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Perinatal, Infant and Maternal Mortality in Western Australia

5 YEAR COHORT OF 2004-2008 BIRTHS

December 2010

**PERINATAL, INFANT AND MATERNAL MORTALITY
IN WESTERN AUSTRALIA
5-YEAR COHORT OF 2004-2008 BIRTHS**

December 2010

**Maternal and Child Health Unit
Data Collection and Analysis
Data Integrity Directorate
Performance Activity & Quality Division**

**Department of Health
Western Australia**

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FURTHER INFORMATION

Enquiries or comments on this publication and/or requests for additional information should be addressed to -

Principal Consultant, Statutory Mortality Committees
Data Collection and Analysis
Information Management and Reporting Directorate
Department of Health Western Australia
189 Royal Street
EAST PERTH WA 6004

Telephone: (08) 9222 4262
Facsimile: (08) 9222 4236
Email: vivien.gee@health.wa.gov.au

Internet address:

http://www.health.wa.gov.au/Publications/Subject_index/p/Perinatal_infant_maternal.cfm

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EXECUTIVE SUMMARY

The Maternal and Child Health data collections record perinatal, infant and maternal deaths on an ongoing basis in Western Australia. This Report presents an overview of mortality data for the 5 year period 2004-2008, categorised by mortality grouping. It also describes trends over the fifteen year period from 1994 to 2008.

Births in Western Australia

- During the 2004-2008 period 141,924 babies were born to 139,761 women with 99.3% of births being liveborn.
- Births occurred in hospital for 98.9% of women and 75.2% of women were resident in the Perth Metropolitan area.
- The crude birth rate of 13.6 per 1000 total population for the period has decreased from 14.8 per 1000 in 1994. For Aboriginal women the crude birth rate reduced from 25.5 per 1000 in 1994 to 23.5 per 1000 in 2008.
- Mothers in their teenage years accounted for 5.3% of births and women aged 40 years or more represented 3.2%
- Aboriginal women represented 6.1% of all mothers and the crude birth rate for these women (23.8 per 1000) was almost twice that of the overall rate (13.6 per 1000) for the 5 year period from 2004-2008.

Perinatal Mortality

- Perinatal deaths during 2004-2008 consisted of 1011 fetal deaths (7.1 per 1000 total births) and 315 neonatal deaths (2.2 per 1000 livebirths), giving a perinatal mortality rate of 9.3 per 1000 total births.
- The majority of fetal deaths occurred during the antenatal period before onset of labour (52.9%) with the remainder being either intrapartum deaths (31.6%) or where time of death was unknown (15.5%). Most perinatal deaths were related to prematurity and/or congenital anomalies.
- Perinatal mortality increases with decreased birthweight, decreased gestational age and among multiple births.
- The neonatal death rate among babies of Aboriginal mothers over the 2004-2008 period (6.1 per 1000) was 3 times that of babies of non-Aboriginal mothers (2.0 per 1000).
- The perinatal death rate among babies of Aboriginal mothers over the 2004-2008 period (18.8 per 1000), was twice that of babies of non-Aboriginal mothers (8.7 per 1000).

Infant Mortality

- There were 498 infant deaths identified during the 2004-2008 period, providing an infant mortality rate of 3.5 per 1000 livebirths. This rate has reduced from 6.2 per 1000 in 1994. For babies of Aboriginal women the rate reduced from 21.0 per 1000 in 1994 to 11.7 per 1000 in 2008.
- Among babies of Aboriginal mothers, the infant mortality rate of 11.3 per 1000 was almost four times that of the rate for babies of non-Aboriginal women (3.0 per 1000) during the 5 year period. Impacting this figure is the high proportion of deaths among babies of Aboriginal mothers in the post-neonatal period (5.3 per 1000 livebirths), which was more than five times the rate recorded for babies of non-Aboriginal women (1.0 per 1000).
- Causes of infant death are principally Sudden Infant Death Syndrome (SIDS), lethal congenital anomaly, low birthweight and infection. Among babies of Aboriginal women, Sudden Infant Death Syndrome (SIDS) (22.2%) and lethal congenital anomaly (22.2%) were the principal known causes of death during the post-neonatal period.

Maternal Mortality

- Australian national reporting measures maternal mortality based on reported direct and indirect maternal deaths. There were 14 maternal deaths for the period 2002-2008 giving a maternal mortality rate of 7.4 per 100,000 livebirths in Western Australia. This calculation includes only direct and indirect maternal deaths and excludes incidental maternal deaths.
- For the period 1992-2008, where classification of deaths is known in Western Australia, the maternal mortality rate was 6.6 per 100,000 livebirths and the maternal mortality ratio was 6.6 per 100,000 women who gave birth.
- During the period 1992-2008, 35 maternal deaths were reported in Western Australia. In accordance with prescribed definitions (page 11) these deaths have been classified as 18 direct, 11 indirect and six incidental maternal deaths.
- Long term trend data for Western Australia shows a dramatic improvement in maternal mortality rates which halved every ten years from 1931 to 1980. Maternal mortality since that time averaged 1.6 maternal deaths per year.
- The Western Australian maternal mortality rate of 6.8 per 100,000 livebirths for the 28 year period (1981-2008) was calculated including all maternal deaths. Even so, this rate compares favourably with a national maternal mortality rate of 11.0 per 100,000 livebirths for 2000-2002 and a national maternal mortality ratio of 8.4 per 100,000 women who gave birth for the three year period 2003-2005.

1. INTRODUCTION

Aims

This report is a five year cohort addition to the continuing series of Department of Health reports examining perinatal and infant mortality in Western Australia since 1984. The aim of compiling the data in this report is to measure relationships between mortality among infants and variables such as maternal ethnic status, age, parity, conjugal state and infant plurality, gestation and birthweight. The Report also includes information about maternal mortality in Western Australia. Early reports in this series were published annually (1984 to 1995), while later reports have been published triennially since 1996.

This report relates to a cohort of childbearing women and their babies, born in the period 2004-2008 and includes information on birth outcomes 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 at limiting human loss in future years.

Data Sources

The Western Australian Midwives' Notification System formed the basis of this five year report of perinatal, infant and maternal mortality.

Information relating to deaths was obtained from the Registry of Births, Deaths and Marriages, the Hospital Morbidity Data System, and the Australian Bureau of Statistics (Western Australian Office). As far as can be determined from the above-mentioned sources, the data relating to the number of deaths in this report is complete. Data for 2008 may be considered preliminary.

Information on deaths of Western Australians who died outside the State was not received by this Department and therefore could not be included in this Report.

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

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 Office).

2. BIRTHS IN WESTERN AUSTRALIA IN 2004-2008

2.1 Births incidence

Notifications by midwives received by this department indicate that 141,924 babies (Table 1) were born to 139,761 women during the 2004-2008 period. This report includes statistics on all births of 20 weeks or more gestation, or a birthweight of 400 grams or more.

2.2 Crude birth rate

An overall crude birth rate of 13.6 per 1000 total population was identified for all Western Australian women during 2004-2008, a little more than half that recorded for Aboriginal women (23.8 per 1000). The crude birth rate decreased from 14.8 per 1000 in 1994 to 12.5 per 1000 in 2003. In 2008 the rate was 14.0 per 1000 (Table 2). The crude birth rates are highest in those health regions with a higher proportion of Aboriginal people (Figure 1).

2.3 Condition at birth

Analysis of the condition at birth showed 140,913 (99.3%) babies were liveborn and 1,011 (0.7%) babies were stillborn. There were 8,561 (98.7%) livebirths and 111 (1.3%) fetal deaths to Aboriginal women providing a fetal death rate of 12.8 per 1000 total births. For non-Aboriginal women there were 132,352 (99.3%) livebirths and 900 (0.7%) fetal deaths providing a fetal death rate of 6.8 per 1000 total births (Table 7).

2.4 Aboriginality of mother

Examination of births showed that 8,672 (6.1%) babies were born to Aboriginal women, and 133,252 (93.9%) to non-Aboriginal women (Table 7).

2.5 Place of birth

The majority of births, 140,972 (99.3%), occurred either in hospital or en route to a hospital. Of these, births in metropolitan hospitals numbered 113,593 (80.6%) and non-metropolitan hospital births totalled 27,379 (19.4%). There were 952 (0.7%) planned supervised homebirths (Table 8).

2.6 Maternal place of residence

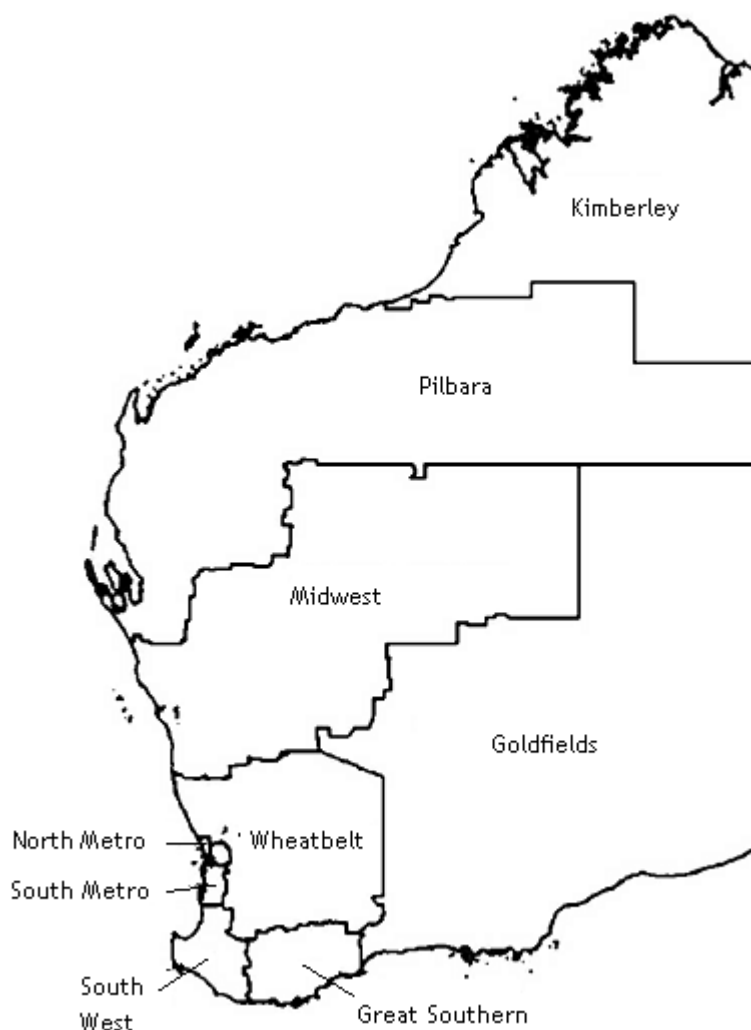
Assessment of usual place of residence of birth mothers throughout the state shows that the majority of births 106,801 (75.2%) were to women who lived within one of the Perth Metropolitan Health Regions (Table 1).

2.7 Maternal age

Consideration of maternal age in five-year age groups shows that the highest percentages of women who gave birth were in the 30 to 34 year age category (31.7%) followed by the 25 to 29 year age category (26.8%). Women in their teenage years accounted for 5.3% of total women who gave birth. Almost a quarter (23.7%) of Aboriginal women who gave birth were teenage women (less than 20 years of age) in contrast with non-Aboriginal women of whom 4.1% were teenagers. Women aged 40 years or more represented 3.2% of all women who gave birth during the 5 year period 2004-2008 (Table 10).

Figure 1:

Crude Birth Rate, Perinatal and Infant Mortality by Health Region of maternal residence for births in Western Australia, 2004-2008



Health Region	Crude Birth Rate	Perinatal Mortality	Infant Mortality
Kimberley	20.8	16.9	10.0
Pilbara	17.6	10.5	4.4
Midwest	14.9	8.9	4.1
Wheatbelt	12.9	10.0	4.4
Goldfields	17.2	11.5	4.8
South West	13.3	9.5	2.1
Great Southern	13.1	11.7	5.2
North Metro	13.1	8.6	2.8
South Metro	13.4	8.9	3.7
Total WA	13.6	9.3	3.5

Crude Birth Rate is the number of livebirths per 1000 total population

Perinatal Mortality is calculated per 1000 total births

Infant Mortality is calculated per 1000 livebirths

3. PERINATAL MORTALITY IN WESTERN AUSTRALIA 2004-2008 BIRTH COHORT

3.1 Perinatal deaths

There were 1,326 perinatal deaths identified in the 2004-2008 birth cohort providing a perinatal mortality rate of 9.3 per 1000 total births (Table 4 and Figure 2).

Trend data on individual years shows that there has been little variation, over a 15-year period, in the overall rate from 11.1 per 1000 in 1994 to 9.2 per 1000 in 2008. The rate for babies of Aboriginal mothers was 19.5 per 1000 in 2008. These rates have varied over the period being as high as 25.9 per 1000 in 1997 and as low as 14.8 per 1000 in 2007 (Table 5 and Figure 3).

Figure 2: Fetal, neonatal and perinatal death rates in Western Australia, 1994-2008

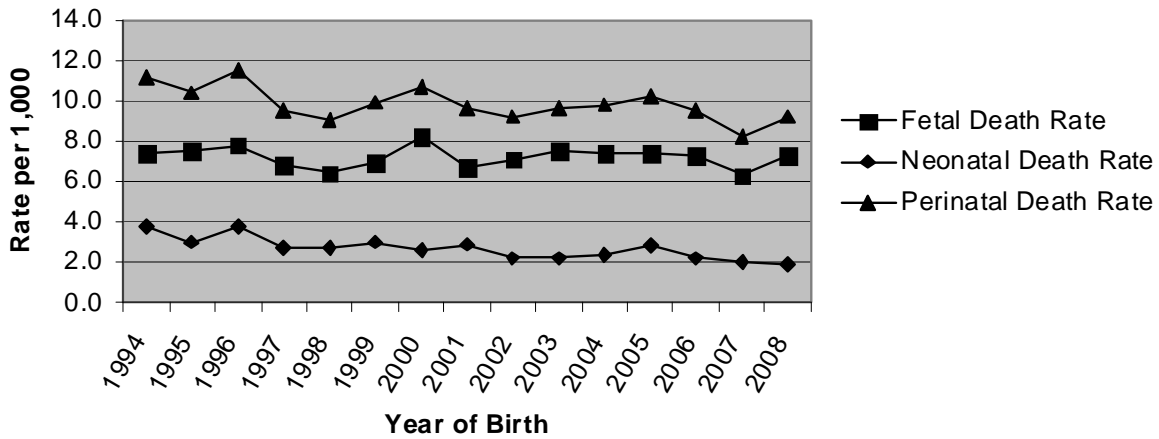
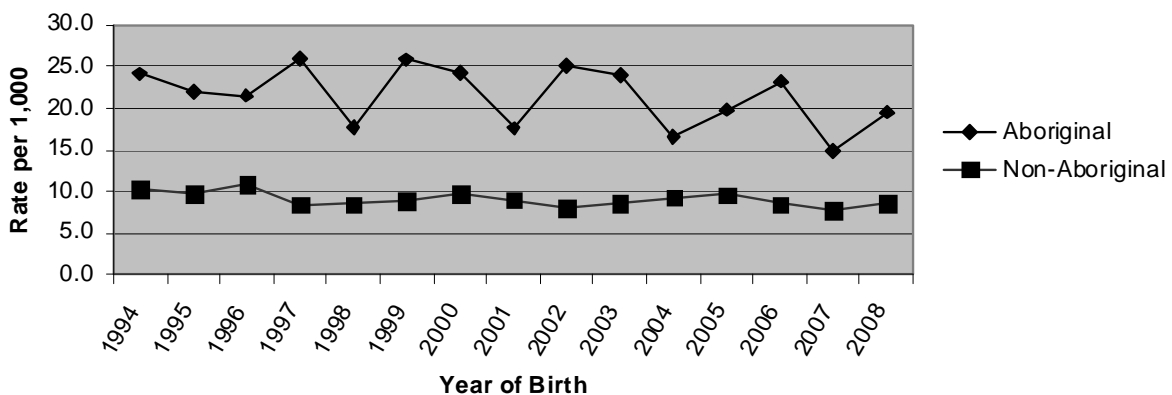


Figure 3: Perinatal death rates and Aboriginality in Western Australia, 1994-2008



3.1.1 Maternal age and parity

Perinatal deaths of babies born to first time mothers numbered 584 with a rate of 9.9 per 1000 total births. Of these, 87 were born to teenage mothers with a rate of 14.0 per 1000. As a large proportion of births to teenage mothers are their first birth this rate is similar to the overall rate of perinatal deaths to babies of teenage mothers (14.4 per 1000) (Table 9).

3.1.2 Birthweight and gender

More than three quarters of the perinatal deaths were of low birthweight providing a rate of 105.9 per 1000 total births with low birthweight. The ratio of male to female perinatal deaths was 1.13:1 (Table 11).

3.1.3 Cause of death and plurality

Perinatal deaths in Western Australia have been classified, retrospectively, in accord with the Perinatal Society of Australia and New Zealand's Perinatal Death Cause (PSANZ-PDC)². This classification system indicated that congenital abnormality was the cause of 28.0% of deaths with a further 22.2% being spontaneous preterm (<37 weeks). A further 12.4% were unexplained antepartum fetal deaths. Among multiple birth perinatal deaths, 38.0% were attributed to spontaneous preterm birth (<37 weeks) and 33.1% to specific perinatal conditions. A further 14.7% of multiple birth perinatal deaths were due to congenital abnormalities incompatible with life. (Table 12).

Information relating to cause of death was gained from an autopsy for 59.7% of perinatal deaths while 37.2% of perinatal deaths were not examined. It is not known whether or not an autopsy was performed for the remaining 3.1% of deaths (Table 14).

3.2 Fetal deaths

There were 1011 fetal deaths in Western Australia during 2004-2008 providing a fetal death rate for the period in Western Australia of 7.1 per 1000 total births (Table 3).

Fetal death proportions relating to the Health Region of maternal residence are shown in Table 3. Among babies of Aboriginal mothers the fetal death rate (12.8 per 1000) was almost twice that for babies of non-Aboriginal women (6.8 per 1000) (Table 4).

3.2.1 Birthweight and gestational age

There was a decrease in the fetal death rate as birthweight increased, except among babies with birthweight in excess of 4000 grams. For low birthweight babies (weighing less than 2500 grams) the rate of fetal death was 82.8 per 1000. As gestation increased the fetal death rate fell. The rate of 493.5 per 1000 for fetal deaths at 20-27 weeks was in sharp contrast to the rate of 1.5 per 1000 for births at 37-43 weeks (Table 15).

3.2.2 Gestational age and plurality

The fetal death rate for all multiple births (19.6 per 1000 total births) remains higher than the fetal death rate for all singleton births (6.7 per 1000). The rate of fetal death among babies of 28-32 weeks gestation for singleton births (81.4 per 1000) was almost 4 times that for multiple births (22.9 per 1000). Among babies born of 20-27 weeks gestation singleton births had a higher fetal mortality rate (535.4 per 1000) than did multiple births (274.1 per 1000)(Table 18).

3.2.3 Cause and time of death for fetal deaths

Of the 1011 fetal deaths during the 5 year period there were 535 (52.9%) antepartum deaths and 319 (31.6%) intrapartum deaths. It was not known when the remaining 157 (15.5%) fetal deaths occurred. The principal causes were those related to conditions of extremely low birth weight (376, 37.2%) and lethal congenital anomaly (310, 30.7%). An additional 257 (25.4%) fetal deaths were not able to be classified by cause (Table 19).

3.2.4 Cause of fetal death and Aboriginality of mother

Among fetal deaths to women recorded as Aboriginal the proportion of deaths due to lethal congenital anomaly (17.1%) was lower than for fetal deaths of babies born to non-Aboriginal women (32.3%). Extremely low birthweight contributed to a higher proportion of fetal deaths among babies born to Aboriginal women (50.5%) than for those born to non-Aboriginal women (35.6%) (Table 20).

3.3 Neonatal deaths

There were 315 neonatal deaths in Western Australia in the 2004-2008 5 year cohort leading to a neonatal mortality rate of 2.2 per 1000 livebirths (Table 21). For babies of Aboriginal women the neonatal mortality rate was 6.1 per 1000 which was more than three times the rate recorded for babies of non-Aboriginal women (2.0 per 1000) (Table 25).

3.3.1 Birthweight and gestational age

In general the neonatal death rate decreased as birthweight increased until birthweight reached 4000 grams. All neonatal deaths with gestational age of 27 or less weeks had a birthweight of less than 1500 grams. Overall nearly three quarters (227, 72.1%) of all neonatal deaths were of low birthweight (Table 21).

3.3.2 Gestational age and plurality

Consideration of neonatal death rates by plurality for all gestational ages shows a marked difference, the singleton rate (1.9 per 1000 livebirths) being only one seventh the rate for multiple births (14.3 per 1000) (Table 22).

3.3.3 Cause of death and age at death

The principal causes of neonatal death of livebirths aged less than a day were attributed to low birthweight (59.2%) and lethal congenital anomaly (33.1%). Early neonatal deaths, those who died at less than 8 days, numbered 239 (75.9%) of all neonatal deaths (Table 23).

3.3.4 Cause of death and Aboriginality of mother

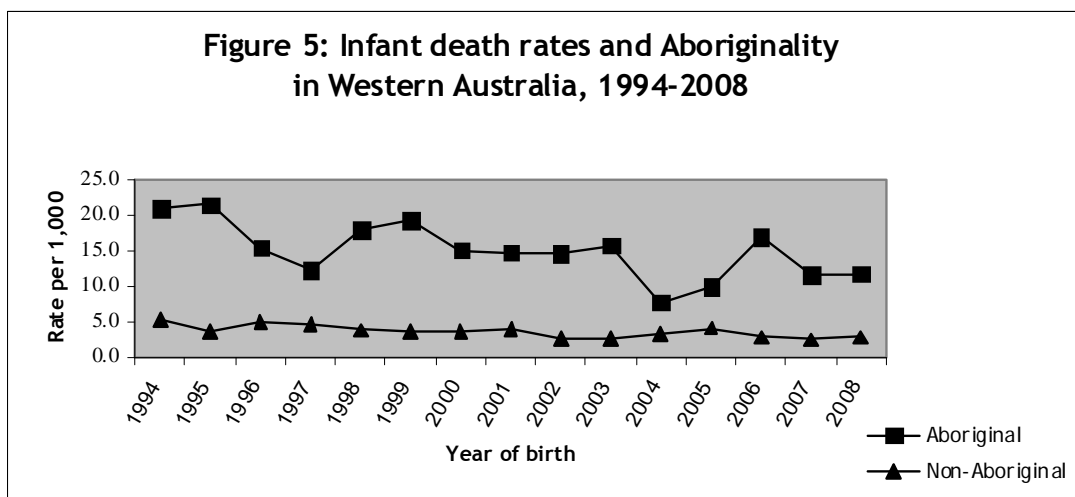
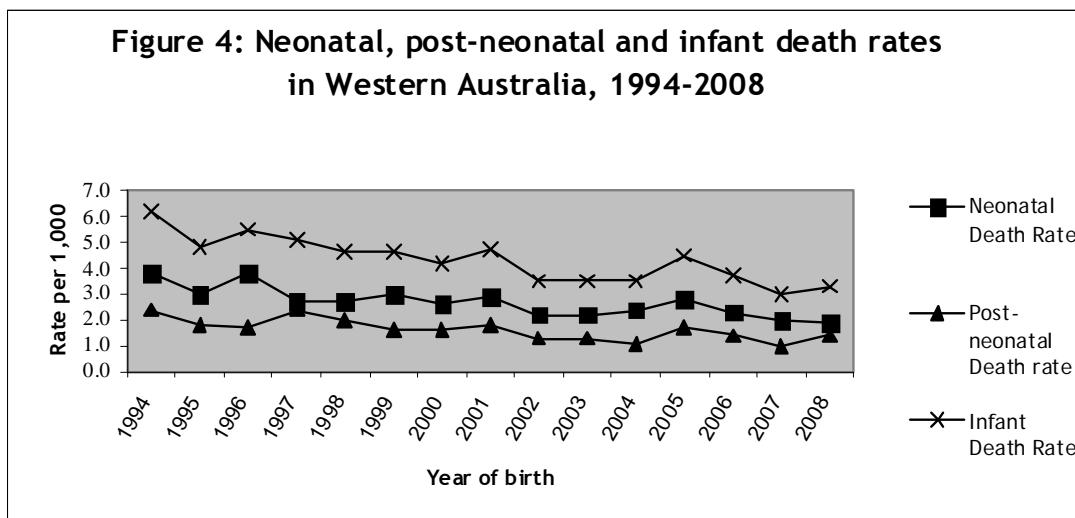
Among neonatal deaths where the mother was recorded as Aboriginal, the proportion of deaths due to factors associated with low birthweight (57.7%) was similar to that for babies of non-Aboriginal women (45.6%). The proportion of neonatal deaths among babies of Aboriginal mothers attributed to lethal congenital anomaly (21.2%) was lower than the proportion for those identified as non-Aboriginal (35.7%) (Table 24).

4. INFANT MORTALITY IN WESTERN AUSTRALIA, 2004-2008 BIRTH COHORT

4.1 Infant deaths

There were 498 infant deaths of the 140,913 livebirths in the 2004-2008 period. Of these, 315 (63.3%) were neonatal deaths and 183 (36.7%) were post-neonatal deaths. The infant mortality rate for Western Australia in 2004-2008 was 3.5 per 1000 livebirths (Table 25). Over the 15 year period from 1994-2008 the infant mortality rate has almost halved from 6.2 per 1000 in 1994 to 3.3 per 1000 in 2008 (Table 26 and Figure 4).

Infant mortality among babies born to Aboriginal women (11.3 per 1000) during the period was almost four times that for babies born to non-Aboriginal women (3.0 per 1000) (Table 25). Although infant mortality rates among both groups have reduced overall, the rate for babies of Aboriginal mothers in 2008 remains four times the rate for babies of non-Aboriginal mothers being 11.7 per 1000 and 2.8 per 1000 respectively in 2008 (Table 26 and Figure 5).



4.1.1 Maternal age and parity

Of the 498 infant deaths in the 2004-2008 period 62 (8.3 per 1000 live births or 12.4%) were among babies of teenage mothers. Of these, 46 (74.2%) were the first born child and 15 (24.2%) were born to mothers having a parity of one or two. Infant death rates among babies of teenage mothers is more than double that of older mothers (Table 27).

4.1.2 Birthweight and gender

Low birthweight (<2500 grams) was present in 292 (32.4 per 1000) infant deaths during the 5 year period 2004-2008. Male babies suffered higher rates of infant death than female babies, in the low birthweight category (34.7 per 1000 versus 22.8 per 1000) while overall the rates were similar (3.5 per 1000 for both male and female infant deaths). The mortality rates for both male and female infants decreased as birthweight increased with the exception of births greater than 4500 grams (Table 28).

4.1.3 Gestational age and plurality

The rate of infant mortality among multiple births (18.8 per 1000 livebirths) was six times the rate of singleton births (3.1 per 1000 livebirths) but this is entirely accounted for by the excess mortality in multiple birth babies with gestational age of 20-27 weeks (Table 29).

4.2 Post-neonatal deaths

There were 183 post-neonatal deaths among the 140,913 livebirths during the 2004-2008 time period, providing a rate of 1.3 per 1000 livebirths (Table 25).

The post-neonatal mortality rate for babies of Aboriginal women was 5.3 per 1000 livebirths, being five times the rate of 1.0 per 1000 for babies of non-Aboriginal women (Table 25).

Post-neonatal deaths in relation to Health Region of maternal residence are shown in Table 3. It should be noted however, that due to small numbers of births in some Regions the rates may vary significantly from year to year and should be interpreted with caution, even for the 5 year period.

4.2.1 Cause of death and age at death

Among post neonatal deaths where cause is known, the principal causes of death were Sudden Infant Death Syndrome (SIDS) (12.6%), lethal congenital anomaly (24.0%) and infection (8.2%). There were a further 26 babies (14.2%) for whom cause of post neonatal death was classified as other (Table 30).

4.2.2 Cause of death and Aboriginality of mother

Among post-neonatal deaths of babies born to Aboriginal women 10 (22.2%) were attributed to SIDS, with infection being also a major cause for 4 (8.9%) deaths. The proportion of deaths resulting from lethal congenital anomalies (22.2%) was slightly lower among babies of Aboriginal mothers than the proportion for babies of non-Aboriginal women (24.6%) (Table 31).

5. MATERNAL MORTALITY IN WESTERN AUSTRALIA 2004-2008

5.1 Introduction

Maternal mortality as defined by the World Health Organization is the death of a woman during pregnancy, childbirth or in the 42 days of the puerperium. Classification of deaths in Western Australia is defined in accordance with the NHMRC Triennial Reports on Maternal Mortality for Australia³. Thus, maternal mortality is the death of a woman during pregnancy, childbirth or the puerperium. The puerperium normally refers to the 42 days after pregnancy, but deaths occurring after 42 days are also included if their origin and illness relates to the pregnancy and/or birthing process.

This definition includes deaths from abortion and ectopic pregnancy, but excludes deaths from assisted reproduction technology where pregnancy has not yet occurred.

5.2 Classification of maternal deaths

Maternal mortality as defined by the World Health Organisation, provides for deaths to be classified into three groups³:

Direct maternal deaths - those resulting from obstetric complications of the pregnant state (pregnancy, labour and puerperium), from interventions, omissions, incorrect treatment, or from a chain of events resulting from any of the above - they are complications of the pregnancy itself (for example, eclampsia, amniotic fluid embolism, rupture of the uterus, postpartum haemorrhage).

Indirect obstetric deaths - resulting from pre-existing disease or disease that developed during pregnancy and was not due to direct obstetric causes, but which was aggravated by the physiological effects of pregnancy (for example, heart disease, pulmonary embolism, diabetes, renal disease).

Incidental deaths - resulting from conditions occurring during pregnancy, where the pregnancy is unlikely to have contributed significantly to the death, although it is sometimes possible to postulate a distant association (for example, road accidents, some malignancies).

Maternal mortality rates are calculated per 100,000 live births.

5.3 Maternal deaths in 1981-2008

During the period 1981-2008, there were 48 maternal deaths. These include direct, indirect and incidental. However, a paucity of information available in the data collection means that the WHO Classification can only be applied to the 35 maternal deaths reported over the period from 1992 to 2008. These 35 deaths, based on information from death certificates and classified in accord with prescribed definitions, would appear to be 18 direct maternal deaths, 11 indirect maternal deaths and 6 incidental maternal deaths.

Of the 18 direct maternal deaths, six occurred at the time of delivery with the principal cause being haemorrhage. The remaining 12 deaths occurred either during pregnancy with complications arising from ruptured ectopic pregnancy or in the post delivery period with causes including hypertensive disorders, pulmonary embolus, obstetric haemorrhage and septicaemia.

Causes of the eleven indirect deaths included cerebral haemorrhage, amniotic fluid embolus during pregnancy, psychiatric causes, septicaemia and cardiac disorders.

The causes of the six deaths classified as incidental maternal deaths included motor vehicle accidents and manslaughter during pregnancy.

5.4 Trend of maternal mortality

In accordance with Australian national reporting, measurement of maternal mortality may more effectively be determined by calculation of maternal mortality rates based on reported direct and indirect maternal deaths.

Years	Direct & Indirect Maternal Deaths	Number of live births in WA	Maternal Mortality Rate per 100,000
1992-1996	7	126,192	5.5
1997-2001	8	125,999	6.3
2002-2006	10	129,684	7.7
2007-2008	4	60,335	6.7
1992-2008	29	442,210	6.6

Alternatively a similar outcome may be achieved by calculation of a maternal mortality ratio based on the numbers of women reported to have given birth.

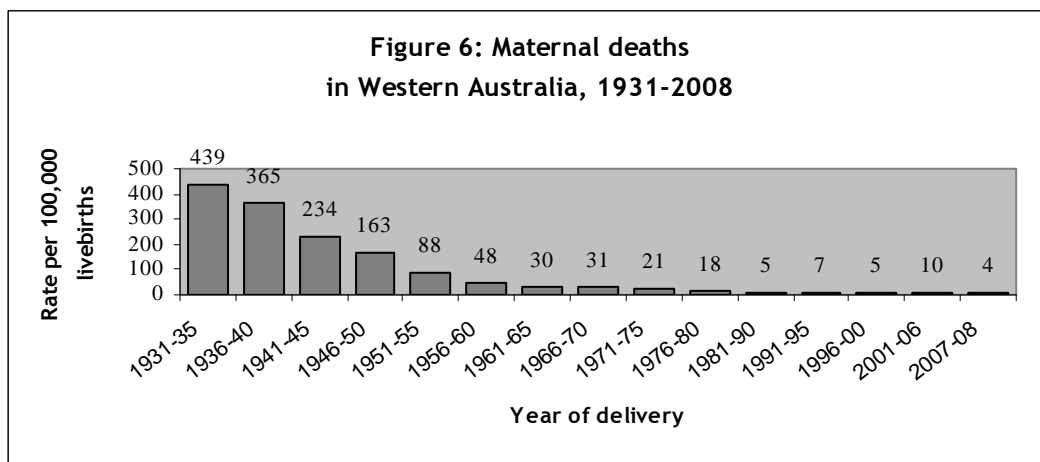
Years	Direct & Indirect Maternal Deaths	Number of women who gave birth in WA	Maternal Mortality Ratio per 100,000
1992-1996	7	125,296	5.6
1997-2001	8	124,851	6.4
2002-2006	10	128,578	7.8
2007-2008	4	59,868	6.7
1992-2008	29	438,593	6.6

5.5 Long term trend of maternal mortality

Examination of all maternal deaths in Western Australia showed that during the 27 years from 1981 to 2008 there were 48 reported maternal deaths resulting in an overall maternal mortality rate of 6.8 per 100,000 livebirths for that period⁴.

Year	Maternal Deaths	Livebirths in WA	Rate per 100,000
1981-1985	5	113,058	4.4
1986-1990	7	123,902	5.6
1991-1995	9	125,624	7.2
1996-2000	6	126,609	4.7
2001-2006	15	154,457	9.7
2007-2008	6	60,335	9.9
1981-2008	48	703,658	6.8

The accompanying figure shows the dramatic improvement in the maternal mortality rate for Western Australia which more than halved every ten years between 1931 and 1970. From that time the rate of decline of maternal mortality rates eased to a rate of 6.8 per 100,000 livebirths for the years 1981 to 2008⁴.



5.6 National and international comparisons

The World Health Organisation estimates that approximately 500,000 women die each year due to complications of pregnancy and childbirth. Of these women 99 per cent are from African, Asian and Latin American countries³.

Considering international differences in methods of ascertainment and reporting, the most recent Australian national report⁶ focused on comparable countries for which the ICD-10 definition of maternal death was used for classification, uniformity in reporting and calculations of cases with an inclusion criteria of 42 days after delivery.

The World Health Organization defines the maternal mortality rate as the number of direct and indirect maternal deaths during a given time period per 100,000 livebirths. The maternal mortality rate of the developed regions (including Australia, New Zealand, USA, Europe, Japan and Canada) in 2000 was an estimated 20 deaths per 100,000 livebirths compared with an estimated 440 deaths per 100,000 livebirths in the developing regions⁷.

This evaluation shows the Western Australian maternal mortality ratios of 6.6 per 100,000 women who gave birth for the 1992-2008 period and 7.8 per 100,000 women who gave birth for the 2002-2006 period were both lower than the reported Australian national statistic of 8.4 per 100,000 women who gave birth during the years 2003-2005⁶.

It is therefore appropriate to state that the decline in the Western Australian maternal mortality rate to 7.7 per 100,000 livebirths for the 2002 to 2006 period compares favourably with Australian and international maternal mortality rates.

6. REFERENCES

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Table 1: Live and total births by health region of maternal residence in Western Australia, 2004-2008

Health Region of Residence	2004				2005				2006				2007				2008				
	Live Births		Total Births		Live Births		Total Births		Live Births		Total Births		Live Births		Total Births		Live Births		Total Births		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Metropolitan																					
North	10089	39.8	10170	39.8	10684	39.9	10751	39.9	11246	39.5	11322	39.5	11898	39.8	11983	39.8	12230	40.2	12311	40.1	
South	8764	34.6	8822	34.6	9344	34.9	9420	34.9	10138	35.6	10203	35.6	10670	35.7	10722	35.7	11018	36.2	11097	36.2	
Total Metropolitan	18853	74.4	18992	74.4	20028	74.8	20171	74.8	21584	75.1	21525	75.1	22568	75.5	22705	75.5	23248	76.4	23408	76.3	
Country																					
Kimberley	658	2.6	662	2.6	670	2.5	681	2.5	669	2.4	680	2.4	728	2.4	734	2.4	672	2.2	681	2.2	
Pilbara	706	2.8	713	2.8	741	2.8	746	2.8	840	3.0	849	3.0	791	2.6	799	2.7	790	2.6	792	2.6	
Midwest	824	3.3	832	3.3	908	3.4	913	3.4	928	3.3	935	3.3	967	3.2	969	3.2	954	3.1	961	3.1	
Wheatbelt	904	3.6	910	3.6	967	3.6	975	3.6	933	3.3	936	3.3	975	3.3	981	3.3	977	3.2	990	3.2	
Goldfields	912	3.6	918	3.6	929	3.5	936	3.5	971	3.4	983	3.4	1031	3.4	1045	3.5	978	3.2	984	3.2	
South West	1714	6.8	1724	6.8	1780	6.7	1795	6.7	1938	6.8	1953	6.8	2038	6.8	2053	6.8	2047	6.7	2068	6.7	
Great Southern	734	2.9	741	2.9	731	2.7	735	2.7	761	2.7	771	2.7	731	2.4	731	2.4	703	2.3	708	2.3	
Total Country	6452	25.5	6500	25.5	6727	25.1	6781	25.1	7041	24.7	7101	24.8	7261	24.3	7312	24.3	7121	23.4	7184	23.4	
Outside WA	38	0.2	39	0.2	24	0.1	27	0.1	32	0.1	33	0.1	57	0.2	58	0.2	80	0.3	82	0.3	
TOTAL	25343	100.0	25531	100.0	26779	100.0	26979	100.0	28456	100.0	28665	100.0	29886	100.0	30075	100.0	30449	100.0	30674	100.0	

Table 2: Live birth count and crude birth rate by Aboriginality of mother in Western Australia, 1994-2008

Year of Birth	Aboriginal			Non-Aboriginal			Total		
	Live Births	Population	Crude Birth Rate	Live Births	Population	Crude Birth Rate	Live Births	Population	Crude Birth Rate
1994	1431	56142	25.5	23806	1646867	14.5	25237	1703009	14.8
1995	1444	57577	25.1	23811	1676210	14.2	25255	1733787	14.6
1996	1425	59055	24.1	23960	1706201	14.0	25385	1765256	14.4
1997	1549	60405	25.6	23547	1736233	13.6	25096	1796638	14.0
1998	1506	61780	24.4	24011	1765047	13.6	25517	1826827	14.0
1999	1603	63229	25.4	23989	1791184	13.4	25592	1854413	13.8
2000	1587	64597	24.6	23435	1815297	12.9	25022	1879894	13.3
2001	1631	66069	24.7	23142	1835090	12.6	24773	1901159	13.0
2002	1646	67272	24.5	22963	1860050	12.3	24609	1927322	12.8
2003	1524	68724	22.2	22973	1883514	12.2	24497	1952238	12.5
2004	1557	70125	22.2	23785	1912079	12.4	25342	1982204	12.8
2005	1697	71454	23.7	25084	1938659	12.9	26781	2010113	13.3
2006	1781	72639	24.5	26676	1986406	13.4	28457	2059045	13.8
2007	1810	71936	25.2	28076	2034183	13.8	29886	2106119	14.2
2008	1716	73035	23.5	28733	2098162	13.7	30449	2171197	14.0

Table 3: Percentages of fetal, neonatal and postneonatal deaths and fetal, perinatal and infant death rates by health region of maternal residence in Western Australia, 2004-2008

Health Region of Residence	Fetal		Neonatal		Postneonatal		Fetal		Perinatal		Infant	
	No.	%	No.	%	No.	%	No.	Rate	No.	Rate	No.	Rate
Metropolitan												
North	390	38.6	98	31.1	57	31.1	390	6.9	488	8.6	155	2.8
South	330	32.6	119	37.8	68	37.2	330	6.6	449	8.9	187	3.7
Total Metropolitan	720	71.2	217	68.9	125	68.3	720	6.7	937	8.8	342	3.2
Country												
Kimberley	41	4.1	17	5.4	17	9.3	41	11.9	58	16.9	34	10.0
Pilbara	31	3.1	10	3.2	7	3.8	31	8.0	41	10.5	17	4.4
Midwest	29	2.9	12	3.8	7	3.8	29	6.3	41	8.9	19	4.1
Wheatbelt	36	3.6	12	3.8	9	4.9	36	7.5	48	10.0	21	4.4
Goldfields	45	4.5	12	3.8	11	6.0	45	9.2	57	11.7	23	4.8
South West	75	7.4	16	5.1	4	2.2	75	7.8	91	9.5	20	2.1
Great Southern	26	2.6	17	5.4	2	1.1	26	7.1	43	11.7	19	5.2
Total Country	283	28.0	96	30.5	57	31.1	283	8.2	379	11.0	153	4.4
Outside WA	8	0.1	2	0.6	1	0.5	8	33.5	10	41.8	3	12.6
TOTAL	1011	100.0	315	100.0	183	100.0	1011	7.1	1326	9.3	498	3.5

Rate is number of deaths per 1000 total births or livebirths in each health region.

Table 4: Number and rates of fetal, neonatal and perinatal deaths by Aboriginality of mother in Western Australia, 2004-2008

Aboriginality of Mother	Fetal deaths		Neonatal deaths		Perinatal deaths	
	No.	Rate	No.	Rate	No.	Rate
Aboriginal	111	12.8	52	6.1	163	18.8
Non-Aboriginal	900	6.8	263	2.0	1163	8.7
TOTAL	1011	7.1	3	2.2	1326	9.3

Rate is number of deaths per 1000 total births or livebirths by Aboriginality of mother.

Table 5: Fetal, neonatal and perinatal death rates by Aboriginality of mother in Western Australia, 1994-2008

Year of Birth	Fetal Death Rate			Neonatal Death Rate			Perinatal Death Rate		
	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total
1994	16.5	6.8	7.4	7.7	3.5	3.8	24.1	10.3	11.1
1995	13.0	7.1	7.5	9.0	2.6	3.0	21.9	9.7	10.4
1996	14.5	7.4	7.8	7.0	3.6	3.8	21.5	10.9	11.5
1997	20.9	5.9	6.8	5.2	2.6	2.7	25.9	8.4	9.5
1998	9.9	6.2	6.4	8.0	2.3	2.7	17.8	8.5	9.0
1999	13.5	6.5	6.9	12.5	2.4	3.0	25.8	8.9	9.9
2000	16.7	7.6	8.2	7.6	2.3	2.6	24.2	9.8	10.7
2001	10.9	6.4	6.7	6.7	2.7	2.9	17.6	9.0	9.6
2002	16.1	6.4	7.1	9.1	1.7	2.2	25.1	8.0	9.2
2003	16.1	6.9	7.5	7.9	1.8	2.2	23.9	8.6	9.6
2004	10.8	7.1	7.4	5.8	2.2	2.4	16.5	9.3	9.8
2005	13.9	7	7.4	5.9	2.6	2.8	19.8	9.6	10.2
2006	14.9	6.8	7.3	8.4	1.8	2.2	23.2	8.5	9.5
2007	10.4	6	6.3	4.4	1.8	2.0	14.8	7.8	8.2
2008	13.8	6.9	7.3	5.8	1.7	1.9	19.5	8.6	9.2

Rate is number of deaths per 1000 total births for fetal and perinatal deaths and livebirths for neonatal deaths.

Table 6: Condition at birth by gender of births in Western Australia, 2004-2008

Gender	Condition at Birth				TOTAL	
	Livebirth		Fetal death		No.	%
	No.	%	No.	%	No.	%
Male	71865	51.0	543	53.7	72408	51.0
Female	69045	49.9	462	45.7	69507	49.0
Indeterminate	3	0.0	6	0.6	9	0.0
TOTAL	140913	100.0	1011	100.0	141924	100.0

Table 7: Condition at birth by Aboriginality of mother for births in Western Australia, 2004-2008

Aboriginality of Mother	Condition at Birth				TOTAL		Fetal death rate
	Livebirth		Fetal death		No.	%	
	No.	%	No.	%	No.	%	
Aboriginal	8561	6.1	111	11.0	8672	6.1	12.8
Non-Aboriginal	132352	93.9	900	89.0	133252	93.9	6.8
TOTAL	140913	100.0	1011	100.0	141924	100.0	7.1

Table 8: Condition at birth by place of birth for births in Western Australia, 2004-2008

Place of Birth	Condition at Birth				TOTAL		Fetal death rate
	Livebirth		Fetal death		No.	%	
	No.	%	No.	%	No.	%	
Metropolitan							
Teaching	27622	19.6	662	65.5	28284	19.9	23.4
Public	31946	22.7	88	8.7	32034	22.6	2.7
Private	53149	37.7	126	12.5	53275	37.5	2.4
Country							
Public	23906	17.0	116	11.5	24022	16.9	4.8
Private	3341	2.4	16	1.6	3357	2.4	4.8
Non-Hospital							
Planned homebirth	949	0.7	3	0.3	952	0.7	3.2
TOTAL	140913	100.0	1011	100.0	141924	100.0	7.1

Table 9: Maternal age by parity of perinatal deaths in Western Australia, 2004-2008

Maternal Age	Parity								TOTAL	
	0		1-2		3-4		≥ 5		No.	Rate
≤ 15	9	29.9	-	n/a	-	n/a	-	n/a	9	28.9
16	11	16.4	2	0.0	-	n/a	-	n/a	13	18.4
17	18	14.4	2	0.0	-	n/a	-	n/a	20	14.6
18	19	11.0	10	26.4	-	n/a	-	n/a	29	13.8
19	30	13.3	7	9.5	-	n/a	-	n/a	37	12.3
≤ 19	87	14.0	21	16.4	0	n/a	0	n/a	108	14.4
20-24	127	10.4	80	8.4	15	18.7	4	n/a	226	10.0
25-29	135	7.8	138	7.9	39	13.5	12	27.0	324	8.5
30-34	140	8.8	177	7.3	42	11.1	11	11.5	370	8.2
35-39	80	12.2	100	7.1	42	14.6	18	20.3	240	9.8
40-44	15	14.3	23	10.2	8	11.4	9	26.2	55	12.6
≥ 45	-	n/a	2	n/a	1.0	n/a	-	n/a	3	n/a
TOTAL	584	9.9	541	7.9	147	13.2	54	20.1	1326	9.3

Rate is number of deaths per 1000 total births.

Table 10: Maternal age by Aboriginality of mother for all births in Western Australia, 2004-2008

Maternal Age	Aboriginal		Non-Aboriginal		TOTAL	
	No.	%	No.	%	No.	%
≤ 15	184	2.1	127	0.1	311	0.2
16	276	3.2	429	0.3	705	0.5
17	443	5.1	930	0.7	1373	1.0
18	527	6.1	1579	1.2	2106	1.5
19	624	7.2	2382	1.8	3006	2.1
≤ 19	2054	23.7	5447	4.1	7501	5.3
20-24	2776	32.0	19778	14.8	22554	15.9
25-29	2004	23.1	36000	27.0	38004	26.8
30-34	1176	13.6	43745	32.8	44921	31.7
35-39	564	6.5	23862	17.9	24426	17.2
40-44	96	1.1	4264	3.2	4360	3.1
≥ 45	2	0.0	156	0.1	158	0.1
TOTAL	8672	100.0	133252	100.0	141924	100.0

Table 11: Birthweight by gender of perinatal deaths in Western Australia, 2004-2008

Birth weight	Gender				Indeterminate		TOTAL	
	Male		Female		No.	Rate	No.	Rate
< 500	270	967.7	243	956.7	4	n/a	517	962.8
500-999	167	419.6	113	337.3	2	n/a	282	383.7
1000-1499	47	101.1	46	105.7	-	n/a	93	103.2
1500-1999	35	37.9	40	40.3	-	n/a	75	39.1
2000-2499	29	10.9	46	14.9	-	n/a	75	13.0
< 2500	548	116.1	488	95.5	6	n/a	1042	105.9
2500-2999	53	5.5	58	4.6	-	n/a	111	5.0
3000-3499	60	2.4	49	1.8	-	n/a	109	2.1
3500-3999	24	1.0	16	0.8	-	n/a	40	0.9
4000-4499	10	1.2	5	1.0	-	n/a	15	1.1
≥ 4500	6	4.2	3	4.4	-	n/a	9	4.2
TOTAL	701	9.7	619	8.9	6	n/a	1326	9.3

Rate is number of deaths per 1000 total births.

Table 12: Cause of death by plurality of perinatal deaths in Western Australia, 2004-2008
PSANZ-PDC classification of perinatal deaths

Cause of Death	Plurality				TOTAL	
	Singleton		Multiple		No.	%
	No.	%	No.	%		
Congenital abnormality	347	29.8	24	14.7	371	28.0
Perinatal infection	69	5.9	2	1.2	71	5.4
Hypertension	53	4.6	3	1.8	56	4.2
Antepartum haemorrhage	61	5.2	2	1.2	63	4.8
Maternal conditions	40	3.4	2	-	42	3.2
Specific perinatal conditions	50	4.3	54	33.1	104	7.8
Hypoxic peripartum death	45	3.9	1	-	46	3.5
Fetal growth restriction	82	7.1	7	4.3	89	6.7
Spontaneous preterm (< 37 weeks)	232	19.9	62	38.0	294	22.2
Unexplained antepartum death	159	13.7	6	-	165	12.4
No obstetric antecedent	25	2.1	0	-	25	1.9
TOTAL	1163	100.0	163	100.0	1326	100.0

Table 13: Cause of death by plurality of neonatal deaths in Western Australia, 2004-2008
PSANZ-NDC classification of neonatal deaths

Cause of Death	Plurality				TOTAL	
	Singleton		Multiple		No.	%
	No.	%	No.	%		
Congenital abnormality	78	31.3	13	19.7	91	28.9
Extreme prematurity	69	27.7	29	43.9	98	31.1
Cardio-respiratory disorders	13	5.2	10	15.2	23	7.3
Infection	19	7.6	2	3.0	21	6.7
Neurological	33	13.3	6	9.1	39	12.4
Gastrointestinal	4	1.6	5	7.6	9	2.9
Other (inc. SIDS)	34	13.7	0	0.0	34	10.8
TOTAL	249	100.0	66	98.5	315	100.0

Table 14: Fetal, neonatal and perinatal deaths by performance of autopsy in Western Australia, 2004-2008

Autopsy	Fetal deaths		Neonatal deaths		Perinatal deaths	
	No.	%	No.	%	No.	%
Yes	663	65.6	129	41.0	792	59.7
No	325	32.1	168	53.3	493	37.2
Unknown	23	2.3	18	5.7	41	3.1
TOTAL	1011	100.0	315	100.0	1326	100.0

Table 15: Birthweight by gestational age of fetal deaths in Western Australia, 2004-2008

Birth weight	Gestational Age								TOTAL	
	20-27		28-32		33-36		37-43		No.	Rate
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
< 500	432	842.1	9	818.2	5	0.0	8	0.0	454	845.4
500-999	154	258.8	29	216.4	-	n/a	1	0.0	184	250.3
1000-1499	17	147.8	42	63.0	8	74.8	2	0.0	69	76.6
1500-1999	3	0.0	28	36.5	20	19.9	5	36.2	56	29.2
2000-2499	-	n/a	7	41.7	26	8.3	19	7.7	52	9.0
< 2500	606	493.5	115	65.8	59	13.9	35	13.4	815	82.8
2500-2999	-	n/a	2	80.0	22	6.4	56	3.0	80	3.6
3000-3499	-	n/a	-	n/a	10	7.6	64	1.3	74	1.4
3500-3999	-	n/a	-	n/a	2	7.2	23	0.5	25	0.6
4000-4499	-	n/a	-	n/a	1	n/a	10	0.8	11	0.8
≥ 4500	-	n/a	-	n/a	1	n/a	5	2.4	6	2.8
TOTAL	606	493.5	117	65.6	95	10.2	193	1.5	1011	7.1

Rate is number of deaths per 1000 total births.

Table 16: Birthweight by gestational age of livebirths in Western Australia, 2004-2008

Birth weight	Gestational Age								TOTAL	
	20-27		28-32		33-36		37-44		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
< 500	81	13.0	2	0.3	-	n/a	-	n/a	83	0.1
500-999	441	70.9	105	6.2	3	0.0	2	0.0	551	0.4
1000-1499	98	15.8	625	35.8	99	1.1	10	0.0	832	0.6
1500-1999	2	0.3	740	44.0	986	10.7	133	0.1	1861	1.3
2000-2499	-	n/a	161	11.5	3103	33.5	2435	1.9	5699	4.0
< 2500	622	100.0	1633	97.8	4191	45.3	2581	2.0	9026	6.4
2500-2999	-	n/a	23	1.1	3422	37.0	18791	39.0	22236	15.8
3000-3499	-	n/a	8	0.8	1300	14.0	50226	32.6	51534	36.6
3500-3999	-	n/a	1	0.1	274	3.0	42533	10.1	42808	30.4
4000-4499	-	n/a	2	0.1	59	0.6	13136	1.7	13197	9.4
≥ 4500	-	n/a	-	n/a	15	0.2	2097	0.0	2112	1.5
TOTAL	622	100.0	1667	100.0	9261	100.0	129363	100.0	140913	100.0

Table 17: Birthweight by gestational age of all births in Western Australia, 2004-2008

Birth weight	Gestational Age								TOTAL	
	20-27		28-32		33-36		37-44		No.	%
	No.	%	No.	%	No.	%	No.	%		
< 500	513	43.4	11	0.7	5	0.0	8	0.0	537	0.4
500-999	595	47.0	134	7.6	3	0.1	3	0.0	735	0.5
1000-1499	115	9.2	667	36.3	107	0.0	12	0.0	901	0.6
1500-1999	5	0.4	768	42.2	1006	10.8	138	0.1	1917	1.3
2000-2499	0	0.0	168	11.0	3129	34.3	2454	1.9	5751	4.1
< 2500	1228	100.0	1748	98.0	3838	41.0	2615	2.1	9841	6.9
2500-2999	0	0.0	25	1.2	3444	36.9	18847	14.6	22316	15.7
3000-3499	0	0.0	8	0.7	1310	13.3	50290	39.0	51608	36.4
3500-3999	0	0.0	1	0.1	276	2.7	42556	32.5	42833	30.2
4000-4499	0	0.0	2	0.1	60	0.6	13146	10.1	13208	9.3
≥ 4500	0	0.0	0	0.0	16	0.2	2102	1.7	2118	1.5
TOTAL	1228	100.0	1784	100.1	9356	100.0	129556	100.0	141924	100.0

Table 18: Gestational age by plurality of fetal deaths in Western Australia, 2004-2008

Gestation	Plurality				TOTAL	
	Singleton		Multiple		No.	Rate
	No.	Rate	No.	Rate		
20-27	552	535.4	54	274.1	606	493.5
28-32	106	81.4	11	22.9	117	65.6
33-36	86	11.6	9	4.7	95	10.2
37-44	183	1.4	10	6.0	193	1.5
TOTAL	927	6.7	84	19.6	1011	7.1

Rate is number of deaths per 1000 total births.

Table 19: Cause of death by time of death of fetal deaths in Western Australia, 2004-2008

Cause of Death	Time of Death						TOTAL	
	Antepartum		Intrapartum		Unknown		No.	%
	No.	%	No.	%	No.	%		
Lethal congenital anomaly	89	16.6	169	53.0	52	33.3	310	30.7
Extremely low birthweight	203	37.9	110	34.5	63	39.7	376	37.2
Unknown	187	35.0	31	9.7	39	25.0	257	25.4
Maternal Obstetric	9	1.7	-	n/a	-	n/a	9	0.9
Maternal Medical	7	1.3	2	0.6	-	n/a	9	0.9
Maternal Hypertension	2	0.4	1	0.3	-	n/a	3	0.3
Placenta and Cord	33	6.2	6	1.9	3	1.9	42	4.2
Other	5	0.9	-	n/a	-	n/a	5	0.5
TOTAL	535	100.0	319	100.0	157	99.9	1011	100.0

Table 20: Cause of death by Aboriginality of mother of fetal deaths in Western Australia, 2004-2008

Cause of Death	Aboriginality of Mother				TOTAL	
	Aboriginal		Non-Aboriginal		No.	%
	No.	%	No.	%		
Lethal congenital anomaly	19	17.1	291	32.3	310	30.7
Extremely low birthweight	56	50.5	320	35.6	376	37.2
Unknown	27	24.3	231	25.7	258	25.5
Maternal obstetric	2	1.8	6	0.7	8	0.8
Maternal medical	2	1.8	7	0.8	9	0.9
Maternal hypertension	-	n/a	3	0.3	3	0.3
Placenta and cord	4	3.6	38	4.2	42	4.2
Other	1	0.9	4	0.4	5	0.5
TOTAL	111	100.0	900	100.0	1011	100.0

Table 21: Birthweight by gestational age of neonatal deaths in Western Australia, 2004-2008

Birth weight	Gestational Age								TOTAL	
	20-27		28-32		33-36		37-44		No.	Rate
	No.	Rate	No.	Rate	No.	Rate	No.	Rate		
< 500	63	777.8	-	n/a	-	n/a	-	n/a	63	759.0
500-999	94	213.2	4	38.1	-	n/a	-	n/a	98	177.9
1000-1499	7	71.4	14	22.4	2	20.2	1	0	24	100.0
1500-1999	-	n/a	9	12.2	8	8.1	2	15.0	19	28.8
2000-2499	-	n/a	-	n/a	4	1.3	19	7.8	23	10.2
< 2500	164	263.7	27	16.5	14	4.1	22	8.5	227	25.1
2500-2999	-	n/a	-	n/a	12	3.5	19	1.0	31	4.0
3000-3499	-	n/a	1	0.0	2	1.5	32	0.6	35	0.7
3500-3999	-	n/a	-	n/a	-	n/a	15	0.4	15	0.4
4000-4499	-	n/a	-	n/a	-	n/a	4	0.3	4	0.3
≥ 4500	-	n/a	-	n/a	-	n/a	3	1.4	3	1.4
TOTAL	164	263.7	28	16.8	28	3.0	95	0.7	315	2.2

Rate is number of deaths per 1000 livebirths.

Table 22: Gestational age by plurality of neonatal deaths in Western Australia, 2004-2008

Gestation	Plurality				TOTAL	
	Singleton		Multiple		No.	Rate
	No.	Rate	No.	Rate		
20-27	113	235.9	51	356.6	164	263.7
28-32	25	20.9	3	6.4	28	16.8
33-36	23	3.1	5	2.6	28	3.0
37-42	94	0.7	1	0.6	95	0.7
≥ 43	-	n/a	-	n/a	-	n/a
TOTAL	255	1.9	60	14.3	315	2.2

Rate is number of deaths per 1000 livebirths.

Table 23: Cause of death by age at death of neonatal deaths in Western Australia, 2004-2008

Cause of Death	Age at Death (days)								TOTAL
	0 No.	1 No.	2 No.	3 No.	4-7 No.	8-14 No.	15-21 No.	22-28 No.	No.
Lethal Congenital Anomaly	47	9	5	6	10	15	8	5	105
Low birthweight	84	17	11	7	7	11	9	4	150
Asphyxia	8	1	2	2	5	1	0	0	19
Pregnancy conditions	0	0	0	0	0	0	0	0	0
Infection	2	0	1	1	1	2	1	0	8
Hydrops fetalis	0	0	0	0	0	0	0	0	0
Other	0	0	2	0	0	1	1	1	5
SIDS/accidental	0	2	1	0	2	4	6	4	19
Unknown	1	0	3	1	1	1	2	0	9
TOTAL	142	29	25	17	26	35	27	14	315
	%	%	%	%	%	%	%	%	%
Lethal Congenital Anomaly	33.1	31.0	20.0	35.3	38.5	42.9	29.6	35.7	33.4
Low birthweight	59.2	58.6	44.0	41.2	26.9	31.4	33.3	28.6	47.6
Asphyxia	5.6	3.4	8.0	11.8	19.2	2.9	0.0	0.0	6.0
Pregnancy conditions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Infection	1.4	0.0	4.0	5.9	3.8	5.7	3.7	0.0	2.5
Hydrops fetalis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.0	8.0	0.0	0.0	2.9	3.7	7.1	1.6
SIDS/accidental	0.0	6.9	4.0	0.0	7.7	11.4	22.2	28.6	6.0
Unknown	0.7	0.0	12.0	5.9	3.8	2.9	7.4	0.0	2.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 24: Cause of death by Aboriginality of mother of neonatal deaths in Western Australia, 2004-2008

Cause of Death	Aboriginality of Mother				TOTAL	
	Aboriginal		Non-Aboriginal		No.	%
	No.	%	No.	%	No.	%
Lethal Congenital Anomaly	11	21.2	94	35.7	105	33
Low birthweight	30	57.7	120	45.6	150	48
Asphyxia	2	3.8	17	6.5	19	6
Pregnancy conditions	0	0.0	0	0.0	0	0
Infection	1	1.9	7	2.7	8	3
Hydrops fetalis	0	0.0	0	0.0	0	0
Other	0	0.0	5	1.9	5	2
SIDS/accidental	7	13.5	12	4.6	19	6
Unknown	1	1.9	8	3.0	9	3
TOTAL	52	100.0	263	100.0	315	100

Table 25: Neonatal, postneonatal and infant deaths by Aboriginality of mother in Western Australia, 2004-2008

Aboriginality of Mother	Neonatal deaths		Postneonatal deaths		Infant deaths	
	No.	Rate	No.	Rate	No.	Rate
Aboriginal	52	6.1	45	5.3	97	11.3
Non-Aboriginal	263	2.0	138	1.0	401	3.0
TOTAL	315	2.2	183	1.3	498	3.5

Table 26: Neonatal, postneonatal and infant death rates by Aboriginality of mother in Western Australia, 1994-2008

Year of Birth	Neonatal Death Rate			Postneonatal Death Rate			Infant Death Rate		
	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total
1994	7.7	3.5	3.8	13.3	1.8	2.4	21.0	5.3	6.2
1995	9.0	2.6	3.0	12.5	1.1	1.8	21.5	3.7	4.8
1996	7.0	3.6	3.8	8.4	1.3	1.7	15.4	4.9	5.5
1997	5.2	2.6	2.7	7.1	2.0	2.4	12.3	4.6	5.1
1998	8.0	2.3	2.7	10.0	1.5	2.0	17.9	3.8	4.6
1999	12.5	2.4	3.0	6.9	1.2	1.6	19.3	3.6	4.6
2000	7.6	2.3	2.6	7.6	1.2	1.6	15.1	3.5	4.2
2001	6.7	2.7	2.9	8.0	1.3	1.8	14.7	4.0	4.7
2002	9.1	1.7	2.2	5.5	1.0	1.3	14.6	2.7	3.5
2003	7.9	1.8	2.2	7.9	0.9	1.3	15.7	2.7	3.5
2004	5.8	2.2	2.4	1.9	1.0	1.1	7.7	3.2	3.5
2005	5.9	2.6	2.8	4.1	1.6	1.7	10.0	4.1	4.5
2006	10.1	1.8	2.3	6.8	1.0	1.4	17.0	2.8	3.7
2007	4.4	1.8	2	7.2	0.6	1.0	11.6	2.5	3
2008	5.8	1.7	1.9	5.8	1.1	1.4	11.7	2.8	3.3

Table 27: Maternal age by parity of infant deaths in Western Australia, 2004-2008

Maternal Age	Parity								TOTAL	
	0		1-2		3-4		≥ 5		No.	Rate
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
≤ 15	5	17.0	-	n/a	-	n/a	-	n/a	5	16.4
16	5	7.5	1	31.3	-	n/a	-	n/a	6	8.6
17	4	3.2	2	17.1	-	n/a	-	n/a	6	4.4
18	9	5.3	7	18.7	-	n/a	-	n/a	16	7.7
19	23	10.3	5	6.8	1	100	-	n/a	29	9.7
≤ 19	46	7.5	15	11.8	1	63	-	n/a	62	8.3
20-24	40	3.3	53	5.6	10	12.6	2	66.7	105	4.7
25-29	47	2.7	61	3.5	16	5.6	9	20.5	133	3.5
30-34	36	2.3	43	1.8	19	5.1	8	8.4	106	2.4
35-39	22	3.4	27	1.9	12	4.2	16	18.3	77	3.2
40-44	5	4.8	5	2.2	4	5.8	-	n/a	14	3.2
≥ 45	-	n/a	1	17.9	-	n/a	-	n/a	1	6.4
TOTAL	196	3.3	205	3.0	62	5.6	35	13.2	498	3.5

Rate is number of deaths per 1000 total livebirths in each age group category.

Table 28: Birthweight by gender of infant deaths in Western Australia, 2004-2008

Birth weight	Gender				TOTAL	
	Male		Female		No.	Rate
	No.	Rate	No.	Rate	No.	Rate
< 500	27	771.4	38	791.7	65	783.1
500-999	67	233.4	49	185.6	116	210.5
1000-1499	18	41.6	15	37.7	33	39.7
1500-1999	17	18.9	18	18.8	35	18.8
2000-2499	20	7.6	23	7.5	43	7.5
< 2500	149	34.7	108	22.8	292	32.4
2500-2999	32	3.3	37	2.9	69	3.1
3000-3499	39	1.6	46	1.7	85	1.6
3500-3999	24	1.0	16	0.8	40	0.9
4000-4499	8	1.0	1	0.2	9	0.7
≥ 4500	2	1.4	1	1.5	3	1.4
TOTAL	254	3.5	244	3.5	498	3.5

Rate is number of deaths per 1000 total livebirths in each birthweight category.

Table 29: Gestational age by plurality of infant deaths in Western Australia, 2004-2008

Gestation	Plurality				TOTAL	
	Singleton		Multiple		No.	Rate
	No.	Rate	No.	Rate		
20-27	129	269.3	54	377.6	183	294.2
28-32	41	34.3	4	8.5	45	27
33-36	46	6.3	12	6.3	58	6.3
37-42	210	1.6	2	1.2	212	1.6
≥ 43						
TOTAL	426	3.1	72	18.8	483	3.4

Rate is number of deaths per 1000 total livebirths in each gestational group category.

Table 30: Cause of death by age at death of postneonatal deaths in Western Australia, 2004-2008

Cause of Death	Age at Death (weeks)						TOTAL
	5-8	9-12	13-16	17-20	21-24	25-52	No.
	No.	No.	No.	No.	No.	No.	
SIDS	4	5	4	5	4	1	23
Lethal Congenital Anomaly	12	3	9	4	4	12	44
Infection	5	1	4	2	1	2	15
Other	4	2	1	4	5	10	26
Unknown	13	9	20	12	4	11	69
Prematurity	3	0	0	2	0	1	6
TOTAL	41	20	38	29	18	37	183
	%	%	%	%	%	%	%
SIDS	9.8	25.0	10.5	17.2	22.2	2.7	12.6
Lethal Congenital Anomaly	29.3	15.0	23.7	13.8	22.2	32.4	24.0
Infection	12.2	5.0	10.5	6.9	5.6	5.4	8.2
Other	9.8	10.0	2.6	13.8	27.8	27.0	14.2
Unknown	31.7	45.0	52.6	41.4	22.2	29.7	37.7
Prematurity	7.3	0.0	0.0	6.9	0.0	2.7	3.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 31: Cause of death by Aboriginality of mother of postneonatal deaths in Western Australia, 2004-2008

Cause of Death	Aboriginality of Mother				TOTAL	
	Aboriginal		Non-Aboriginal		No.	%
	No.	%	No.	%		
SIDS	10	22.2	13	9.4	23	12.6
Lethal Congenital Anomaly	10	22.2	34	24.6	44	24.0
Infection	4	8.9	11	8.0	15	8.2
Other	1	2.2	25	18.1	26	14.2
Unknown	18	40.0	51	37.0	69	37.7
Prematurity	2	4.4	4	2.9	6	3.3
TOTAL	45	100.0	138	100.0	183	100.0

7. DEFINITIONS

ABORIGINALITY

Identification as of Aboriginal and/or Torres Strait Islander origin. Refers to mother's identification, not that of the baby or of the father of the baby.

BIRTHWEIGHT

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

<u>Low Birthweight</u>	A birthweight of less than 2500 grams
<u>Very Low Birthweight</u>	A birthweight of less than 1500 grams
<u>Extremely Low Birthweight</u>	A birthweight of less than 1000 grams

CONGENITAL ANOMALY

Any defect present at birth, probably of developmental origin.

CRUDE BIRTH RATE

The number of livebirths per 1000 total population.

FETAL DEATH

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

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.

MATERNAL DEATH

See Part 5 of the report, on page 11.

MORTALITY PROPORTIONS

<u>Fetal Mortality Rate</u>	The number of fetal deaths per 1000 total births in a year.
<u>Neonatal Mortality Rate</u>	The number of neonatal deaths per 1000 livebirths in a year.
<u>Perinatal Mortality Rate</u>	The number of fetal and neonatal deaths per 1000 total births in a year.
<u>Post-neonatal Mortality Rate</u>	The number of post-neonatal deaths per 1000 livebirths in a year.
<u>Infant Mortality Rate</u>	The number of infant deaths per 1000 livebirths in a year.
<u>Maternal Mortality Rate</u>	The number of maternal deaths per 100,000 livebirths in a year.
<u>Maternal Mortality Ratio</u>	The number of maternal deaths per 100,000 women who gave birth in a year.

NEONATAL DEATH

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

PARITY

The total number of livebirths and fetal deaths of the mother prior to the parturition under consideration.

PERINATAL DEATH

A fetal death or neonatal death.

POST-NEONATAL DEATH

The death of a liveborn infant occurring after the first month 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.

APPENDIX A

Health Act (Notification by Midwife) Regulations Form 2. **NOTIFICATION OF CASE ATTENDED**

MR 15

Surname _____ Forenames _____ Address of usual residence Number and Street _____ _____ Town or City _____ Maiden name		Unit Record No <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> Birth Date (Mother) <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																										Hospital _____ Ward _____ Marital Status 1=never married 2=widowed 3=divorced <input type="checkbox"/> 4=separated 5=married (incl. defacto) <input type="checkbox"/> 6=unknown Ethnic Origin 1=Caucasian 2= Aboriginal / TSI <input type="checkbox"/> Other																																																																									
State _____ Post Code <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> Height (cms) <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> Tel. No. <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																							Pregnancy Details		Labour Details		Baby Details																																																																										
Previous Pregnancies: - total number (excluding this pregnancy) <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td></tr></table> Previous pregnancy outcomes: - children now living: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td></tr></table> - born alive, now dead: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td></tr></table> - stillborn: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td></tr></table> Previous caesarean section: 1=yes 2=no <input type="checkbox"/> Caesarean last delivery: 1=yes 2=no <input type="checkbox"/> Previous multiple birth: 1=yes 2=no <input type="checkbox"/> This Pregnancy: Date of LMP: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> This date certain 1=yes 2=no <input type="checkbox"/> Expected due date: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> based on 1=clinical signs/dates <input type="checkbox"/> 2=ultrasound < 20 weeks <input type="checkbox"/> Smoking during Pregnancy: 1=yes 2=no <input type="checkbox"/> Complications of Pregnancy: 1 <input type="checkbox"/> threatened abortion (<20wks) 2 <input type="checkbox"/> threatened preterm labour (<37 wks) 3 <input type="checkbox"/> urinary tract infection 4 <input type="checkbox"/> pre-eclampsia 5 <input type="checkbox"/> APH - placenta praevia 6 <input type="checkbox"/> abruptio 7 <input type="checkbox"/> other 8 <input type="checkbox"/> pre-labour rupture of membranes 9 <input type="checkbox"/> gestational diabetes 10 <input type="checkbox"/> other (specify)..... <table border="1" style="display: inline-table; border-collapse: collapse; width: 50px; height: 15px;"></table> <table border="1" style="display: inline-table; border-collapse: collapse; width: 50px; height: 15px;"></table>																																																Onset of Labour: 1=spontaneous 2=induced 3=no labour <input type="checkbox"/> Augmentation: 1 <input type="checkbox"/> none 2 <input type="checkbox"/> oxytocin 3 <input type="checkbox"/> prostaglandins 4 <input type="checkbox"/> artificial rupture of membranes 8 <input type="checkbox"/> other Induction: 1 <input type="checkbox"/> none 2 <input type="checkbox"/> oxytocin 3 <input type="checkbox"/> prostaglandins 4 <input type="checkbox"/> artificial rupture of membranes 8 <input type="checkbox"/> other Analgesia (during labour): 1 <input type="checkbox"/> none 2 <input type="checkbox"/> nitrous oxide 3 <input type="checkbox"/> intra-muscular narcotics 4 <input type="checkbox"/> epidural / caudal 5 <input type="checkbox"/> spinal 8 <input type="checkbox"/> other Duration of Labour: hrs mins 1st stage (hours & mins) : <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td></tr></table> <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td></tr></table> 2nd stage: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td></tr></table> <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td></tr></table>										(NB. separate form for each baby) Adoption: 1=yes 2=no <input type="checkbox"/> Born Before Arrival: 1=yes 2=no <input type="checkbox"/> Birth Date <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> Birth Time (24 hr clock) <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> Plurality: number of babies this birth <input type="checkbox"/> if multiple specify this baby number <input type="checkbox"/> Presentation: 1=vertex 2=breech <input type="checkbox"/> 3=face 4=brow 8=other <input type="checkbox"/> Method of Birth: 1 <input type="checkbox"/> spontaneous 2 <input type="checkbox"/> vacuum successful 3 <input type="checkbox"/> unsuccessful 4 <input type="checkbox"/> forceps successful 5 <input type="checkbox"/> unsuccessful 6 <input type="checkbox"/> breech (vaginal) 7 <input type="checkbox"/> elective caesarean 8 <input type="checkbox"/> emergency caesarean Accoucheur(s): 1 <input type="checkbox"/> obstetrician 2 <input type="checkbox"/> other medical officer 3 <input type="checkbox"/> midwife 4 <input type="checkbox"/> student 5 <input type="checkbox"/> self / no attendant 8 <input type="checkbox"/> other Gender: 1=male 2=female <input type="checkbox"/> Status of Baby at Birth: 1=liveborn 2=stillborn <input type="checkbox"/> Infant Weight (grams): <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> Length (cms): <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> Head Circumference (cms): <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> Time to establish unassisted regular breathing (mins): <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td></tr></table> Resuscitation: 1=none 2=suction only 3=oxygen therapy <input type="checkbox"/> 4=bag & mask 5=endotracheal intubation 6=ext.cardiac massage & vent. 8=other																																											
Medical Conditions: 1 <input type="checkbox"/> essential hypertension 2 <input type="checkbox"/> pre-existing diabetes mellitus 3 <input type="checkbox"/> asthma 4 <input type="checkbox"/> genital herpes 8 <input type="checkbox"/> other (specify)..... <table border="1" style="display: inline-table; border-collapse: collapse; width: 50px; height: 15px;"></table> <table border="1" style="display: inline-table; border-collapse: collapse; width: 50px; height: 15px;"></table>		Delivery Details		Complications of Labour and Delivery: (include reason stated for operative delivery) 1 <input type="checkbox"/> precipitate delivery 2 <input type="checkbox"/> fetal distress 3 <input type="checkbox"/> prolapsed cord 4 <input type="checkbox"/> cord tight around neck 5 <input type="checkbox"/> cephalopelvic disproportion 6 <input type="checkbox"/> PPH (=>500mls) 7 <input type="checkbox"/> retained placenta - manual removal 8 <input type="checkbox"/> persistent occipito posterior 9 <input type="checkbox"/> shoulder dystocia 10 <input type="checkbox"/> failure to progress <=3cms 11 <input type="checkbox"/> failure to progress > 3cms 12 <input type="checkbox"/> previous caesarean section 13 <input type="checkbox"/> other (specify)..... <table border="1" style="display: inline-table; border-collapse: collapse; width: 50px; height: 15px;"></table> <table border="1" style="display: inline-table; border-collapse: collapse; width: 50px; height: 15px;"></table>																																																																																																	
Procedures/treatments: 1 <input type="checkbox"/> fertility treatments (include drugs) 2 <input type="checkbox"/> cervical suture 3 <input type="checkbox"/> CVS/placental biopsy 4 <input type="checkbox"/> amniocentesis 5 <input type="checkbox"/> ultrasound 6 <input type="checkbox"/> CTG antepartum 7 <input type="checkbox"/> CTG intrapartum Intended place of birth at onset of labour: 1=hospital 2=birth centre attach. hospital <input type="checkbox"/> 3=birth centre free standing 4=home 8=other		Anaesthesia (during delivery): 1 <input type="checkbox"/> none 2 <input type="checkbox"/> local anaesthesia to perineum 3 <input type="checkbox"/> pudendal 4 <input type="checkbox"/> epidural / caudal 5 <input type="checkbox"/> spinal 6 <input type="checkbox"/> general 8 <input type="checkbox"/> other Perineal Status: 1=intact 2=1st degree tear <input type="checkbox"/> 3=2nd degree tear 4=3rd degree tear 5=episiotomy 6=episiotomy plus tear 8=other		Appgar Score: 1 minute <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td></tr></table> 5 minutes <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td></tr></table> Estimated Gestation (weeks): <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td></tr></table> Birth Defects (specify): Birth Trauma (specify): Baby Separation Details:																																																																																																	
MIDWIFE: Name..... Signature..... date...../...../..... Reg.No. <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> Coder ID <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>																		Please complete then forward this copy WITHIN 48 HOURS OF BIRTH TO: Health Information Centre Health Dept of Western Australia. PO Box 8172 Stirling Street, Perth 6849. The mother is not obliged to supply any information for the purposes of this form.		Sep. Date <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> Mode of separation: 1=transferred 8=died 9=disch home <input type="checkbox"/> transferred to: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> Special care (wholedays only): <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td> </td><td> </td><td> </td><td> </td></tr></table>																																																																																	

APPENDIX B

BDM201

Western Australia
Births, Deaths and Marriages Registration Act 1998



MINISTRY OF JUSTICE

MEDICAL CERTIFICATE OF CAUSE OF STILLBIRTH OR NEONATAL DEATH

To be completed in respect of –

- i). A child not born alive, of at least 20 weeks gestation or if the period of gestation cannot be reliably established, a weight of 400 grams
- ii). A live born child who dies within twenty-eight days after birth

Note: Where appropriate please tick relevant boxes If details are unknown, write "Unknown".

MOTHER'S DETAILS

Given names			
Surname			
Day	Month	Year	Parity
DOB			
Usual Residence			

CHILD'S DETAILS

Name (if given)
Place of death (Hospital name or other address)
Place of birth (if different to place of death)

Sex: Male Female
Plurality: Single Twin Triplet Other
Date of birth or delivery _____ / _____ / _____
1. Time of birth or delivery _____ (24 hour clock)
2. Weight at birth _____ grams
3. Period of gestation _____ completed weeks from first day of last menstrual period to date of delivery
4. When did heartbeat cease?
(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.....
5. If heartbeat ceased **prior** to delivery, estimate how long before _____ hours _____ days
6. If heartbeat ceased **after** delivery, enter the time _____ (24 hour clock)
7. If heartbeat ceased **after** delivery, enter the date _____
8. Did the child breathe after complete expulsion or extraction from the mother? Yes No

CAUSE OF DEATH (Print clearly. Do not abbreviate)

- **Post mortem:**
Carried out To be carried out: Yes No
- **Is cause of death shown below based on post mortem?** Yes No
- **Causes in child or foetus**

Disease or condition directly leading to death	Approx. interval between onset & death
Due to †	

Maternal or other conditions or causes giving rise to the underlying cause above	Approx. interval between onset & death
Due to †	

† Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last.

Other significant conditions in child, foetus or mother contributing to the death, but not related to the disease or condition causing it	Approx. interval between onset & death

I hereby certify that the particulars shown above are true to the best of my knowledge.

Signature _____
Name _____
Address _____

Date _____

APPENDIX C

BDM 202

Registry of Births, Deaths & Marriages Western Australia

MEDICAL CERTIFICATE OF CAUSE OF DEATH

Details of Deceased

(PLEASE PRINT CLEARLY IN BLOCK LETTERS)

Surname			
Given names (in full)			
Sex	Male <input type="checkbox"/>	Female <input type="checkbox"/>	Date of death / /
Place of death (in full)			
Age at death	(show age in completed units - Y= years or M = months)		
Aboriginal or Torres Strait Islander origin?	(If of both Aboriginal and Torres Strait Islander origin, cross both "Yes" boxes)		
	No <input type="checkbox"/>	Yes, Aboriginal origin <input type="checkbox"/>	Yes, Torres Strait Islander origin <input type="checkbox"/>
Date last seen alive by me	/ /		
Coroner	Is this death being, or has it been, reported to the Coroner? No <input type="checkbox"/> Yes <input type="checkbox"/>		
Post mortem status	Not to be conducted <input type="checkbox"/> Has been conducted <input type="checkbox"/> Yet to be conducted <input type="checkbox"/>		

Cause of Death Details

Cause

Approximate interval
between onset & death

Part I	(a)	<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>
Disease or condition directly leading to death*		due to	
<small>*This means the disease, injury or complication which caused death – not only the mode of dying, such as heart failure, respiratory failure etc.</small>			
Antecedent causes (b) - (e)	(b)	<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>
		due to	
Morbid conditions, if any, giving rise to the above cause (a), stating the underlying condition last	(c)	<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>
		due to	
	(d)	<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>
		due to	
	(e)	<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>
Part II			
Other significant conditions		<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>
contributing to death but not related to the disease or condition causing it		<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>

Other Details

Operations	Was an operation performed on the deceased within 4 weeks of death?	No <input type="checkbox"/>	Yes <input type="checkbox"/> (if "Yes" specify below)
Type of operation			
Disease/condition			
Pregnancy	Was the deceased pregnant within 6 weeks of death?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
	Was the deceased pregnant between 6 weeks and 12 months of death?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Injury	Was an injury/external cause involved in the death?	No <input type="checkbox"/>	Yes <input type="checkbox"/> (if "Yes" specify below)
<i>Only complete if death is not reportable to the Coroner</i>			

Certification

I hereby certify that I am a currently registered medical practitioner and that:

- I was responsible for the medical care of the abovenamed deceased immediately before death AND/OR
- I examined the body of the abovenamed deceased after death

and that the particulars and cause of death above written are true to the best of my knowledge and belief. This certificate is signed pursuant to Section 44 (1) of the Births, Deaths and Marriages Registration Act 1998.

Full name	Phone
Address	
Signature	Date / /



Delivering a **Healthy WA**