

PART I
A. CAUSES IN CHILD OR FOETUS
 Disease or condition directly leading to death.....
 due to †.....
 due to †.....

B. MATERNAL OR OTHER CONDITIONS OR CAUSES GIVING RISE TO THE UNDERLYING CAUSE ABOVE
 due to.....
 † Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last.

PART II
OTHER SIGNIFICANT CONDITIONS in child, foetus or mother contributing to the death, but not related to the disease or condition causing it.....

Approximate Interval Between Onset and Death

I hereby certify that the particulars shown above are true to the best of my knowledge.
 Signature..... Date.....
 Name..... Address.....
 (Block Letters)

R.G. 356

WESTERN AUSTRALIA

REGISTRATION OF BIRTHS, DEATHS, AND MARRIAGES ACT, 1961

Registrar to enter
No. of death entry.

MEDICAL CERTIFICATE OF CAUSE OF DEATH

(For use only by a legally qualified medical practitioner who has been in attendance during deceased's last illness.
If Deceased less than 29 days old use Form R.G. 364)

Aboriginal: Yes No

Name of Deceased

Sex Date of Death 19.....

Age as stated to me Date last seen alive by me 19.....

Place of Death

*Post Mortem Carried Out ; To be Carried Out ; Not to be Carried Out

Approximate Interval
between onset and
death

I. **CAUSE OF DEATH**
[IN BLOCK LETTERS]

DIRECT CAUSE—
Disease or condition directly leading to death† (a) due to—

ANTECEDENT CAUSES—
Morbid conditions, if any, giving rise to the above cause stating the underlying condition last (b) due to—
(c)

II. **OTHER SIGNIFICANT CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO THE DISEASE OR CONDITION CAUSING IT**

.....

† See Fly Leaf—This means the disease, injury or complication which caused death—NOT the mode of dying, as e.g., heart failure, asthenia, etc.

If operation performed on Deceased within 3 months of Death specify condition for which performed and Date of Operation

If this case has been reported to the Coroner, enter "Yes" here

I hereby certify that I was in medical attendance during the abovenamed Deceased's last illness and that the particulars and cause of death above written are true to the best of my knowledge and belief.

Name (block letters) Signature

Address Professional Title

Date

NOTE.—SECTION 41 of the abovementioned Act provides that in case of the death of any person who has been attended in his last illness by a duly qualified medical practitioner, such practitioner shall forthwith after the death complete and sign a certificate of the cause of death in the form approved by the Registrar General and give it to the person required by the Act to furnish information concerning such death.

* Please tick appropriate box.

29737/11/83—2M BKS—MAG 148

ABORIGINAL MATERNAL AND CHILD HEALTH

**JOAN WINCH, R.N., R.M., C.H.N., Dip.Appl.Sci(Nursing),
Aboriginal Medical Service**

ABORIGINAL MATERNAL AND CHILD HEALTH

The Aboriginal Medical Service was formed in 1973 because there was an ever-increasing number of Aboriginal people gravitating to the city. It was recognised by the Aboriginal people that a different approach was needed in health care if inroads were going to be made into the improvement of aboriginal health. The health parameters of any group of people are always measured by infant mortality and morbidity and at the time the mortality proportions of Aboriginal infants were equal to some Third World countries.

Many of the primigravid Aboriginal teenagers are not well-versed in maternal health and child-bearing. These people have lost the thread of traditional learning and have no compensating learning skills for the new tradition of city life.

The problem was, and still is, the acceptance of the information and the inability to make use of such information. Young women find it difficult to attend a clinic for a number of reasons:-

1. Usually not centrally convenient
2. No transport
3. Not used to mixing with a predominance of non-Aborigines
4. Feel uneasy in the Clinic setting
5. Reluctant to ask questions
6. Time factor of appointments - no money for travel, and so on

The shared care for ante-natal clients was one of the innovations set up between the Aboriginal Medical Service (A.M.S) and King Edward Memorial Hospital (K.E.M.H).

Pregnancy tests can be given in the field or at A.M.S by the Planosec method. From here women are encouraged to attend the antenatal clinic, usually at A.M.S. Antenatal screening is carried out and specimens sent to K.E.M.H for assessment. As well as the usual screening, all of the clients have a glucose tolerance test and are screened for chlamydia. Clients are taken to K.E.M.H for ultra-sound screening, dental checks and specialist care if necessary. All of this information is written on their obstetric chart and a photo-copy sent to K.E.M.H when the woman is due for delivery. A record is also kept at A.M.S. Due to overbooking at K.E.M.H some of the clients are now being sent to Osborne Park or Wanneroo Hospitals if they live in those areas.

Charts are kept in the nurses' station at A.M.S and for those not attending regularly a letter is sent to them or the Community Nurse will call at home to carry out antenatal checks.

This method of continued care has proven to be fairly effective over the last five years.

In 1986/87, 164 new pregnancies were diagnosed and 454 consultations were given for routine antenatal care. In order to lower the figures for perinatal and infant mortality, low birthweight, small-for-dates babies and morbidity in the first year of life, a top priority is to establish a mobile Maternal and Child Health unit.

This would form a closer network in encouraging regular checks for women and children. It is envisaged that this close contact and learning experience for a 20 month period would bring about the necessary education for the mother to:-

1. Ask questions
2. Formulate a nutritional diet for themselves and their babies
3. Assess the need for medical care

4. Prepare a safe environment for their off-spring
5. Be re-sensitised in talking to health workers, nurses and doctors about their needs
6. Produce healthier children

Conditions of morbidity originating in the perinatal period indicated that the incidence was more than double in the Aboriginal infant.¹ The proportion of complications of pregnancy, childbirth and the puerperium for Aboriginal women (85.29%) to non-Aboriginal women (40.66%) is similar to that of perinatal morbidity.

Perinatal mortality still stands at excessive proportions for Aboriginal infants.²

The cost of educating a health worker is minimal compared to the hospitalisation of one child in intensive care for one month.

Any programme, to be successful, must be acceptable to the people it has to help. Health Workers in the field working from a mobile unit would have a dramatic effect on the improvement of infant health.

The mobile Maternal and Child Health Unit would be invaluable in addressing the needs of the young antenatal women. It would be staffed by two Aboriginal health workers. This unit could visit all antenatal women who do not regularly attend antenatal clinics. The service would continue for one year postnatally to ensure the health and well being of both baby and mother. Recognition by the government of Health Workers to fill the role of the delivery of health care and special education in maternal health is of utmost importance to address maternal and child health needs.

Incorporated in the service should be provision of education on human sexuality for the young people to fill the gap created by loss of cultural understanding in such matters.

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