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PERINATAL STATISTICS IN WESTERN AUSTRALIA

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of the Western Australian Midwives'
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1. SUMMARY

The Midwives' Notification System compiles information on all births in Western Australia. Information on women resident in this State confined outside Western Australia during 1997 is not included in this report. This report presents an overview of data on births in 1997 in terms of maternal demography, procedures and infant outcomes. It also describes trends over the fifteen year period from 1983-1997.

Maternal demographic information

- In 1997, 24,794 women gave birth in Western Australia.
- Teenage mothers represented 5.8% (n=1,439) and mothers aged 35 years or more 14.2% (n=3,512) of women confined. While the proportion of teenage mothers has remained stable the group of older mothers has increased significantly over the previous 15 years.
- Most mothers were of Caucasian ethnic origin (85.7%). Aboriginal mothers comprised 6.2% and women of all other ethnicity comprised 8.1%. Birth rates among Aboriginal women are on average twice as high as those for non-Aboriginal women.
- The majority of women gave birth in hospital. In 1997, 99.2% of mothers delivered in hospital and 113 (0.5%) women were confined at home as planned.
- The metropolitan area was reported to be the usual place of residence for 71.5% of women although 74.5% of confinements occurred in metropolitan hospitals. This indicates the movement of women from the country to deliver in the metropolitan area. Women from country regions close to the metropolitan area were more likely to travel to Perth for delivery than women in distant country regions. The proportion of confinements in country hospitals has declined slightly from 27.2% in 1983 to 24.8% in 1997.

Pregnancy profile

- Singleton pregnancies represented 97.0% of the total 25,179 births in 1997. A further 377 women with multiple pregnancies gave birth to 762 twin, triplet or quadruplet babies. One pregnancy in every 66 was a multiple pregnancy. There were no quintuplet pregnancies recorded in 1997. There has been no significant difference in these proportions over the previous 15 year period.
- First time mothers represented 40.2% of women confined and trend data indicates that there has been no significant increase in this proportion over the previous 15 year period. Among women aged 35 years or more 786 (7.9%) gave birth for the first time.
- The Age Specific Birth Rate of women aged 15-19 years decreased over the past fifteen years from 27.4 births per 1000 women in 1983 to 24.0 births per 1000 women in 1997. The birth rate for women aged 35-44 years increased from 14.5 births per 1000 women in 1983 to 24.4 births per 1000 women in 1997.
- Complications of pregnancy were recorded for 36.7% of women. The more common complications were threatened abortion in early pregnancy (4.9%), urinary tract infection (5.0%) and pre-eclampsia (6.6%).
- A significant proportion of pregnant women had pre-existing medical conditions. In 1997, the most common of these conditions was asthma, affecting 7.9% of mothers. Diabetes was recorded for 0.2%, epilepsy for 0.5% and thyroid disorders for 1.0% of mothers.

Labour and delivery

- Labour was spontaneous in onset for 58.4% of mothers and induced for 28.3%. A further 13.7% of women had babies delivered by caesarean section and did not experience labour. Trend data indicates that, in accord with the increased rate of elective caesarean section, there was a significant increase over the 15 year period in the proportion of women who did not experience labour.
- The rate of caesarean section in 1997 was 22.0%. This figure has risen from 13.3% in 1983, and represents one of the most striking features of modern obstetrics. Of the women recorded as having had a previous caesarean section 88.7% (n=1,753) were again delivered by caesarean section. However, as previous caesarean section was not always recorded when an assisted or spontaneous vaginal delivery occurred, the incidence of vaginal birth after caesarean section must be considered under reported.
- Less than a third (29.1%) of women established labour spontaneously, proceeded through labour without augmentation and achieved a spontaneous vaginal delivery although almost twice the number (58.1%) had a spontaneous onset of labour. Thus, less than a third of births occurred without intervention to the processes of labour or delivery.
- The increased use of epidural analgesia and anaesthesia is another feature of modern obstetrics. In 1997, 43.1% (n=10,693) of mothers received an epidural at some stage during labour and delivery. Among women delivering by elective caesarean section, 91.8% had an epidural anaesthetic and this statistic has almost doubled over the previous 15 year period. The number of women receiving a general anaesthetic at some stage during labour and/or delivery was 764 (3.1%). It should be noted that some hospitals conducting booked deliveries do not offer an epidural service.

Baby characteristics

- In 1997, 25,179 babies were born in Western Australia.
- The crude birth rate steadily declined from 16.9 per 1000 in 1983 to 13.9 per 1000 in 1997.
- Birthweight is one of the most important factors affecting the survival of a baby. In 1997, two thirds of babies (66.5%) weighed 3000-3999g at birth, and the average birthweight was 3346 grams. The percentage of low birthweight (<2500g) babies was 6.3%, and this proportion has remained static over the previous 15 year period.
- Perinatal mortality among the babies born in 1997 indicated that there were 107 stillbirths and 51 neonatal deaths, providing a perinatal mortality rate of 6.3 perinatal deaths per 1000 total births. The perinatal mortality rate has declined significantly over the previous 15 year period, from 11.5 per 1000 in 1983.
- Indigenous status and low birthweight influence birth outcome. Babies of Aboriginal mothers do not fare as well as babies of non-Aboriginal women. The percentage of low birthweight Aboriginal babies (12.8% in 1997) was approximately double that of non-Aboriginal babies (5.9% in 1997).
- Mortality rates for babies of Aboriginal mothers were more than twice those for babies of non-Aboriginal women. The perinatal mortality rate in 1997 for babies of Aboriginal mothers was 16.6 per 1000 compared with a rate of 5.6 per 1000 for babies of non-Aboriginal women. There has been a positive reduction in the perinatal mortality rate for babies of Aboriginal women over the previous 15 years from 11.5 per 1000 in 1983 to 6.3 per 1000 in 1997.

2. INTRODUCTION

This is the Fifteenth Annual Report on Perinatal Statistics in Western Australia from the Midwives' Notification System. All routine reports from the collection are in statistical form without identification of individual patients, midwives, doctors or hospitals.

This report contains information on women and their babies delivered in Western Australia during the 1997 calendar year. Only those pregnancies which resulted in a final product of conception having a birthweight equal to or greater than 500 grams have been included. Notifications were received for 82 babies whose birthweight was less than 500 grams.

Notification of Case Attended (Midwives') Form 2 are received by the Maternal and Child Health Studies Unit where the information is checked for completeness and, if necessary, followed up for additional details. The information is then transcribed into a coded format, using the World Health Organisation - International Classification of Diseases, 9th Revision Clinical Modification² (ICD-9-CM) to code morbidity. Once this coding is complete, the data are entered to create the computer data base. A validation study of the 1992 data was published in July 1994.³

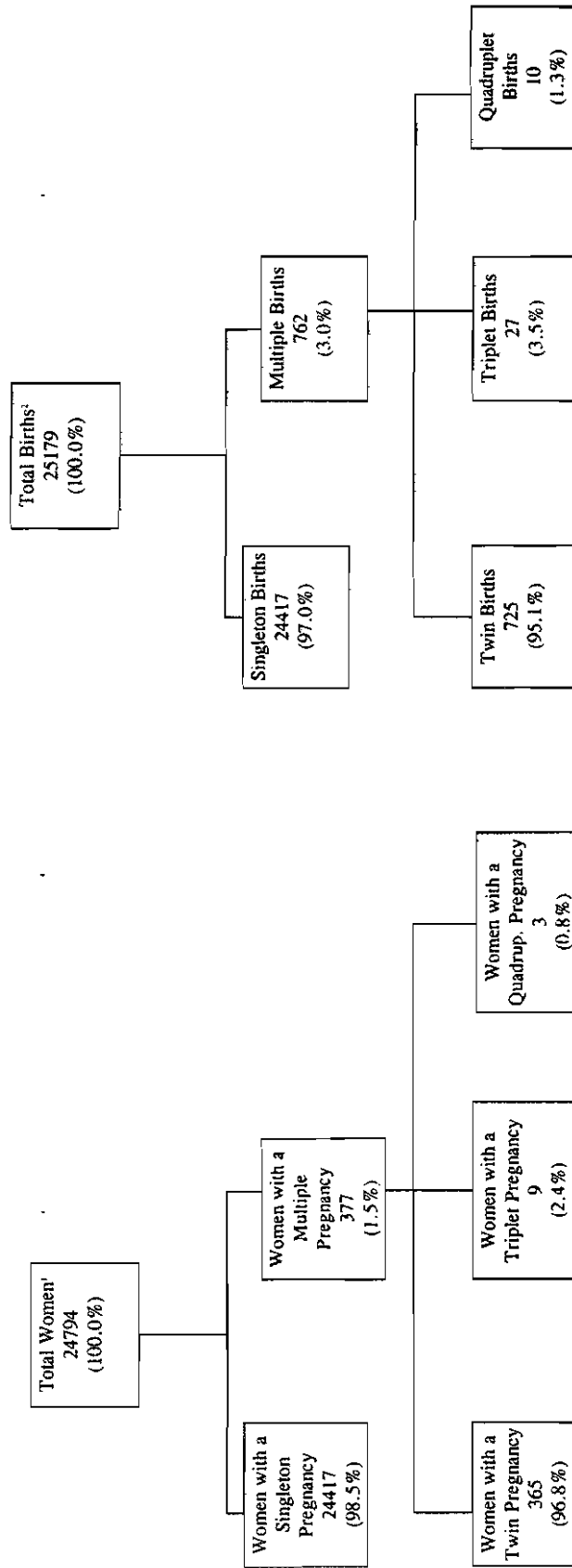
To ensure the complete ascertainment of perinatal deaths within Western Australia, information is collated from the Midwives' Notification System, Hospital Morbidity System, Registrar General's Office and Community and Child Health Services. This is then linked to the birth cohort.

The ethnic origin of the mother recorded in this collection included provision for recording Aboriginal/Torres Strait Islander status. Information on country of birth for women confined is available as a derived variable from the Hospital Morbidity Data System and will be included in future reports.

Population estimates based on census data were obtained from the Western Australian Branch of the Bureau of Statistics.

TREE DIAGRAM 1

PREGNANCIES AND BIRTHS IN WESTERN AUSTRALIA, 1997



Excludes births less than 500 grams birthweight.

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

¹ Includes one woman with a quadruplet pregnancy where two quadruplets weighed less than 500 grams birthweight.

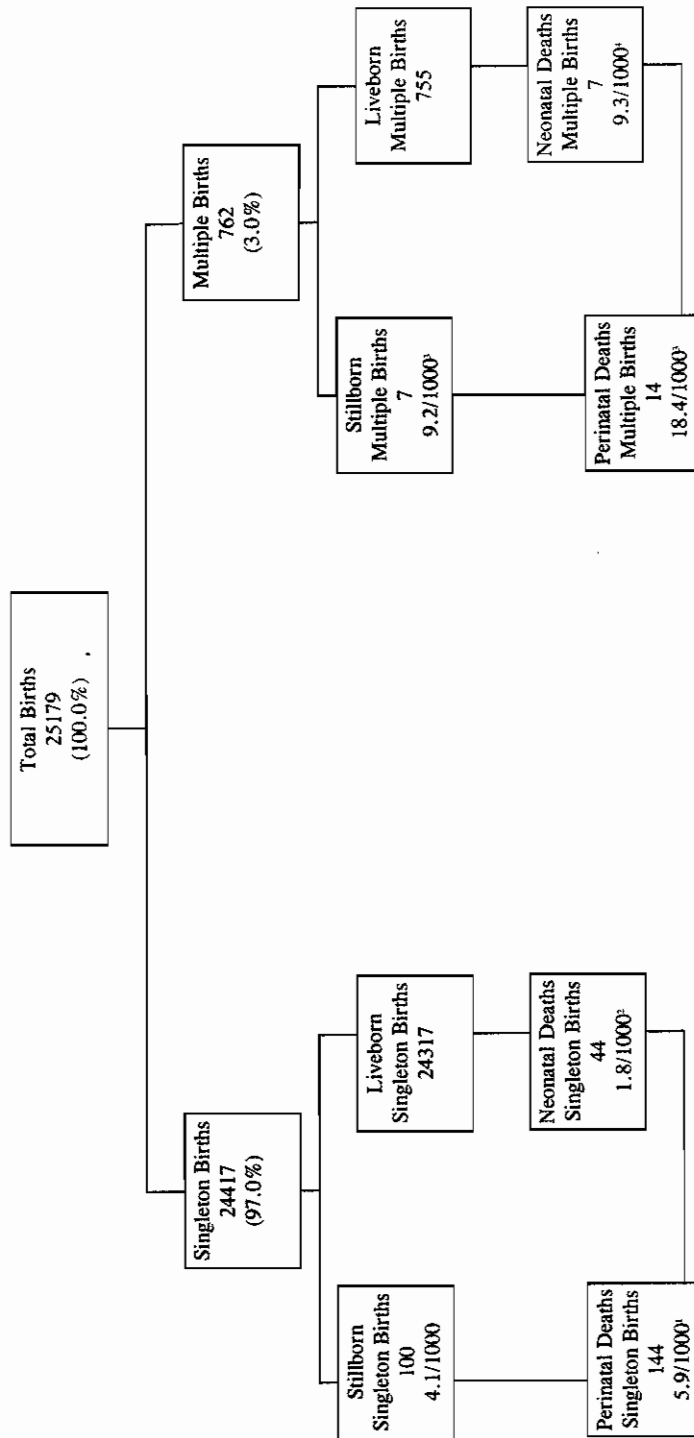
² Includes five single twin births whose birthweight was 500 grams or more.

² Includes two quadruplets whose birthweight was 500 grams or more (from one multiple birth set).

SOURCE: MIDWIVES' NOTIFICATION SYSTEM

TREE DIAGRAM 2

PLURALITY OF BIRTHS AND PERINATAL DEATHS IN WESTERN AUSTRALIA, 1997



Excludes births less than 500 grams birthweight.

¹/1000 total singleton births
³/1000 total multiple births

²/1000 singleton livebirths
⁴/1000 multiple livebirths

**SOURCE: MIDWIVES' NOTIFICATION SYSTEM
REGISTRAR GENERAL'S OFFICE**

**HOSPITAL MORBIDITY SYSTEM
COMMUNITY AND CHILD HEALTH SERVICES**

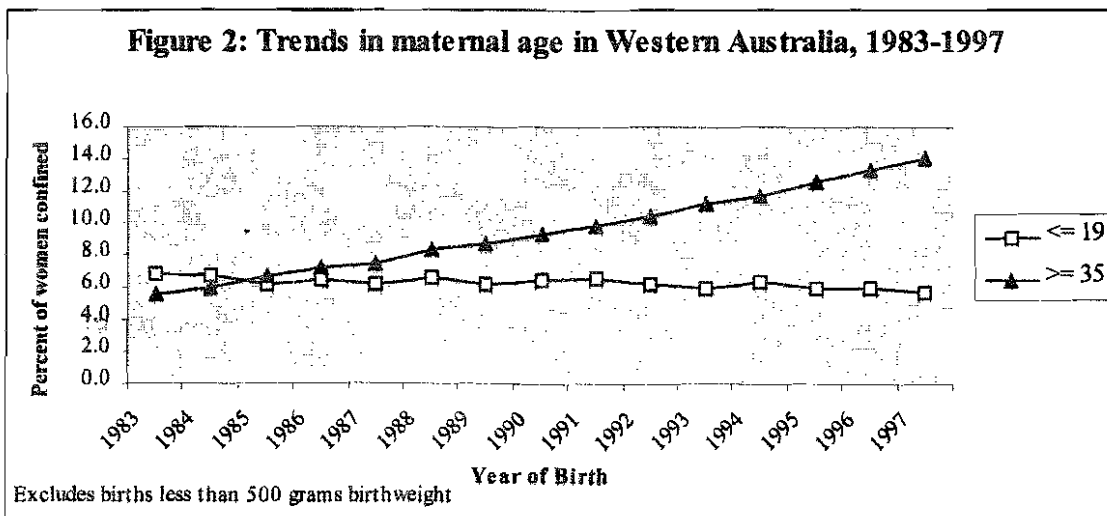
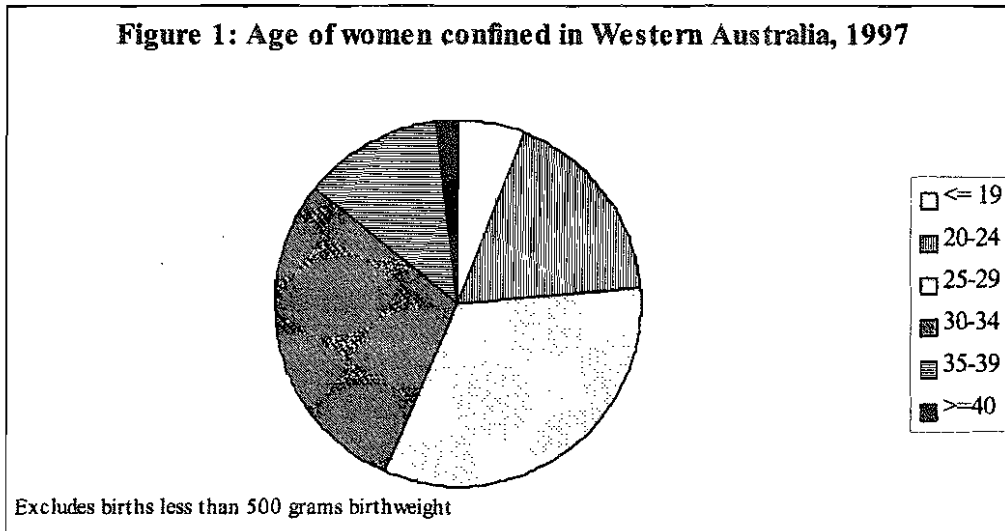
3. MATERNAL DEMOGRAPHIC INFORMATION

3.1 Age

There were 24,794 women confined in Western Australia during 1997. The range of maternal age for these women was 13 to 47 years with a mean age of 28.5 years. Women aged between 20 and 34 years represented 80.0% of all women confined. Young women aged 19 years or less represented 5.8% and the 35 years and older age group increasing to 14.2% of total women confined. There were 3,512 women in the 35 years and older age group, 786 (22.4%) of whom were experiencing their first confinement.

Among women whose ethnic origin was recorded as Aboriginal it is usual for childbearing to occur at a younger age as demonstrated by 24.5% of births to teenagers and 4.3% to women 35 years or more. Corresponding data for non-Aboriginal women showed proportions of 4.6% for teenagers and 14.8% for women aged 35 years or more (Table 1, Figure 1).

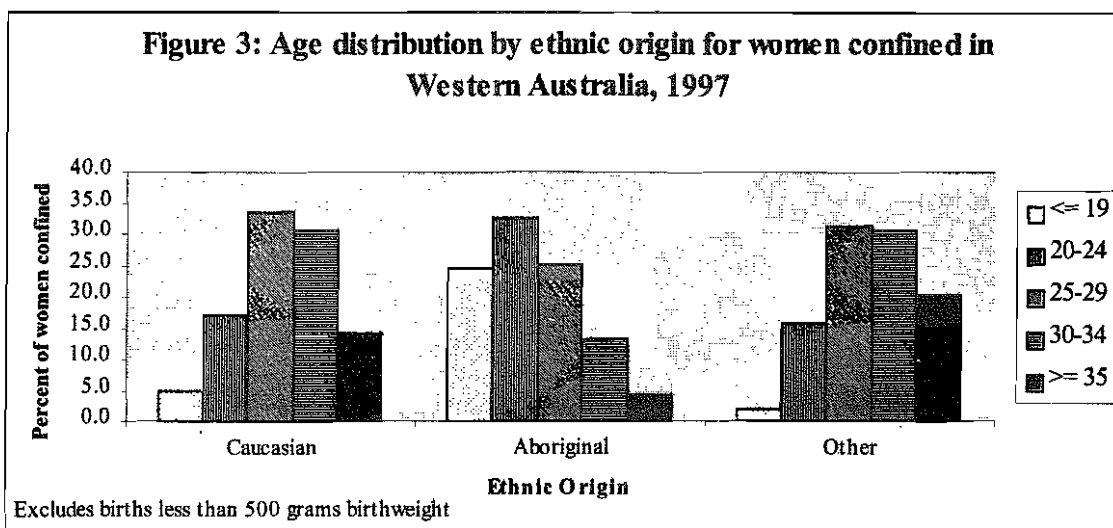
Trend data for maternal age indicated that among teenage women the proportion remained stable while among women 35 years and older there was a steady increase (5.7% in 1983 to 14.2% in 1997) through time (Table 2, Figure 2).



3.2 Aboriginality

The recording of ethnicity of childbearing women identified that the majority (85.7%) of women confined were reported as being of caucasian ethnic origin. The remaining thirteen percent was comprised of women recorded as being of Aboriginal origin (6.2%) and women of other ethnic origins (8.1%).

There were 1,997 women confined whose ethnic origin was identified as other than either caucasian or Aboriginal. This category provides more specific information on ethnic origin identifying other groups including women from Asia and the Pacific Islands.



3.3 Conjugal State

The majority of women (89.4%) in Western Australia during 1997 were reported to be in a married or defacto relationship at time of confinement. Eleven percent were reported to be socially unsupported, being either single, widowed, separated or divorced. Single women represented the largest unsupported group (9.7%). For women with multiple pregnancy 7.2% were unsupported (Table 3, Figure 3).

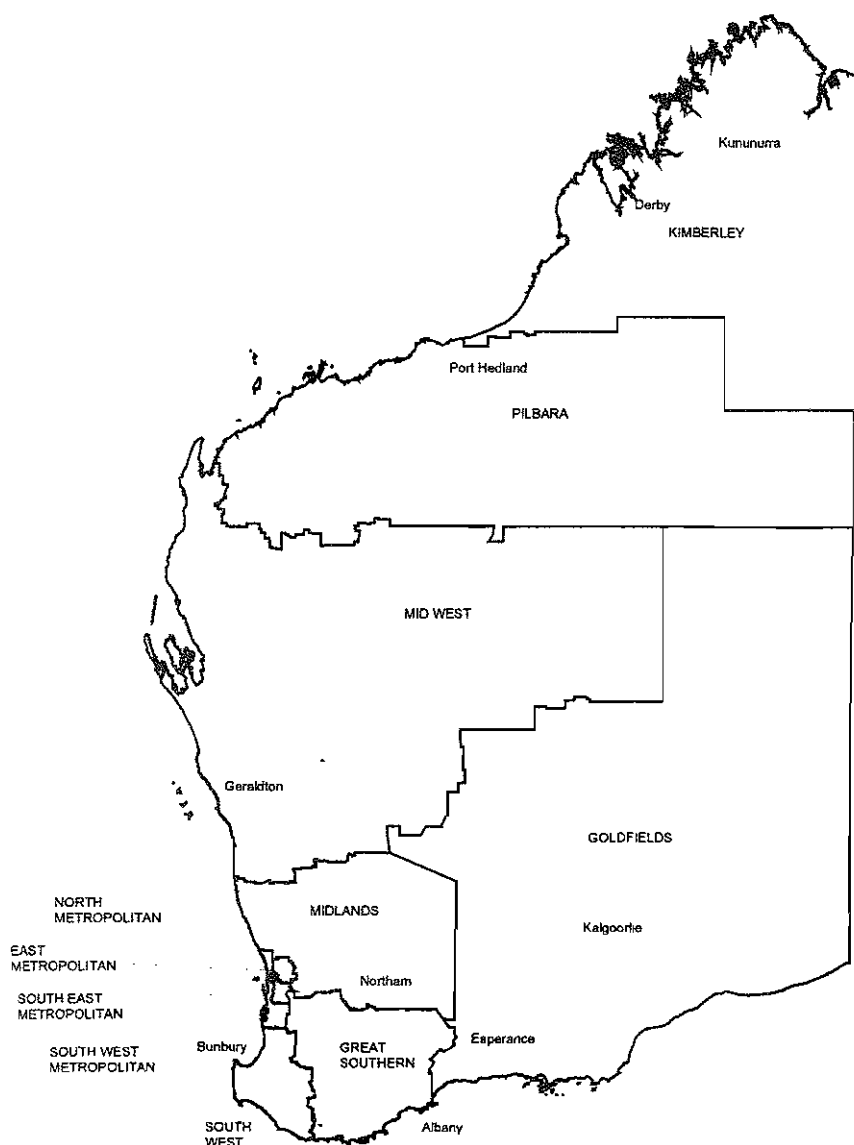
3.4 Health Zone

Almost three quarters (71.5%) of women confined in 1997 gave their residential address as being within the four Metropolitan Health Zones. There were 28.3% of women confined whose usual place of residence was within the seven Country Health Zones and 43 women (0.2%) were not residents of Western Australia.

Among Aboriginal women confined, 34.6% were Metropolitan residents and 65.2% were residents of country Health Zones. (Table 4, Figure 4).

Information on Western Australian women confined in other States and outside Australia during 1997 is not included in this report.

Figure 4: Health zone of residence of women confined in Western Australia, 1997



HEALTH ZONE		%
Metropolitan:	North	22.3
	East	15.6
	South West	16.4
	South East	17.2
Total Metropolitan		71.5
Country:	Kimberly	2.5
	Pilbara	3.0
	MidWest	4.6
	Central	3.2
	Goldfields	4.5
	South West	6.4
	Grt Southern	4.1
Total Country		28.3

Excludes births less than 500 grams birthweight and those 43(0.2%) mothers resident outside Western Australia.

SOURCE: Midwives' Notification System

Metropolitan Health Zones

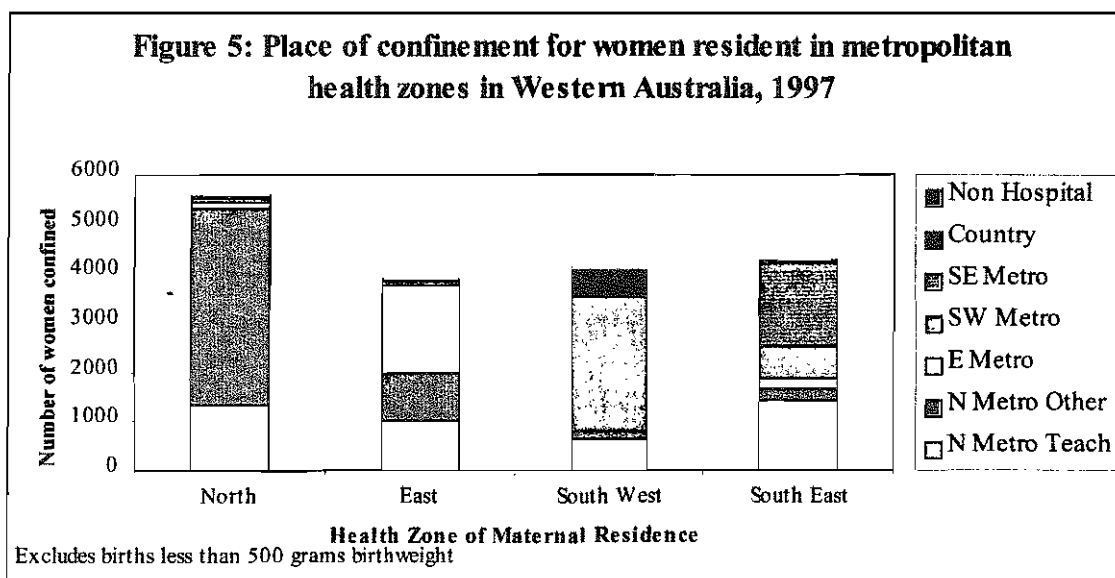
There were 24,794 women confined in Western Australia during 1997, of whom 18,459 (74.5%) gave birth in hospitals within the metropolitan area (Table 7). These included 17,137 (69.1%) women resident in the metropolitan area, a further 1,290 (5.2%) women with a country residential address and 32 (0.2%) women resident outside Western Australia (Table 5, Figure 5).

Consideration of the maternal usual place of residence within Health Zone in relation to place of confinement, showed that most women were confined at hospitals within the region of their residence. The referral rate of women to metropolitan teaching hospitals influenced the numbers within the South East Metropolitan Health Zone.

Of women resident in the North Metropolitan Health Zone 96.6% were confined at hospitals within the area. Of these 25.0% were confined at a metropolitan teaching hospital and 71.7% at other hospitals in the area.

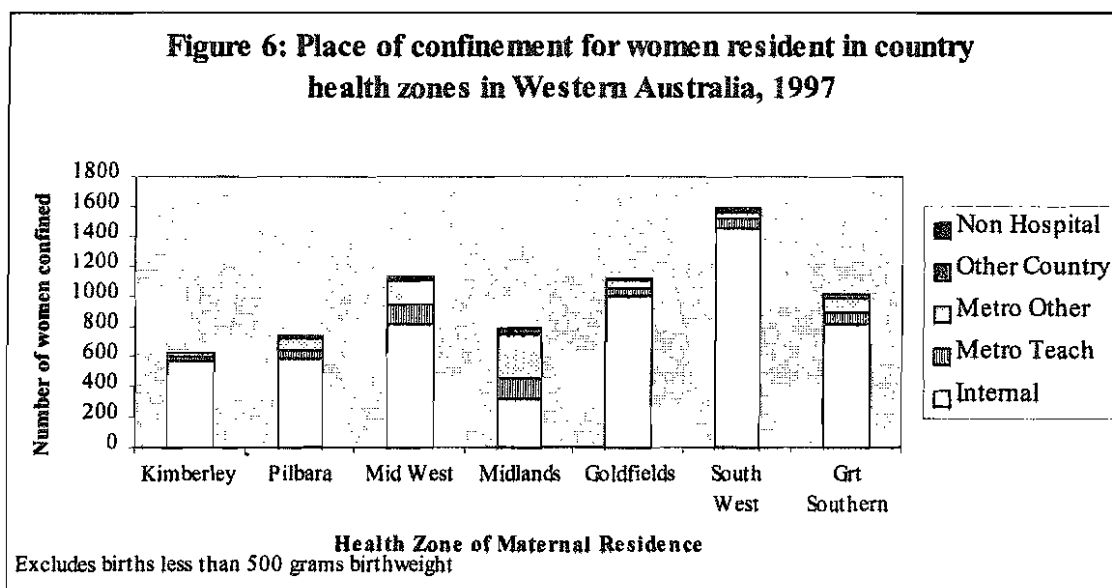
In the South East Metropolitan Health Zone, less than half (40.4%) of women were confined in the Zone, 33.6% in a metropolitan teaching hospital and a further 15.3% in the South West Metropolitan Health Zone.

For women residing in the South West Metropolitan Health Zone, 66.1% were confined in hospitals within the area with a further 15.7% confined in a metropolitan teaching hospital (Table 5).



Country Health Zones

One quarter, 6,160 (24.8%) of women confined in Western Australian hospitals during 1997 were confined in country hospitals (Table 7, Figure 6). There were a further 1,290 (8.7%) women, with a country residential address, confined in metropolitan hospitals. This indicates the movement of women from the country to deliver in the metropolitan area. Women living in country health zones closer to the city are more likely to travel to the Perth metropolitan area for delivery than women in distant country health zones.



3.5 Place of Confinement

During 1997 there were 24,794 women confined in Western Australia. Of these, 99.2% gave birth in metropolitan or country hospitals. Non-hospital births included 62 babies born before arrival at hospital (BBA) and 113 babies born at home as planned (Table 7).

Of the total confinements, 74.5% were in metropolitan hospitals. These included 20.1% occurring in a metropolitan teaching hospital, 25.1% in metropolitan Departmental (Government) hospitals and 29.3% in private metropolitan hospitals.

Trend data indicates that while the proportion of births at teaching hospitals remains relatively stable there has been an increase in births at private hospitals over the past two years. This may in part be explained by the care provided to public patients within some private hospitals (Table 8).

Plurality of pregnancy influenced the place of confinement. Women with a singleton pregnancy were confined in teaching hospitals 19.6%, metropolitan private hospitals 29.3% and metropolitan government hospitals 25.3% (Table 7, Figure 7).

The majority (87.0%) of multiple birth confinements in 1997 occurred in metropolitan hospitals, with 47.2% being delivered in a teaching hospital, 29.7% at private hospitals in the metropolitan area and 13% in country hospitals (Table 7, Figure 8).

Figure 7: Place of confinement for singleton births in Western Australia, 1997

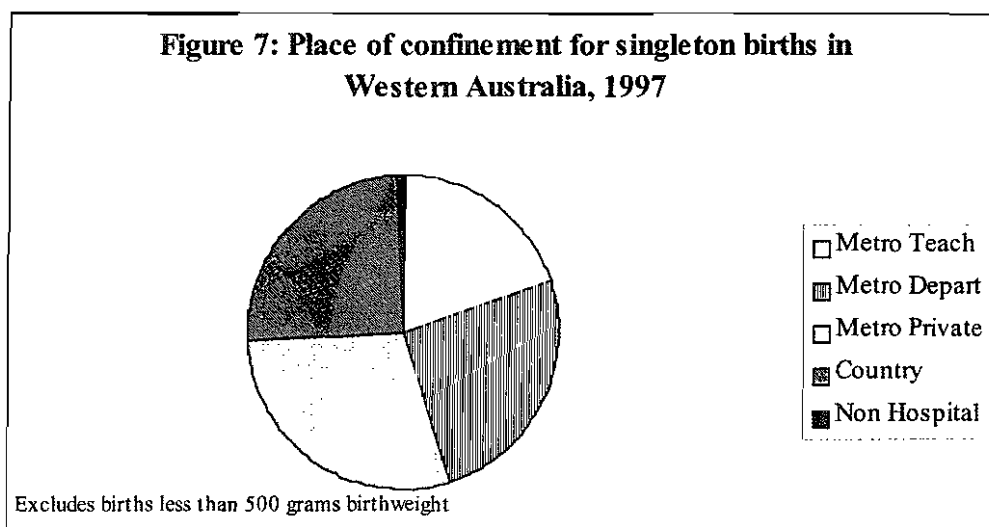
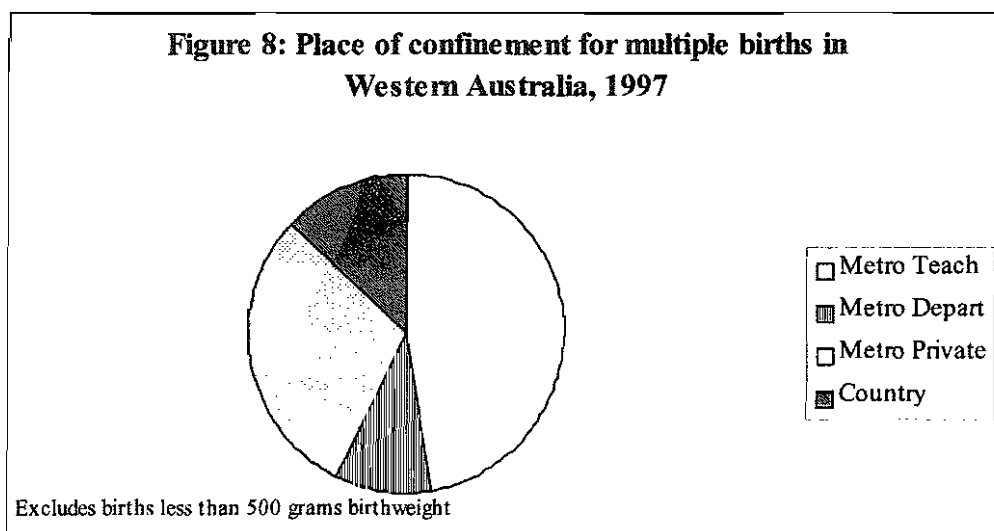


Figure 8: Place of confinement for multiple births in Western Australia, 1997



Homebirth as a planned birth option was experienced by 113 women (0.5% of total women confined). These confinements include births managed by midwives in private practice and midwives employed in either community or hospital based programs. The trend for homebirth has remained relatively stable representing between 0.4% and 0.7% of women confined annually over the past 15 years (Table 8). The Department received notification that an additional 24 women had planned a homebirth but because of complications were either referred to hospital care or transferred during pregnancy (5 women) or labour (19 women). These women and their babies are included in hospital birth statistics.

Two other women who delivered at home, received subsequent medical attention in hospital for management of difficulties with the third stage of labour and/or for postpartum haemorrhage.

4. PREGNANCY PROFILE

4.1 Previous Pregnancies

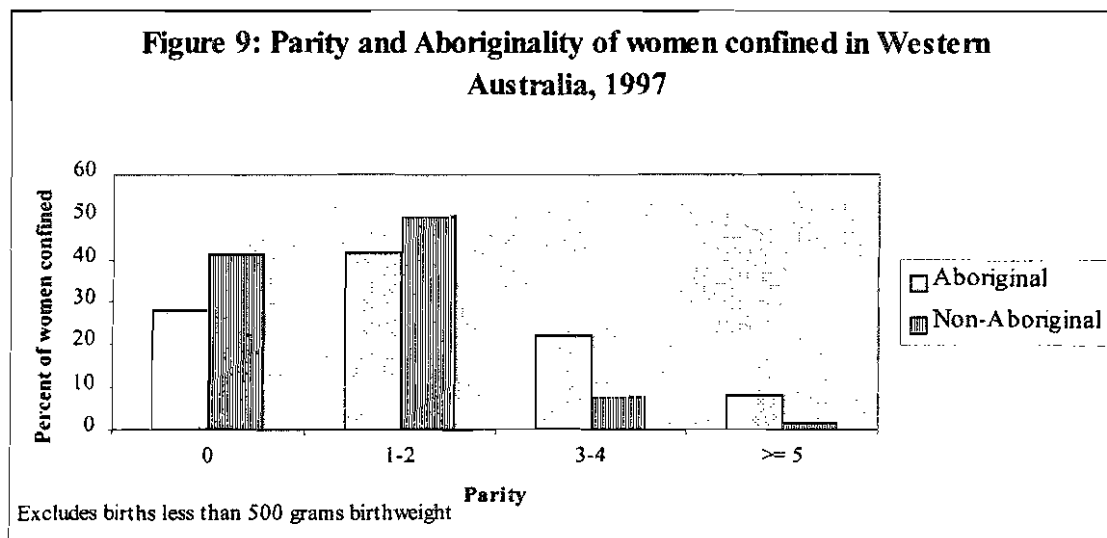
More than a third (40.2%) of women confined in 1997 were confined for the first time. The range of previous confinements extended to fourteen with a mean of 1.03. The percentage of non-Aboriginal women confined for the first time (41.0%) was higher than for Aboriginal women confined for the first time (28.3%). However among women having their fifth or more child, the percentage of Aboriginal women (7.9%) was far greater than for non-Aboriginal women (1.2%) (Table 9, Figure 9).

The highest number of recorded previous pregnancies was sixteen.
(Mean = 1.5 previous pregnancies Standard Deviation = 1.6)

Of the 9,978 nulliparous women, 1,158 (11.6%) were identified as teenagers (19 years or less) and 80.5% were aged 20 to 34 years. Among the 3,512 women aged thirty five years or more, 786 (22.4%) were having their first baby (Table 10).

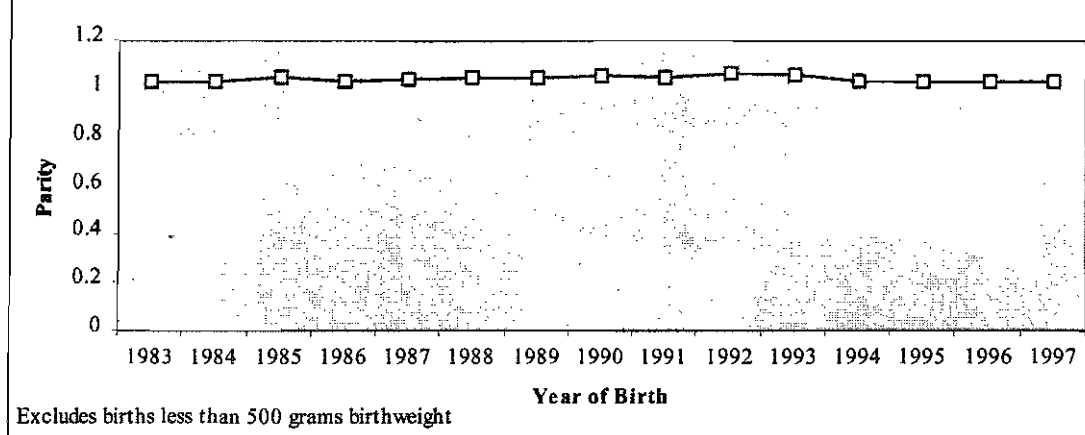
Multiparous women of either 1 or 2 previous births comprised 2.2% teenage women, 82.1% women of 20-34 years of age and 15.7% of women aged 35 or more years. Women whose parity was 3 or more previous births included 6 teenage women (0.2%), 68% women aged 20-34 years and 31.8% women aged 35 years or more (Table 10).

There has been a gradual increase in the proportion of women having their first confinement which is consistent with reduced family sizes and an increase in the population of women of childbearing age (Table 11).



The average parity remained constant during the 15 year period from 1983 to 1997 (Table 11, Figure 10).

Figure 10: Average parity for women confined in Western Australia, 1983-1997



Trends in births by socio-economic status can now be assessed for mothers living in the Perth metropolitan area of the state of Western Australia. Using Census data, postcodes have been allocated to four, similarly sized groups of socio-economic status. This is a fairly crude scale, but nevertheless demonstrates differences.

The numbers of births in the quartiles vary from 3,171 to 5,124. Differences in maternal age and parity were investigated. Information is provided on the percentages of women confined, living in the Perth metropolitan area of Western Australia who were at the extremes of the reproductive age range, i.e. 17 years and below or 35 years and above. The percentage of young women, 17 years and below, in the lowest socio-economic group (47.1%) was five times that for women of the same age in the highest socio-economic group (6.3%). This trend was reversed for older women, 35 years and above, where the percentage of women in the highest socio-economic group (26.8%) was greater than that for women in the lowest socio-economic group (21.9%).

To investigate the trend in grand multiparity by socio-economic status, the proportion of women of parity ≥ 5 was calculated. Of the grand multiparas, 10.9% were in the highest socio-economic group and 37.5% were in the lowest (Table 12).

4.2 Age Specific Birth Rates

Age-specific birth rates in the Aboriginal and non-Aboriginal sub-populations and the total population are shown in Table 13. The population estimates used were derived from data from the 1996 census. Difficulties in estimation of Aboriginal populations are recognised where underenumeration may occur. Therefore the reader may wish to adjust the denominators in accord with the directive of Hicks.⁴

Overall, the age specific birth rate among Aboriginal women (124.0 per 1000) was more than double that of non-Aboriginal women (58.9 per 1000). Among the 15 to 19 year age group the birth rate of Aboriginal women (154.1 per 1000) was six times the rate for non-Aboriginal women (17.4 per 1000). For those women in the 20 to 34 year age group the rate for Aboriginal women (157.8 per 1000) was far greater than that for non-Aboriginal women (95.5 per 1000). The rate for Aboriginal women (21.7 per 1000) was lower than for non-Aboriginal women (25.0 per 1000) in the 35 to 44 year age group (Table 13, Figure 11).

Examination of differences in age specific birth rates and Aboriginality through time shows that there has been a gradual reduction in the rates for both Aboriginal and non-Aboriginal women in the age groups of 15-19 years and 20-34 years. This trend is more pronounced among Aboriginal teenage women where the rate reduced from 175.9 per 1000 in 1983 to 137.3 per 1000 in 1997. However, among non-Aboriginal women aged 35-45 years the trend for later childbearing has increased the rate from 14.5 per 1000 in 1983 to 24.4 per 1000 in 1997 (Table 14, Figure 12).

Figure 11: Age specific birth rates by 5 year age and Aboriginality in Western Australia, 1997

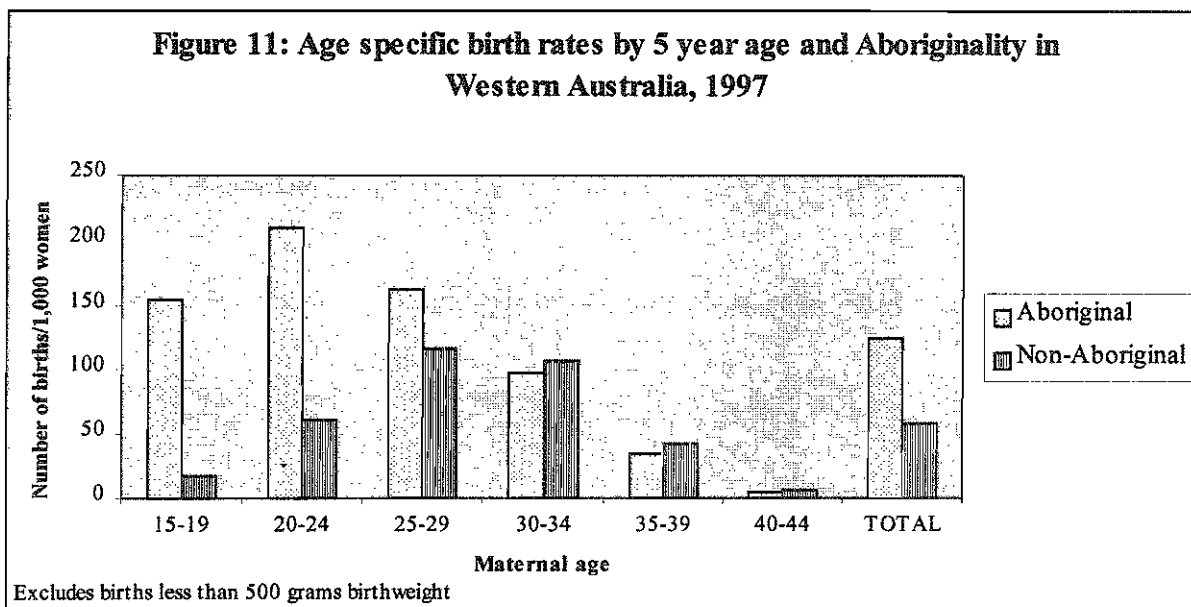
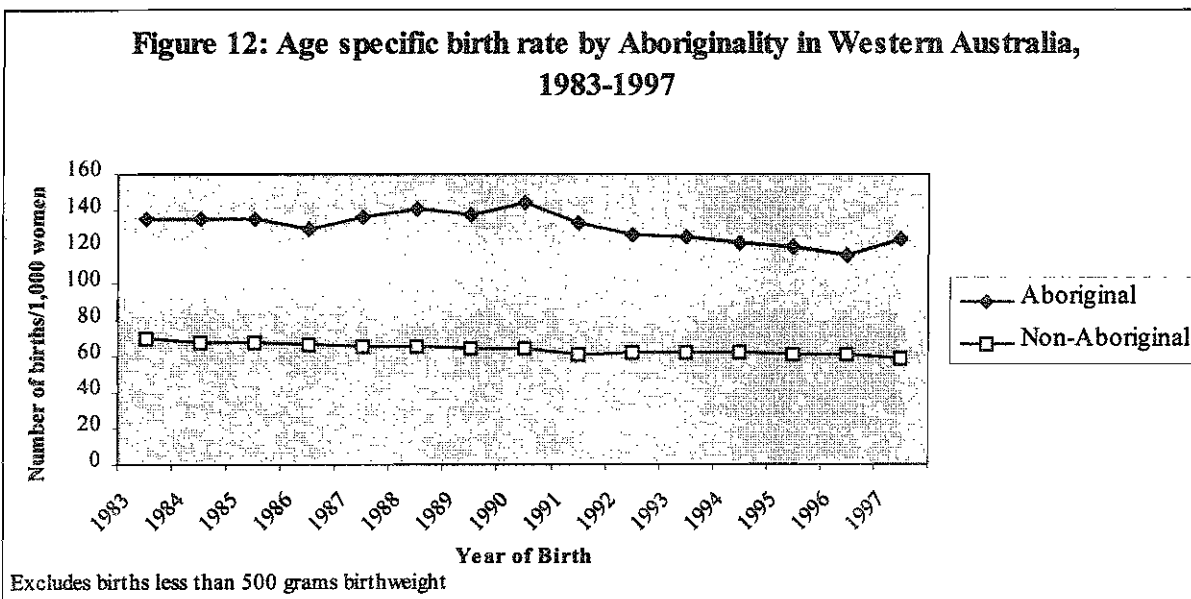


Figure 12: Age specific birth rate by Aboriginality in Western Australia, 1983-1997



4.3 Complications of Pregnancy

Over half (63.3%) of all women confined during 1997 were recorded as having no complications of pregnancy (Table 15).

Pre-eclampsia was reported in 1,639 (6.6%) women. Of the women with multiple pregnancy, the proportion with pre-eclampsia was twice that for women with singleton pregnancies (Table 11). Among 'other' complications there were 314 (1.3%) women recorded as having unspecified hypertension, 408 (1.6%) with anaemia of pregnancy, 691 (2.8%) with a viral or bacterial genito-urinary tract infection, 289 (1.2%) with retarded fetal growth, 535 (2.2%) with symptoms of gestational diabetes and 420 (1.7%) with hyperemesis gravidarum.

Although in the past, it was thought that 'other' complications of pregnancy may be under-reported by midwives, the Validation Study³ of 1992 data undertaken in 1994 showed that they were well reported, being 89% accurate.

4.4 Medical Conditions

There were 6,451 reported instances of pre-existing medical complications recorded among the 24,794 women confined during 1997. Of these, 1,957 (7.9% of women confined) were reported to be asthmatic, 134 (0.5%) as epileptic, 61 (0.2%) as having pre-existing diabetes and 239 (1.0%) with a known thyroid disorder (Table 16).

4.5 Procedures and Treatments

Assessment of procedures and treatments recorded during 1997 showed that 34,645 recordings were made among the 24,792 women confined. The majority of these recordings were for ultrasound examination (23,116 or 93.2% of women confined) and cardiotocographs (9,791 or 39.5% of women confined). Other reported procedures/treatments were 1,178 (4.8%) amniocentesis, 365 (1.5%) fertility drug treatments, 99 (0.4%) women for whom a cervical suture was inserted and 96 (0.4%) women confined who underwent CVS/placental biopsy procedures.

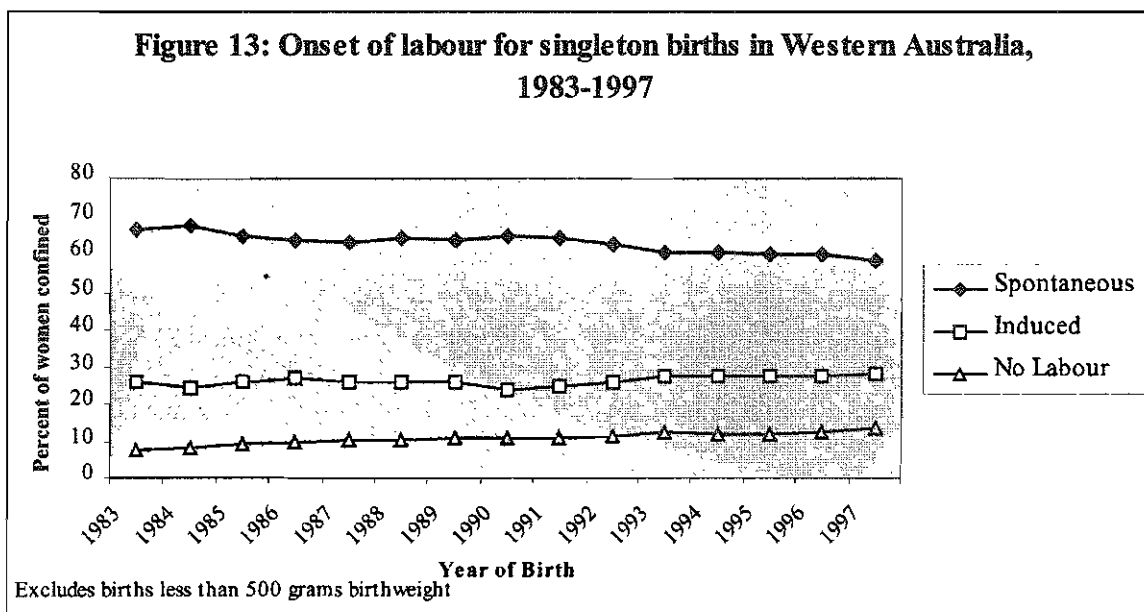
5. LABOUR AND DELIVERY

5.1 Onset of Labour

Over half (58.1%) of women confined during 1997 established labour spontaneously. Among women with multiple pregnancy 38.5% had a spontaneous onset of labour.

Induction of labour occurred for 28.3% of all women confined, while 101 (26.8%) of women with multiple pregnancy underwent induction of labour (Table 17).

An increasing trend in induction of labour was evidenced, over the past 15 years, increasing from 25.7% in 1983 to 28.3% in 1997. A corresponding decrease in the proportion of women having a spontaneous onset of labour (66.7% in 1983 to 58.4% in 1997) was also shown. In addition, and as a consequence of a rising elective caesarean section rate the proportion of women birthing without experiencing labour rose from 7.6% in 1983 to 13.3% in 1997 (Table 19, Figure 13).



5.2 Augmentation of Labour

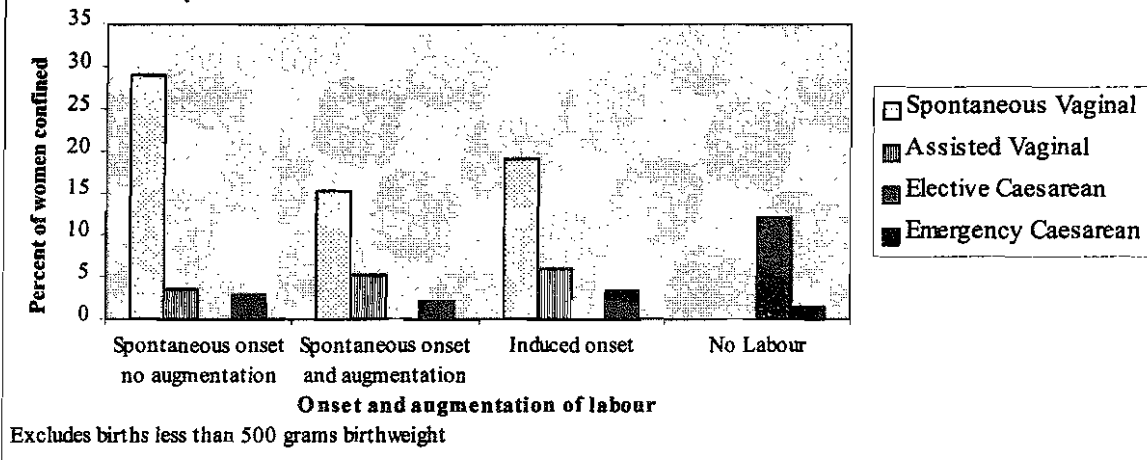
There were 5,598 (22.6%) women whose labour was augmented by surgical and/or medical intervention following spontaneous onset of the labour.

Assessment of these cases showed that augmentation of labour for 3,768 (15.2%) women was followed by a spontaneous vaginal delivery, 1,306 (5.3%) women required an assisted vaginal delivery and 524 (2.1%) women an emergency caesarean section.

Of the 14,394 women for whom onset of labour was spontaneous, 5,598 (38.9%) had labour augmented and 8,795 (61.1%) did not.

It is of interest to note that less than one third (7,224, 29.1%) of women established labour following spontaneous onset, received no augmentation of labour and achieved a spontaneous vaginal delivery (Table 19, Figure 14).

Figure 14: Onset and augmentation of labour by type of delivery in Western Australia, 1997



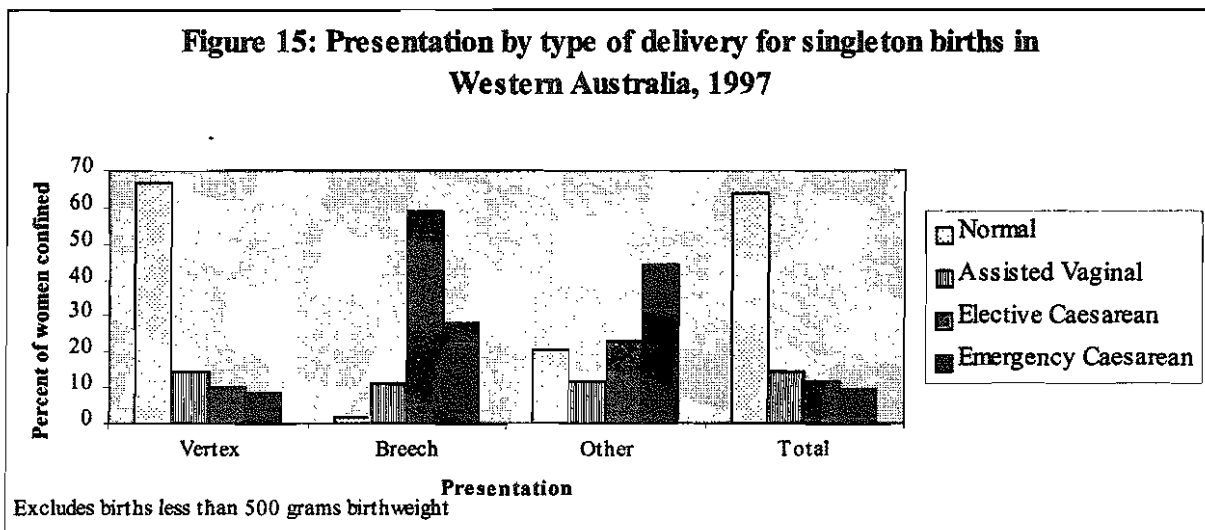
5.3 Presentation

The presentation for the 24,417 singleton confinements was identified as 23,314 (95.5%) vertex, 952 (3.9%) breech, and 151 (0.6%) "other" presentations (Table 20, Figure 15).

The majority of vertex presentations of singleton births were delivered vaginally (81.4%). Of these 66.7% delivered spontaneously and 14.7% required assistance.

More than three quarters (87.1%) of total singleton births presenting by the breech were delivered by caesarean section (58.8% elective and 28.3% emergency caesarean section) (Table 20).

Figure 15: Presentation by type of delivery for singleton births in Western Australia, 1997

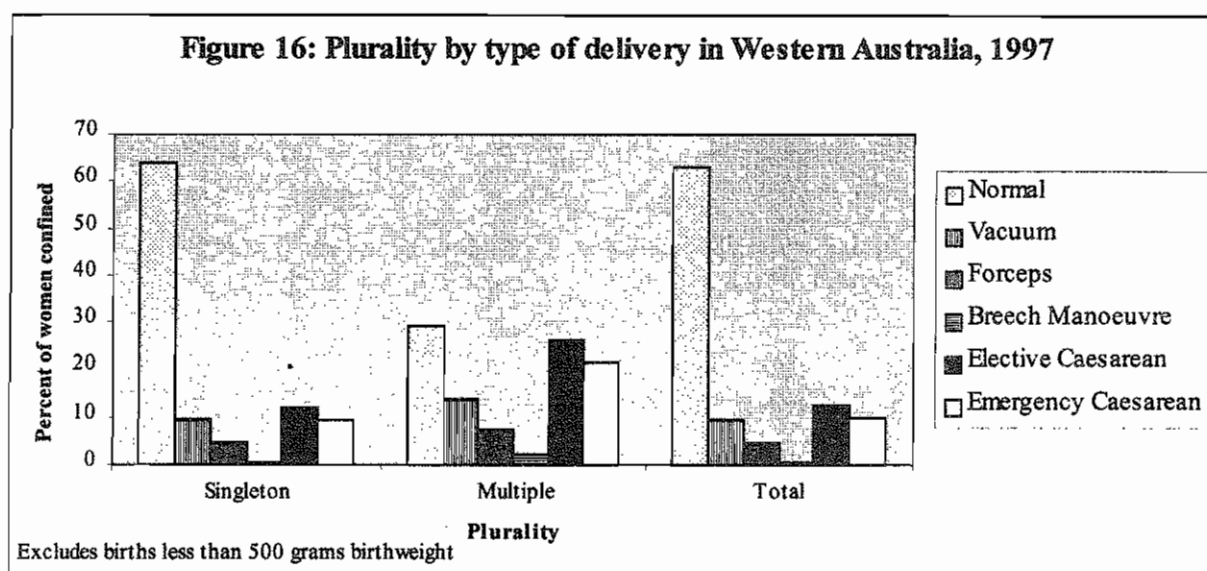


5.4 Type of Delivery

Less than two thirds (63.3%) of the total women confined in 1997 had a spontaneous vaginal delivery. Vaginal deliveries were assisted for approximately one in six total confinements with 9.4% of women having a vacuum extraction and 4.8% a forcep delivery (Table 21, Figure 16).

The type of delivery for each woman with multiple pregnancy was classified according to features of labour and delivery for the first twin/triplet. Of the 9 women with triplet pregnancies 8 were delivered by caesarean section and there were 5 women for whom the first twin was delivered vaginally and the second by emergency caesarean section during 1997.

Among women with a twin pregnancy, 174 (47.7%) were delivered by caesarean section, 84 (23.0%) had assisted vaginal deliveries and 107 (29.3%) delivered spontaneously.



Of the 5,452 women who were delivered by caesarean section during 1997, almost one third (1,753 or 32.2%) were recorded to have had a previous caesarean section delivery or other uterine surgery.

Among the 1,976 women confined for whom previous caesarean section was recorded, 1,753 (88.7%) underwent repeat caesarean section, 55 (2.8%) had an assisted vaginal delivery and 168 (8.5%) delivered spontaneously. A previous caesarean section does not necessitate caesarean section for subsequent births, and would not always be recorded if followed by an assisted or spontaneous vaginal delivery. Therefore, the proportion of women with a history of caesarean section who deliver vaginally is considered to be under reported.

The incidence of caesarean section in Western Australia⁵ gradually increased over the past decade from 16.9% in 1987 to 22.0% in 1997 (Table 23). The caesarean section rate for Australia⁶ overall was 19.5% in 1996, and caesarean section rates for individual States and Territories are as follows: Northern Territory⁶ 19.2% in 1996, Tasmania⁶ 18.8% in 1996, South Australia⁷ 24.0% in 1997, Victoria⁸ 20.3% in 1997, New South Wales⁹ 18.2% in 1997, Queensland¹⁰ 20.0% in 1996 and Australian Capital Territory¹¹ 20.9% in 1996.

Consideration of the type of delivery of women confined and maternal parity shows that among nulliparous women, slightly more than half (50.9%) had a spontaneous vaginal delivery, 26.5% required an assisted vaginal delivery and 22.6% were delivered by caesarean section. Among women with a parity of 5 or more, 77.0% delivered spontaneously and 18.4% had a caesarean section (Table 22).

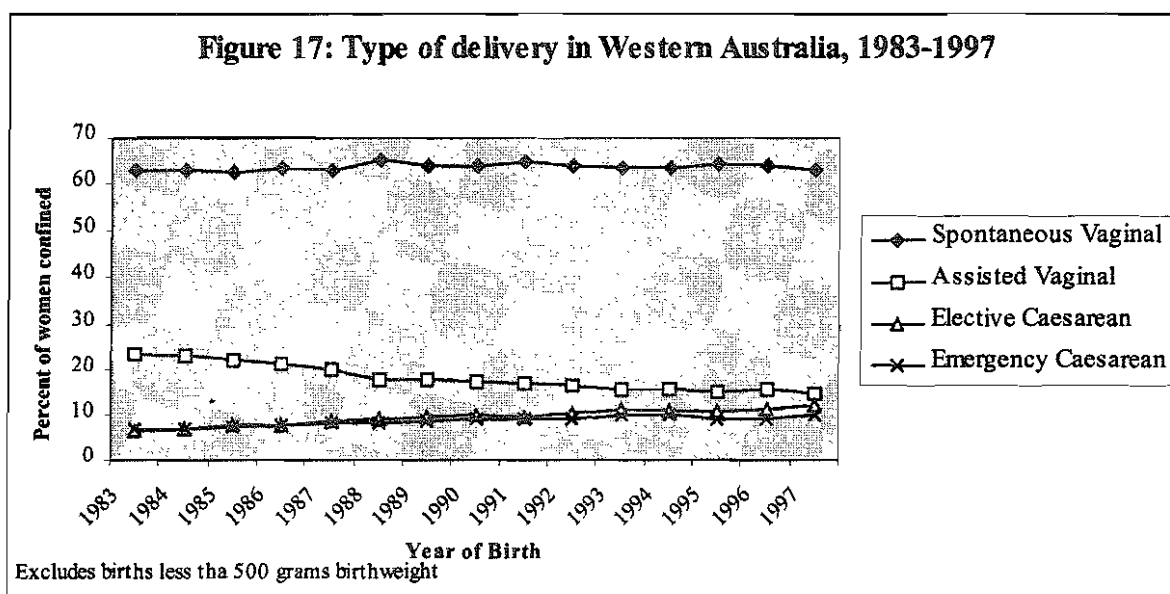
Examination of the type of delivery through time indicates that there has been little alteration in the percentage of women who had a spontaneous vaginal delivery (63.3% in 1983 and 1997). However, a decrease in the proportion of women having assisted vaginal deliveries corresponded to an increase in the percentage of caesarean sections. Elective caesarean sections proportions almost doubled from 6.5% in 1983 to 12.3% in 1997. The emergency caesarean section proportion increased from 6.7% in 1983 to 9.7% in 1997 (Table 23, Figure 17).

All women delivered by caesarean section had at least one complication of labour and delivery recorded and 35.2% had more than one complication recorded (Table 24).

The indications for caesarean section were assessed by examination of complications of labour and delivery. For the 5,452 women confined by caesarean section, 8,019 complications of labour and delivery were recorded. The distribution of complications is shown in Table 25. Assessment of complications of labour and delivery for women confined by caesarean section showed previous caesarean section or other uterine surgery, (21.9%) and cephalopelvic disproportion, (11.8%) fetal distress (11.0%) and placental disorders and/or haemorrhage (11.7%) as the principal indications for caesarean section confinement (Table 25).

Of those women confined by caesarean section the highest proportion were at metropolitan obstetric teaching, departmental and private hospitals. Overall, elective caesarean sections comprised 12.3% and emergency caesarean section 9.7% of women confined (Table 26).

Caesarean section confinements increased with maternal age. This trend was found in nearly all categories of hospitals.



5.5 Anaesthesia/analgesia

There were 3,774 (15.2%) women confined who received no pharmacological anaesthesia/analgesia during labour and delivery. Of these, 97.1% had a spontaneous vaginal delivery. An epidural was administered to 10,693 (43.1%) women confined.

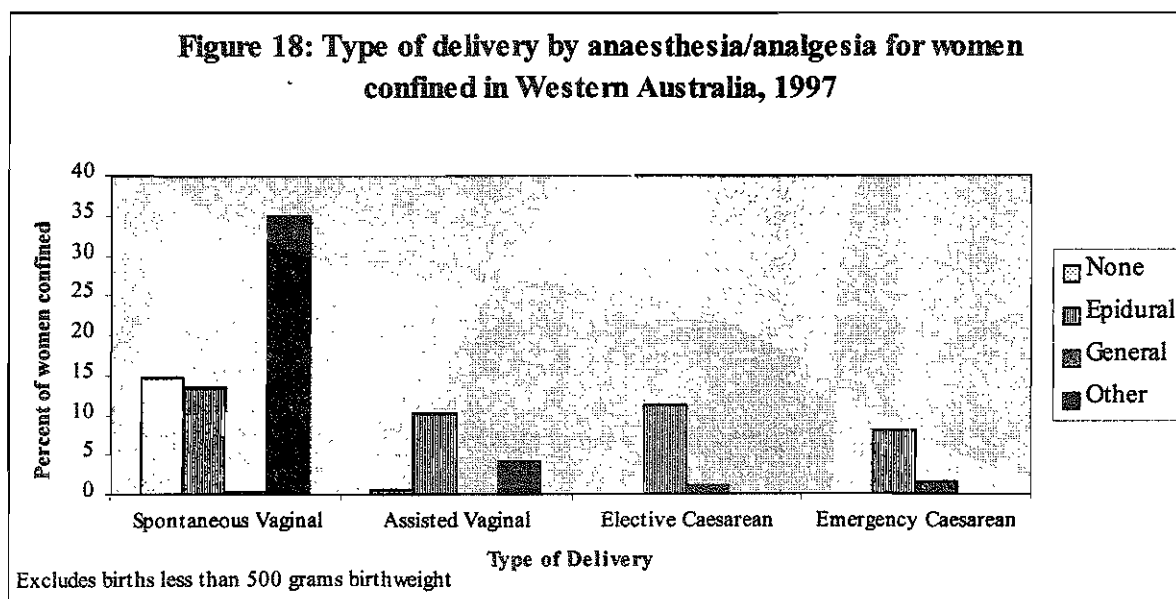
Lumbar epidural nerve blocks can be used for analgesia in labour and for anaesthesia during caesarean delivery, manual removal of a retained placenta or for perineal repair. The timing of an epidural is not recorded by the Midwives' Notification System data collection. Therefore this report cannot always determine the sequence of events. For example, if a woman has an epidural and a ten hour labour followed by a caesarean section, it is not recorded whether the epidural was administered during the labour for analgesia or late in the labour specifically to provide anaesthesia for the caesarean section.

In 1997, 2,413 women had an emergency caesarean section and of these 2,003 (83.0%) women had an epidural anaesthetic alone, and 73 (3.0%) had both an epidural and a general anaesthetic. Of the women delivering by elective caesarean section, 2,759 (90.8%) had an epidural anaesthetic alone (Figure 18).

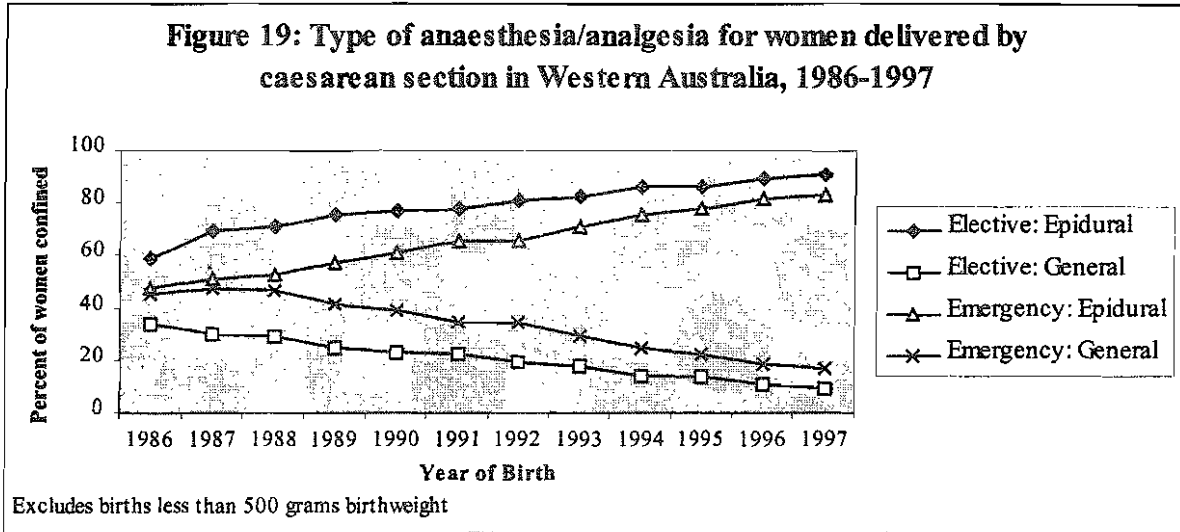
Epidurals were administered to 2,524 women whose labour resulted in an assisted vaginal delivery and to 3,302 women whose labour progressed to a spontaneous vaginal delivery. A total of 764 (3.1%) women received a general anaesthetic at some time during labour and delivery (Figure 18).

The recording of anaesthesia/analgesia during labour and delivery includes those procedures required for the third stage of labour. This explains in part the use of general anaesthesia for women with assisted or spontaneous vaginal deliveries (Table 27).

The category of anaesthesia/analgesia recorded as 'other' includes narcotic sedation IM or IV, inhalants and caudal or pudendal nerve blocks (Table 27).



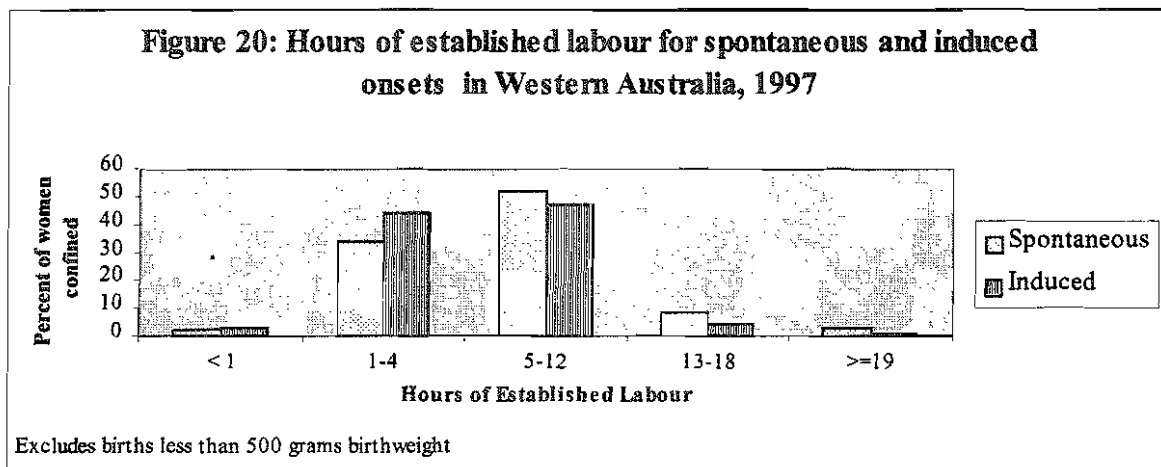
Over the 15 year period (1986-1997), there was a significant increase in the use of epidural anaesthesia for both elective and emergency caesarean sections with a corresponding decrease in general anaesthesia. The percentage of women having caesarean section under epidural anaesthesia increased to 90.8% elective and 83.0% emergency caesarean section in 1997 from 58.8% elective and 47.3% emergency caesarean section in 1983 (Table 28, Figure 19).



5.6 Hours of Established Labour

The recorded length of labour varied amongst those women who had a spontaneous onset and those whose labour was induced. Almost half (47.2%) of the women who had an induction of labour experienced between five and twelve hours of labour and more than half (51.7%) of the women with a spontaneous onset had between 5 and 12 hours of labour. There were 114 women (0.5%) of the total whose labour was recorded as more than 24 hours duration (Table 29, Figure 20).

Examination of type of delivery and hours of established labour showed that less than half (43.3%) of women confined had a labour lasting between 5 and 12 hours and of these 70.7% resulted in spontaneous delivery. Thirteen percent of women did not establish in labour being confined by either elective or emergency caesarean section (Table 30).



5.7 Complications of Labour and Delivery

There were no complications of labour or delivery recorded for almost half (48.8%) of the women confined in 1997. However, for women with multiple pregnancies only 18.0% of women were reported to have had no complications.

Among those women identified as having had a complication, fetal distress was recorded for 12.7% of singleton pregnancies and 8.0% of multiple pregnancies. Cephalopelvic disproportion was identified for 3.7% and post partum haemorrhage for 7.8% of all women confined (Table 31).

Other complications included 222 (0.9%) women with hypertension and 117 (0.5%) women with moderate to severe pre-eclampsia.

The second stage of labour was reported to be prolonged for 575 women (2.7% of women with established labour or 2.3% of total women confined). There were 34 additional women reported to have had prolonged labour with unspecified stage (0.2% of women with established labour or 0.1% of total women confined).

Uterine inertia was reported for 744 women (3.5% of women with established labour) and deep transverse arrest or persistent occipito posterior position for 311 (1.5% of women with established labour). Shoulder dystocia was recorded for 208 women (1.1% of women who delivered vaginally) and problems with cord compression or entanglement for 392 (2.0% of women who delivered vaginally).

These data suggest significant morbidity in child bearing women. Furthermore, the Validation Study of the Midwives' Notification System³ data indicated that complications of labour and delivery tend to be under-reported.

Attempts to improve the completeness of this information continue with the follow-up system for missing or incomplete information and with the provision of the Guidelines¹ and ongoing education and feedback to midwives.

5.8 Repair of Perineum and/or Vagina

There were 12,402 (50.0%) of all women confined or 6,964 (36.0%) of women delivered vaginally who did not require any form of perineal or vaginal repair following delivery. Among women whose vaginal delivery incurred perineal and/or vaginal damage, 4,804 (24.8%) had an episiotomy repaired, 6,405 (33.1%) a first or second degree tear and for 257 (1.3%) a third or fourth degree tear needed repair. A further 926 (4.8%) women were reported to have had repair of other vaginal and/or labial trauma (Table 32).

6. BABY CHARACTERISTICS

6.1 Births

A Notification of Case Attended Form 2 (Appendix A) was received for 25,179 births of 500 grams or more birthweight in 1997.

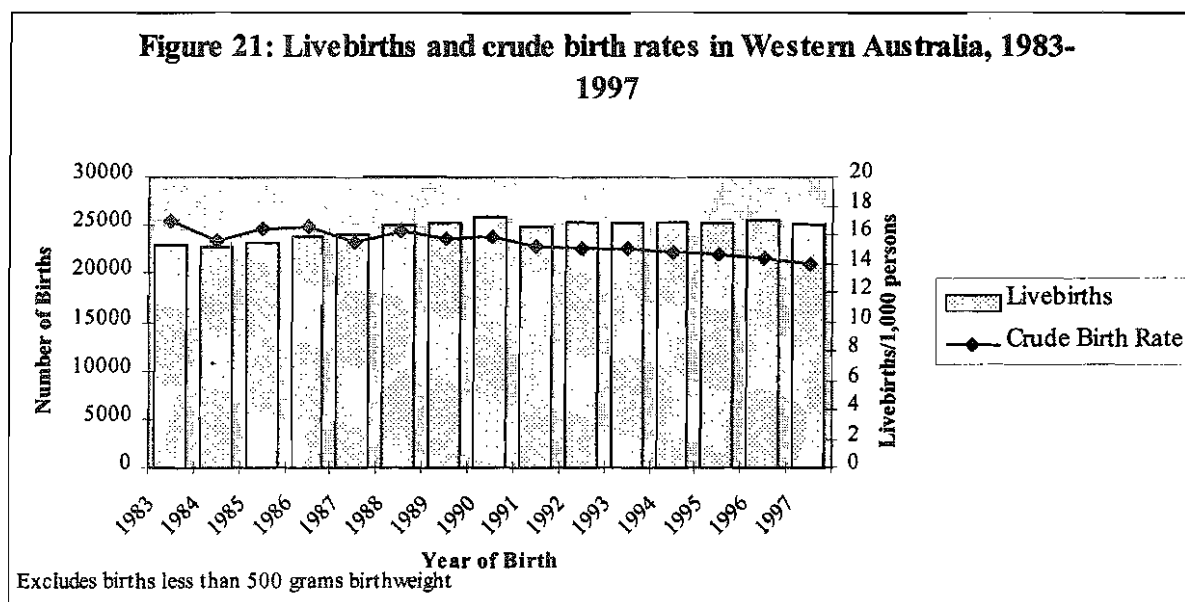
6.2 Livebirths

The actual number of livebirths increased gradually over the fifteen year period from 1983 to 1997 with the percentage representing 99.3% in 1983 and 99.6% in 1997 of total births in Western Australia (Table 36, Figure 21).

6.3 Crude Birth Rate

The crude birth rate was 13.9 per 1000 population in 1997. This calculation is based on livebirth numbers from the Midwives' Notification System and population data from the Australian Bureau of Statistics, Cat.No 3101.0 June quarter 1997.

Trend data indicate that the crude birth rate in Western Australia has steadily declined in recent years from 16.9 per 1000 in 1983 to 13.9 per 1000 in 1997 (Table 36, Figure 21).



6.4 Gender

There were 12,994 (51.6%) male births and 12,185 (48.4%) female births during 1997 (Table 33). (male:female ratio of 1.06).

The assessment of condition at birth showed that 48.1% of stillbirths and 51.6% of livebirths were male.

6.5 Condition at Birth

Of the total 25,179 births, 25,072 were liveborn and 107 (4.2 per 1000) were stillborn (Table 34).

There were significant differences in stillbirth rates based on the ethnic origin of their mothers. Among babies born to women recorded as non-Aboriginal the stillbirth rate (3.6 per 1000) was lower than the rate for babies of Aboriginal mothers (13.4 per 1000) (Table 34).

The majority of stillbirths (73.8%) were delivered in metropolitan hospitals and more than half of these (46.7%) in a metropolitan obstetric teaching hospital. This reflects the referral for delivery to a tertiary centre of mothers with high risk pregnancies or with fetal death in utero (Table 35).

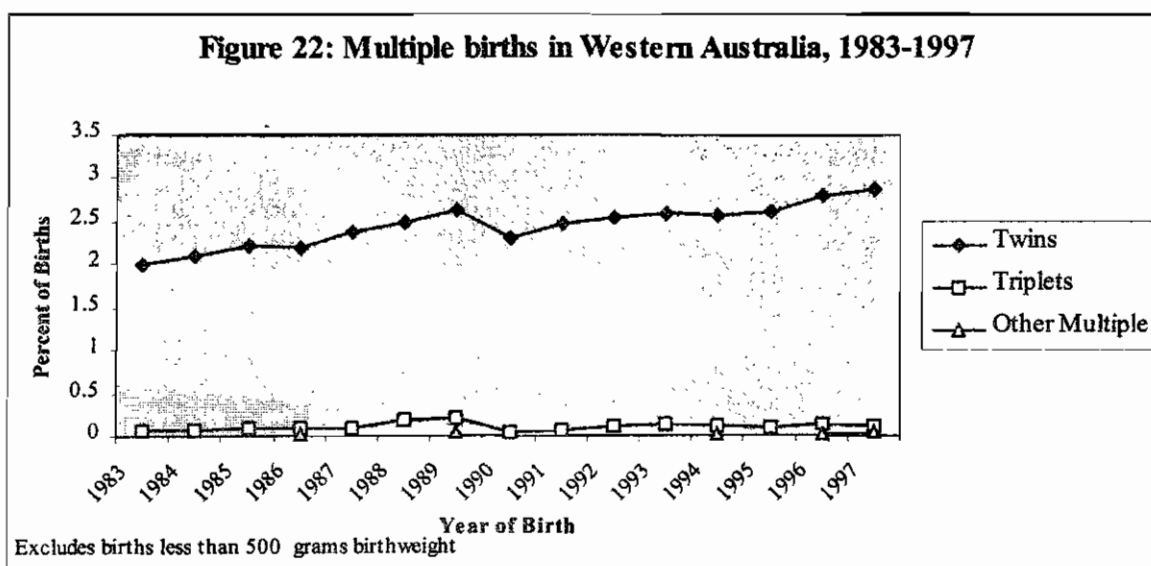
Consideration of condition at birth showed that livebirths represented 99.6% and stillbirths 0.4% of total births. This proportion of still births has decreased from 0.7% in 1983 (Table 37).

6.6 Plurality of birth

Singleton births accounted for 24,417 (97.0%) and multiple births 762 (3.0%). The 762 multiple births comprised 725 twins, (including five twin babies whose siblings' birthweight was <500 grams), 27 triplet babies, and 10 quadruplets (two quadruplet babies from a set were less than 500gms birthweight).

The proportion of multiple births remained relatively stable over the past fifteen years with a slight increase in twin births (2.0% in 1983 to 2.9% in 1997).

The rates for high order multiple births gradually increased until 1989 and then declined. For example, the rate of triplet births increased from 18 (0.08%) babies in 1984 to 54 (0.21%) in 1989. Since then the number has stabilised and varies from 24 (0.9%) in 1995 to 37 (0.15%) in 1993, there were 27 (0.11%) triplet births in 1997. Much of the variation in the multiple birth rates could be linked to infertility treatments (Table 37, Figure 22).



6.7 Apgar Score at One Minute and Five Minutes

More than three quarters of livebirths (76.0%) had a recorded Apgar Score at one minute of 8-10, while 470 (1.9%) livebirths had an Apgar Score of three or less at one minute of life (Table 38).

The majority of livebirths, (97.1%) had a recorded Apgar Score at five minutes of 8-10, and 737 (2.9%) livebirths had an Apgar Score of seven or less at five minutes of life (Table 39).

6.8 Time to Spontaneous Respiration

Eighty six percent of all livebirths were recorded as having established spontaneous respiration within the first minute of life. A further 2831 (11.3%) of livebirths required between two and six minutes to establish respirations and 71 (0.3%) babies needed seven minutes or more. There were 426 (1.7%) livebirths who were intubated following delivery and therefore for these babies the time to establish spontaneous respiration is unknown (Table 38).

6.9 Resuscitation

More than one third (37.1%) of the 25,072 liveborn babies in 1997 received some form of resuscitation at birth. Those babies who received no resuscitation numbered 15,773 (62.9%). Resuscitation procedures such as intubation or bag and mask were used for 2,246 (9.0%) of births and another 4,337 (17.3%) babies received oxygen only (Table 41).

When resuscitation and Apgar Scores at 5 minutes were examined it was found that 58.1% of the babies with an Apgar Score of 1-3 and 31.3% of those with an Apgar Score of 4-7 were intubated (Table 40).

6.10 Birthweight

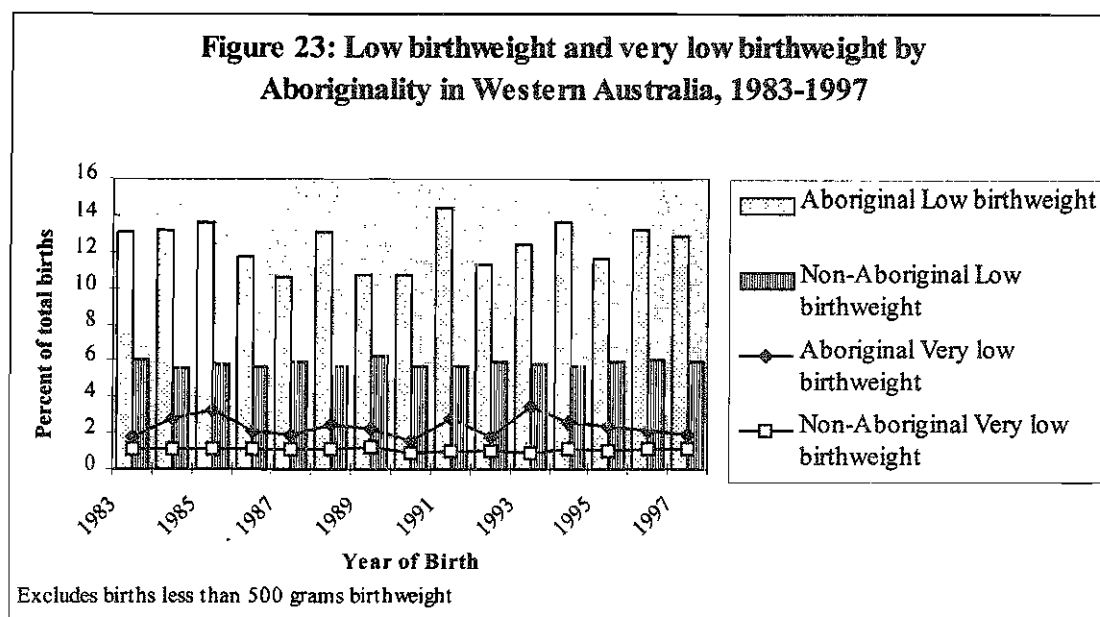
Two thirds (66.5) of all babies born weighed between 3000 and 3999 grams at birth with an average birthweight of 3346 grams. The percentage of low birthweight babies (less than 2500 grams) was 6.3% and those of very low birthweight (less than 1500 grams) was 1.1% of the total births. Low birthweight among babies of Aboriginal mothers was 12.8%, more than twice that of non-Aboriginal births of whom only 5.9% were in the low birthweight category (Table 42, Figure 23).

Among the 1,597 low birthweight babies (less than 2500 grams birthweight), 1,534 (96.1%) were liveborn and 63 (3.9%) were stillborn. This meant that while 58.9% of stillbirths were of low birthweight only 6.1% of livebirths were in the low birthweight category (Table 44).

Singleton births showed similar percentages to total births. Among low birthweight babies there were 1,131 livebirths and 58 stillbirths. For stillbirths 58.0% were low birthweight and of the livebirths 4.7% were in this category (Table 45).

Of multiple births, there were 403 liveborn and 5 stillborn in the low birthweight group. Five of the 7 stillborn multiple births were of low birthweight (Table 46).

Trend data from 1983 to 1997 on low birthweight (<2500 grams) and very low birthweight (<1500 grams) for babies of Aboriginal and non-Aboriginal women show marked differences. Among babies of Aboriginal women the low birthweight percentage ranged between 10.6% and 13.6% and the very low birthweight percentage between 1.7% and 3.5%. For babies of non-Aboriginal women the low birthweight proportions were much lower being between 5.6% to 6.3% while the very low birthweight was also lower ranging from 0.9% to 1.3% (Table 43, Figure 23).



6.11 Gestation

Preterm birth (less than 37 weeks gestation) occurred for 1,721 (6.8%) of the total births in 1997 (Table 47). When examined for singleton births only, 1,358 (5.6%) babies were preterm (Table 48). Of the 762 multiple births, almost half (363, 47.6%) were preterm (Table 49).

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

6.12 Birth Defects

Data on selected birth defects included in this report are made available by the Western Australian Birth Defects Registry¹² (Table 50).

Recording of a birth defect on the Notification of Case Attended (Midwives') Form 2, provides an initial data source for the Birth Defects Registry. Reports and further details on birth defects in Western Australia are available upon request to the Registry.

6.13 Special Care

Although there are difficulties relating to the definition of special care units in Western Australia, data from the Midwives' Notification System indicating special care have been included to identify the need of services for newborn babies. It is not possible from the current data to differentiate those babies who received neonatal intensive care. In an attempt to resolve this difficulty, data on Special Care provided in this report relates only to babies admitted to Level 2 or Level 3 Special Care nurseries.

Among the 25,072 livebirths, a total of 1,626 (6.5%) babies were reported to have received special care for one day or more. Of these, 1,408 (86.6%) were singleton births and 218 (13.4%) were multiple births. The rates for these babies were 57.9 per 1000 singleton livebirths and 288.7 per 1000 multiple livebirths.

Ten percent of babies admitted to special care nurseries stayed more than 28 days and 60 (3.7%) babies stayed longer than 60 days. Multiple birth babies stayed longer in special care units, with 60.6% staying 8 days or more. Babies whose length of stay in Special Care Nurseries was less than one day are not recorded (Table 51).

6.14 Neonatal Transfers

Among the 25,072 livebirths, 946 (3.8%) babies were transferred to another hospital after birth. The overall length of hospital stay following a baby's transfer from the hospital of birth is not recorded on the Midwives' Notification System.

These data include emergency inter-hospital transfers to special care units in tertiary hospitals following birth 374 (39.5%) and those babies who were transferred to another hospital prior to being discharged home.

6.15 Length of Stay

The majority of liveborn babies (19,898 or 79.4%) stayed in their hospital of birth from two to seven days and another 2,374 (9.5%) stayed between 8 and 28 days. A further 252 (1.0%) babies stayed longer than 28 days (Table 52).

The length of stay of those babies who were neither transferred from or died in the hospital of birth is shown on Table 53. Among these surviving liveborn babies, 2,236 (9.3%) stayed 8 to 28 days and 204 (0.8%) stayed for longer than 28 days.

6.16 Perinatal Mortality

There were 107 stillbirths and 51 neonatal deaths of babies born during 1997. The perinatal mortality rate for Western Australia was 6.3 per 1000 total births equal to or greater than 500 grams. A comparative rate for births equal to or greater than 400 grams was 7.5 per 1000 total births (Table 56).

Perinatal mortality may also be considered on the basis of gestational age regardless of birthweight. Rates of 9.2 per 1000 for 20 weeks or more and 7.8 per 1000 for 22 weeks or more were calculated for Western Australia in 1997 (Table 57).

Among babies of Aboriginal women the perinatal mortality rate (16.6 per 1000) was three times that for babies born to non-Aboriginal women (5.6 per 1000) (Table 58).

The perinatal mortality rate in Western Australia almost halved over the past 15 years from 11.5 per 1000 in 1983 to 6.3 per 1000 in 1997 (Figure 24). Although the rate for babies of Aboriginal mothers has also declined (21.8 per 1000 in 1983 to 16.6 per 1000) in 1997 it remains approximately double the rate for babies of non-Aboriginal women (Table 61, Figure 25).

Figure 24: Stillbirth rate, neonatal and perinatal mortality rates in Western Australia, 1983-1997

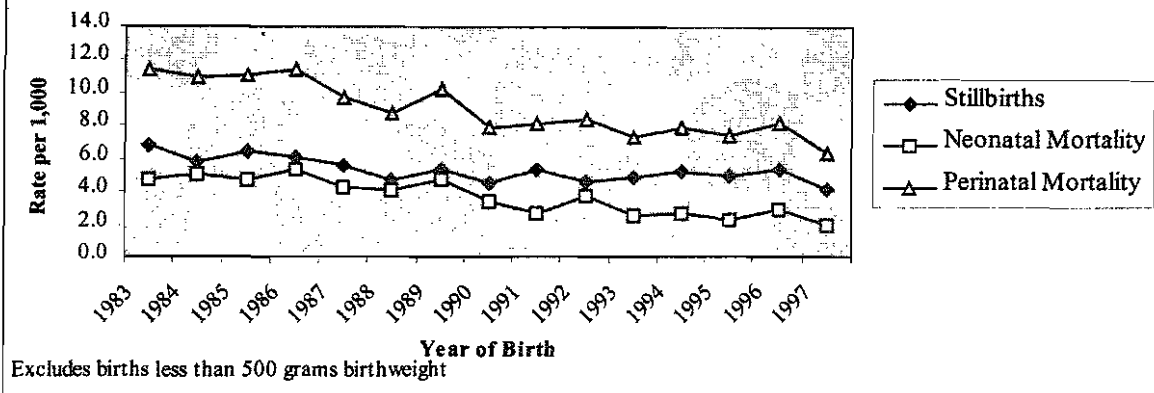
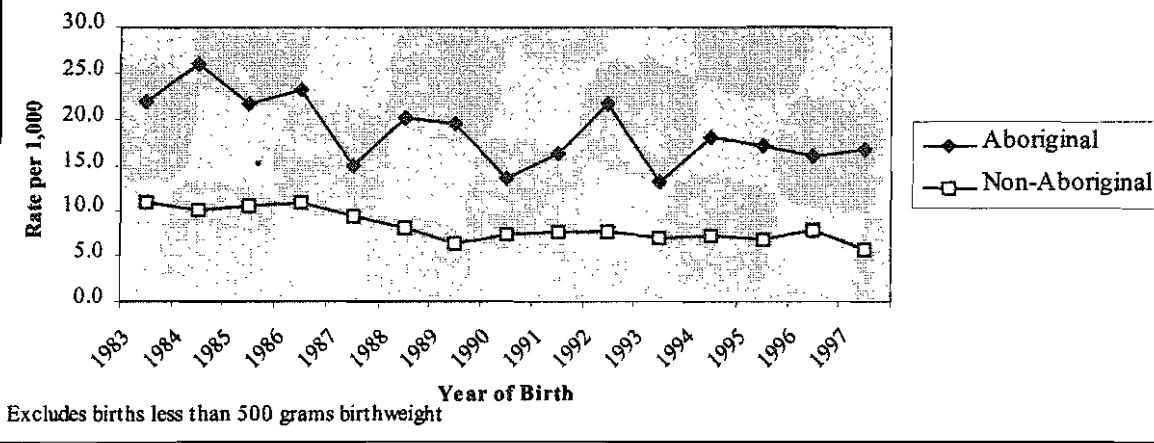


Figure 25: Perinatal mortality by Aboriginality in Western Australia, 1983-1997



Over one third (35.4%) of perinatal deaths had a birthweight of less than 1000 grams. Overall 58.9% of stillbirths and 66.7% of neonatal deaths weighed less than 2500 grams at birth (Table 62).

Among the 762 multiple births, there were 14 perinatal deaths. Of these, 7 were stillborn and 7 were neonatal deaths (Table 63).

The stillbirth rate for multiple births (18.4 per 1000) was higher than the rate for singleton births (5.9 per 1000).

When stillbirths were examined by time of death, 78 (72.9%) occurred antepartum, 28 (26.2%) were intrapartum deaths and timing of stillbirth was unknown in 1 (0.9%) of case.

The neonatal mortality rate for multiple births (9.3 per 1000) was greater than four times that of the rate for singleton births (1.8 per 1000) (Table 63). More than one third (37.3%) of neonatal deaths occurred within the first day of life (Table 64).

The causes of death for stillborn babies include contributing factors relating to extremely low birthweight (less than 1000 grams birthweight) (26.2%), intrauterine asphyxia (39.3%), problems with placenta and cord (13.1%) and birth defects incompatible with life (14.0%).

The principal causes contributing to death of neonates were reported to be extremely low birthweight (21.67%) and lethal birth defects 35.3% (Table 65).

It is known that autopsies were requested for 61.7% (n=66) of stillbirths and 49.0% (n=25) of neonatal deaths. In the case of 14 (8.9%) perinatal deaths it is unknown whether an autopsy was requested (Table 66).

Table 1: Age and ethnic origin of women confined in Western Australia, 1997

Maternal Age	Ethnic Origin of Mother						Total	
	Caucasian		Aboriginal		Other		No.	%
	No.	%	No.	%	No.	%		
<= 14	6	0.0	10	0.6	-	-	16	0.1
15	11	0.1	29	1.9	1	0.1	41	0.2
16	74	0.3	51	3.3	5	0.3	130	0.5
17	186	0.9	82	5.3	8	0.4	276	1.1
18	327	1.5	97	6.3	8	0.4	432	1.7
19	417	2.0	111	7.2	16	0.8	544	2.2
<= 19	1021	4.8	380	24.5	38	1.9	1439	5.8
20-24	3616	17.0	505	32.6	317	15.9	4438	17.9
25-29	7097	33.4	390	25.2	623	31.2	8110	32.7
30-34	6478	30.5	207	13.4	610	30.5	7295	29.4
35-39	2654	12.5	59	3.8	334	16.7	3047	12.3
40-44	366	1.7	7	0.5	72	3.6	445	1.8
>= 45	17	0.1	-	-	3	0.2	20	0.1
TOTAL	21249	100.0	1548	100.0	1997	100.0	24794	100.0

Excludes births less than 500 grams birthweight.

Mean = 28.5 years. Standard deviation = 5.5 years.

Table 2: Age of women confined in Western Australia, 1983-1997

Year of Birth	Maternal Age						Total	
	<= 19		20-34		>= 35		No.	%
	No.	%	No.	%	No.	%		
1983	1576	6.9	19919	87.4	1290	5.7	22785	100.0
1984	1536	6.8	19775	87.3	1352	6.0	22663	100.0
1985	1451	6.3	20010	86.9	1554	6.8	23015	100.0
1986	1532	6.5	20310	86.2	1718	7.3	23560	100.0
1987	1492	6.3	20553	86.2	1793	7.5	23838	100.0
1988	1628	6.6	21035	85.0	2073	8.4	24736	100.0
1989	1581	6.3	21334	85.0	2187	8.7	25102	100.0
1990	1656	6.5	21566	84.1	2415	9.4	25637	100.0
1991	1633	6.6	20554	83.5	2429	9.9	24616	100.0
1992	1570	6.3	20717	83.1	2631	10.6	24918	100.0
1993	1490	6.0	20631	82.8	2795	11.2	24916	100.0
1994	1584	6.3	20468	81.9	2948	11.8	25000	100.0
1995	1514	6.1	20344	81.3	3162	12.6	25020	100.0
1996	1517	6.0	20239	80.6	3362	13.4	25118	100.0
1997	1439	5.8	19843	80.0	3512	14.2	24794	100.0

Excludes births less than 500 grams birthweight.

Table 3: Conjugal state and plurality of women confined in Western Australia, 1997

Conjugal State	Plurality				TOTAL	
	Singleton		Multiple		No.	%
	No.	%	No.	%		
Single	2384	9.8	24	6.4	2408	9.7
Married/Defacto	21805	89.3	350	92.8	22155	89.4
Other ¹	228	0.9	3	0.8	231	0.9
TOTAL	24417	100.0	377	100.0	24794	100.0

Excludes births less than 500 grams birthweight.

¹ Other includes separated, divorced and widowed.

Table 4: Health zone of residence and Aboriginality of women confined in Western Australia, 1997

Health Zone of Residence	Aboriginality of Mother				TOTAL	
	- Aboriginal		Non-Aboriginal		No.	%
	No.	%	No.	%		
Metropolitan						
North	121	7.8	5417	23.3	5538	22.3
East	115	7.4	3747	16.1	3862	15.6
South West	124	8.0	3947	17.0	4071	16.4
South East	176	11.4	4092	17.6	4268	17.2
Country						
Kimberley	392	25.3	239	1.0	631	2.5
Pilbara	126	8.1	612	2.6	738	3.0
Mid West	193	12.5	937	4.0	1130	4.6
Central	53	3.4	736	3.2	789	3.2
Goldfields	134	8.7	981	4.2	1115	4.5
South West	56	3.6	1534	6.6	1590	6.4
Grt Southern	56	3.6	963	4.1	1019	4.1
Outside WA	2	0.1	41	0.2	43	0.2
TOTAL	1548	100.0	23246	100.0	24794	100.0

Excludes births less than 500 grams birthweight.

Table 5: Place of confinement for women resident in metropolitan health zones in Western Australia, 1997

Health Zone of Residence	Birth Hospital in Health Zone						Non Hospital	TOTAL
	North Metro		East	SW Metro	SE Metro	Country		
	Teaching	Other	Metro					
No.	No.	No.	No.	No.	No.	No.	No.	
North	1322	3975	154	46	16	5	20	5538
East	1032	963	1760	30	53	5	19	3862
South West	639	171	20	2691	39	460	51	4071
South East	1433	230	184	655	1724	10	32	4268
TOTAL	4426	5339	2118	3422	1832	480	122	17739
	%	%	%	%	%	%	%	%
North	23.9	71.8	2.8	0.8	0.3	0.1	0.4	100.0
East	26.7	24.9	45.6	0.8	1.4	0.1	0.5	100.0
South West	15.7	4.2	0.5	66.1	1.0	11.3	1.3	100.0
South East	33.6	5.4	4.3	15.3	40.4	0.2	0.7	100.0
TOTAL	25.0	30.1	11.9	19.3	10.3	2.7	0.7	100.0

Excludes births less than 500 grams birthweight.

Table 6: Place of confinement for women resident in country health zones in Western Australia, 1997

Health Zone of Residence	Birth Hospital in Health Zone				Non Hospital	TOTAL
	Internal	Metro		Other Country		
		Teaching	Other			
No.	No.	No.	No.	No.	No.	
Kimberley	577	28	16	5	5	631
Pilbara	586	55	76	17	4	738
Mid West	815	127	163	20	5	1130
Midlands	317	131	303	37	1	789
Goldfields	997	54	54	8	2	1115
South West	1458	62	46	8	16	1590
Grt Southern	814	73	102	18	12	1019
TOTAL	5564	530	760	113	45	7012
	%	%	%	%	%	%
Kimberley	91.4	4.4	2.5	0.8	0.8	100.0
Pilbara	79.4	7.5	10.3	2.3	0.5	100.0
Mid West	72.1	11.2	14.4	1.8	0.4	100.0
Midlands	40.2	16.6	38.4	4.7	0.1	100.0
Goldfields	89.4	4.8	4.8	0.7	0.2	100.0
South West	91.7	3.9	2.9	0.5	1.0	100.0
Grt Southern	79.9	7.2	10.0	1.8	1.2	100.0
TOTAL	79.3	7.6	10.8	1.6	0.6	100.0

Excludes births less than 500 grams birthweight.

Table 7: Place of birth and plurality of women confined in Western Australia, 1997

Place of Birth	Plurality				TOTAL	
	Singleton		Multiple		No.	%
	No.	%	No.	%		
Metropolitan						
Teaching ¹	4795	19.6	178	47.2	4973	20.1
Department	6181	25.3	38	10.1	6219	25.1
Private ²	7155	29.3	112	29.7	7267	29.3
Country						
Regional ³	3022	12.4	31	8.2	3053	12.3
Private	464	1.9	8	2.1	472	1.9
Other ⁴	2625	10.8	10	2.7	2635	10.6
Non Hospital						
Homebirths	113	0.5	-	-	113	0.5
BBA ⁵	62	0.3	-	-	62	0.3
TOTAL	24417	100.0	377	100.0	24794	100.0

Excludes births less than 500 grams birthweight.

¹ Teaching Hospital - University Medical School (Teaching Hospitals Act 1955).

² Private Hospital - includes some Private Hospitals with both private and public beds.

³ Country Regional Hospital - Government Hospital in regional centres.

⁴ Other Country Hospital - Government and Board Hospitals.

⁵ BBA - born before arrival at hospital.

Table 8: Place of birth of women confined in Western Australia, 1983-1997

Year of Birth	Place of Birth									
	Teaching		Public		Private		Home Birth		BBA	
	No.	%	No.	%	No.	%	No.	%	No.	%
1983	4706	20.7	11912	52.3	6060	26.6	99	0.4	8	0.0
1984	4865	21.5	11274	49.7	6406	28.3	96	0.4	22	0.1
1985	4624	20.1	11284	49.0	6895	30.0	143	0.6	69	0.3
1986	4894	20.8	11967	50.8	6478	27.5	174	0.7	47	0.2
1987	4580	19.2	12001	50.3	7049	29.6	144	0.6	64	0.3
1988	4727	19.1	12342	49.9	7414	30.0	175	0.7	78	0.3
1989	4632	18.5	12744	50.8	7474	29.8	176	0.7	76	0.3
1990	4623	18.0	13337	52.0	7434	29.0	151	0.6	92	0.4
1991	4160	16.9	13037	53.0	7197	29.2	145	0.6	77	0.3
1992	4263	17.1	13261	53.2	7210	28.9	107	0.4	77	0.3
1993	4656	18.7	12925	51.9	7154	28.7	102	0.4	79	0.3
1994	4863	19.5	12828	51.3	7108	28.4	109	0.4	92	0.4
1995	4872	19.5	12908	51.6	7049	28.2	96	0.4	95	0.4
1996	5028	20.0	12311	49.0	7575	30.2	120	0.5	84	0.3
1997	4973	20.1	11907	48.0	7739	31.2	113	0.5	62	0.3

Excludes births less than 500 grams birthweight.

Table 9: Parity and Aboriginality of women confined in Western Australia, 1997

Parity	Aboriginality of Mother				TOTAL	
	Aboriginal		Non-Aboriginal		No.	%
	No.	%	No.	%		
0	438	28.3	9540	41.0	9978	40.2
1-2	644	41.6	11656	50.1	12300	49.6
3-4	344	22.2	1776	7.6	2120	8.6
>= 5	122	7.9	274	1.2	396	1.6
TOTAL	1548	100.0	23246	100.0	24794	100.0

Excludes births less than 500 grams birthweight.

Table 10: Parity and age of women confined in Western Australia, 1997

Parity	Maternal Age						TOTAL	
	<= 19		20-34		>= 35		No.	%
	No.	%	No.	%	No.	%		
0	1158	80.5	8034	40.5	786	22.4	9978	40.2
1-2	275	19.1	10098	50.9	1927	54.9	12300	49.6
3-4	6	0.4	1492	7.5	622	17.7	2120	8.6
>= 5			219	1.1	177	5.0	396	1.6
TOTAL	1439	100.0	19843	100.0	3512	100.0	24794	100.0

Excludes births less than 500 grams birthweight.

Table 11: Parity of women confined in Western Australia, 1983-1997

Year of Birth	Number of Women	Parity				Average Parity
		0 %	1-2 %	3-4 %	>= 5 %	
1983	22785	39.3	51.2	8.2	1.3	1.03
1984	22663	38.7	51.8	8.3	1.2	1.04
1985	23015	38.1	52.2	8.4	1.2	1.05
1986	23560	38.9	51.4	8.5	1.2	1.04
1987	23838	38.9	51.3	8.5	1.3	1.04
1988	24736	38.6	51.5	8.7	1.3	1.05
1989	25102	39.5	50.2	8.9	1.4	1.05
1990	25637	39.0	50.6	9.2	1.3	1.06
1991	24616	39.7	49.8	9.1	1.3	1.05
1992	24918	38.7	50.8	9.0	1.5	1.06
1993	24916	38.7	50.9	8.9	1.6	1.06
1994	25000	40.0	49.7	8.8	1.5	1.04
1995	25020	40.5	49.3	8.6	1.6	1.03
1996	25118	40.0	50.0	8.5	1.5	1.03
1997	24794	40.2	49.6	8.6	1.6	1.03

Excludes births less than 500 grams birthweight.

Table 12: Socio-economic status and age of women confined in Western Australia, 1997

Socio-economic Status ¹	Women Confined No. %		Maternal Age						Parity ≥ 5 No. %	
			≤ 17		18-34		≥ 35			
			No.	%	No.	%	No.	%	No.	%
I	3171	17.9	16	0.1	2423	13.7	732	4.1	27	0.2
II	4586	25.9	48	0.3	3735	21.1	803	4.5	54	0.3
III	4836	27.3	71	0.4	4169	23.5	596	3.4	74	0.4
IV	5124	28.9	120	0.7	4408	24.9	596	3.4	93	0.5
TOTAL	17717	100.0	255	1.4	14735	83.2	2727	15.4	248	1.4

Excludes births less than 500 grams birthweight.

¹ Socio-economic status is in accord with the socio-economic indices for areas, a postcode based indicator constructed by the Australian Bureau of Statistics using 1996 Census data. Postcodes were allocated to four equal-sized socio-economic status areas.

Table 13: Age specific birth rates and Aboriginality for women confined in Western Australia, 1997

Age	Aboriginality of Mother						TOTAL		
	Aboriginal			Non-Aboriginal			Births	Population	Birth Rate ¹
	Births	Population	Birth Rate ¹	Births	Population	Birth Rate ¹			
15-19	374	2427	154.1	1061	61099	17.4	1435	63526	22.6
20-24	510	2445	208.6	3977	64085	62.1	4487	66530	67.4
25-29	394	2443	161.3	7840	67589	116.0	8234	70032	117.6
30-34	211	2176	97.0	7218	67722	106.6	7429	69898	106.3
35-39	59	1726	34.2	3047	71350	42.7	3106	73076	42.5
40-44	7	1320	5.3	444	68430	6.5	451	69750	6.5
TOTAL	1555	12537	124.0	23587	400275	58.9	25142	412812	60.9

Excludes births less than 500 grams birthweight.

¹ Age Specific Birth Rate - The total number of births in 1 year per 1,000 women of the same age group.

SOURCE: Estimated resident population, Health Information Centre, HDWA 1998

Table 14: Age specific birth rates¹ by age and Aboriginality of mother in Western Australia, 1983-1997

Year of Birth	Aboriginality of Mother						TOTAL		
	Aboriginal			Non-Aboriginal			15-19	20-34	35-44
	15-19	20-34	35-44	15-19	20-34	35-44			
1983	175.9	158.5	18.1	21.5	113.3	14.5	27.4	114.4	14.5
1984	181.9	153.7	22.1	20.2	111.5	14.5	26.7	112.7	14.6
1985	171.9	160.7	14.9	18.1	111.3	16.1	24.4	112.6	16.1
1986	155.2	158.2	17.1	19.3	110.2	16.8	24.8	111.5	16.8
1987	158.7	166.1	22.2	17.9	108.9	16.8	23.5	110.6	16.9
1988	180.0	166.8	19.3	18.8	109.6	18.4	25.1	111.3	18.4
1990	164.4	168.5	20.3	18.7	108.4	18.5	24.3	110.2	18.6
1991	164.9	178.7	24.0	20.0	107.3	19.5	25.4	109.4	19.6
1992	180.1	156.5	21.2	19.5	102.1	19.1	25.7	103.8	19.1
1993	159.0	153.9	18.6	19.9	102.4	20.4	25.3	104.0	20.4
1994	164.0	151.3	21.4	18.5	102.2	21.5	24.1	103.8	21.5
1995	165.2	147.3	18.2	20.0	100.9	22.4	25.5	102.4	22.3
1996	142.8	151.1	22.5	19.7	99.3	23.6	24.4	101.1	23.6
1997	137.3	147.6	20.7	19.5	98.6	24.5	24.0	100.3	24.4

Excludes births less than 500 grams birthweight.

¹ Age Specific Birth Rate - The total number of births in 1 year per 1,000 women of the same age group.

Table 15: Selected complications of pregnancy and plurality of women confined in Western Australia, 1997

Complications of Pregnancy ¹	Plurality				TOTAL	
	Singleton		Multiple		No.	% ⁴
	No.	% ²	No.	% ³		
Threatened Abortion	1188	4.9	23	6.1	1211	4.9
Urinary Tract Infection	1222	5.0	14	3.7	1236	5.0
Pre-eclampsia	1586	6.5	53	14.1	1639	6.6
Antepartum haemorrhage						
- placenta praevia	167	0.7	4	1.1	171	0.7
- abruptio	116	0.5	6	1.6	122	0.5
- other	702	2.9	15	4.0	717	2.9
Premature rupture of membranes	1034	4.2	54	14.3	1088	4.4
Other	6915	28.3	309	82.0	7224	29.1
No complications of pregnancy	15582	63.8	114	30.2	15696	63.3

Excludes births less than 500 grams birthweight.

¹ A woman may have more than one complication of pregnancy.

² Percentage of women with a singleton pregnancy.

³ Percentage of women with a multiple pregnancy.

⁴ Percentage of women confined.

Table 16: Pre-existing medical conditions for women confined in Western Australia, 1997

Medical Conditions ¹	% of women confined	
	No.	%
Asthma	1957	7.9%
Cardiac Murmurs	171	0.7%
Genital Herpes	222	0.9%
Essential Hypertension	167	0.7%
Thyroid Disorders	239	1.0%
Epilepsy	134	0.5%
Urinary Tract Infection	150	0.6%
Anaemia	124	0.5%
Infertility	13	0.1%
Bronchial Disorders	70	0.3%
Hepatitis B	87	0.4%
Vaginal Infections	37	0.1%
Spinal Deformities	65	0.3%
Pre-existing diabetes	61	0.2%
Depressive disorders	312	1.3%
No medical conditions	19681	79.4%

Excludes births less than 500 grams birthweight.

¹ A woman may have more than one medical condition.

Table 17: Onset of labour and plurality of women confined in Western Australia, 1997

Onset of Labour	Plurality				TOTAL	
	Singleton		Multiple		No	%
	No.	%	No	%		
Spontaneous	14249	58.4	145	38.5	14394	58.1
Induced	6909	28.3	101	26.8	7010	28.3
No Labour	3259	13.3	131	34.7	3390	13.7
TOTAL	24417	100.0	377	100.0	24794	100.0

Excludes births less than 500 grams birthweight.

Table 18: Onset and augmentation of labour and type of delivery for women confined in Western Australia, 1997

Onset and Augmentation of Labour	Type of Delivery								TOTAL	
	Spontaneous Vaginal		Assisted Vaginal		Elective Caesarean		Emergency Caesarean		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
Spontaneous onset no augmentation	7224	29.1	870	3.5	-	-	702	2.8	8796	35.5
Spontaneous onset and augmentation	3768	15.2	1306	5.3	-	-	524	2.1	5598	22.6
Induced onset	4701	19.0	1473	5.9	-	-	836	3.4	7010	28.3
No Labour	-	-	-	-	3039	12.3	351	1.4	3390	13.7
TOTAL	15693	63.3	3649	14.7	3039	12.3	2413	9.7	24794	100.0

Excludes births less than 500 grams birthweight.

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

Table 19: Onset of labour for singleton births of women confined in Western Australia, 1983-1997

Year of Birth	Onset of Labour						TOTAL
	Spontaneous		Induced		No Labour		No.
	No.	%	No.	%	No.	%	No.
1983	15040	66.7	5789	25.7	1717	7.6	22546
1984	15155	67.6	5488	24.5	1773	7.9	22416
1985	14774	64.9	5863	25.8	2112	9.3	22749
1986	14799	63.5	6266	26.9	2224	9.5	23289
1987	14935	63.4	6156	26.2	2449	10.4	23540
1988	15657	64.2	6307	25.8	2441	10.0	24405
1989	15730	63.6	6363	25.7	2650	10.7	24743
1990	16485	65.1	6055	23.9	2790	11.0	25330
1991	15647	64.4	6014	24.8	2637	10.9	24298
1992	15371	62.5	6414	26.1	2797	11.4	24582
1993	14845	60.4	6739	27.4	2991	12.2	24575
1994	14928	60.5	6742	27.3	2991	12.1	24661
1995	14871	60.3	6833	27.7	2975	12.1	24679
1996	14827	59.9	6856	27.7	3063	12.4	24746
1997	14249	58.4	6909	28.3	3259	13.3	24417

Excludes births less than 500 grams birthweight.

Table 20: Presentation and type of delivery for singleton births in Western Australia, 1997

Type of Delivery	Presentation						TOTAL	
	Vertex		Breech		Other		No.	%
	No.	%	No.	%	No.	%	No.	%
Normal	15539	66.7	15	1.6	31	20.5	15585	63.8
Vacuum	2278	9.8	-	-	7	4.6	2285	9.4
Forceps	1161	5.0	3	0.3	10	6.6	1174	4.8
Breech Manoeuvre	-	-	105	11.0	1	0.7	106	0.4
Elective Caesarean	2343	10.0	560	58.8	35	23.2	2938	12.0
Emergency Caesarean	1993	8.5	269	28.3	67	44.4	2329	9.5
TOTAL	23314	100.0	952	100.0	151	100.0	24417	100.0

Excludes births less than 500 grams birthweight.

Table 21: Type of delivery and plurality of women confined in Western Australia, 1997

Type of Delivery	Plurality								TOTAL	
	Singleton		Twin		Triplet		Quadruplet		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal	15585	63.8	107	29.3	1	11.1	-	-	15693	63.3
Vacuum	2285	9.4	50	13.7	-	-	-	-	2335	9.4
Forceps	1174	4.8	26	7.1	-	-	-	-	1200	4.8
Breech Manoeuvre	106	0.4	8	2.2	-	-	-	-	114	0.5
Elective Caesarean	2938	12.0	96	26.3	4	44.4	1	33.3	3039	12.3
Emergency Caesarean	2329	9.5	78	21.4	4	44.4	2	66.7	2413	9.7
TOTAL	24417	100.0	365	100.0	9	100.0	3	100.0	24794	100.0

Excludes births less than 500 grams birthweight.

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

Table 22: Type of delivery and parity of women confined in Western Australia, 1997

Type of Delivery	Parity								TOTAL	
	0		1-2		3-4		≥ 5		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
Spontaneous Vaginal	5077	50.9	8695	70.7	1616	76.2	305	77.0	15693	63.3
Assisted Vaginal	2645	26.5	894	7.3	92	4.3	18	4.5	3649	14.7
Elective Caesarean	783	7.8	1936	15.7	276	13.0	44	11.1	3039	12.3
Emergency Caesarean	1473	14.8	775	6.3	136	6.4	29	7.3	2413	9.7
TOTAL	9978	100.0	12300	100.0	2120	100.0	396	100.0	24794	100.0

Excludes births less than 500 grams birthweight.

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

Table 23: Type of delivery for women confined in Western Australia, 1983-1997

Year of Birth	Type of Delivery								TOTAL	
	Spontaneous Vaginal		Assisted Vaginal		Elective Caesarean		Emergency Caesarean		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%
1983	14422	63.3	5338	23.4	1488	6.5	1537	6.7	22785	100.0
1984	14285	63.0	5236	23.1	1560	6.9	1582	7.0	22663	100.0
1985	14421	62.7	5103	22.2	1804	7.8	1687	7.3	23015	100.0
1986	14921	63.3	4953	21.0	1851	7.9	1835	7.8	23560	100.0
1987	15089	63.3	4720	19.8	2063	8.7	1966	8.2	23838	100.0
1988	16113	65.1	4432	17.9	2196	8.9	1995	8.1	24736	100.0
1989	16094	64.1	4470	17.8	2356	9.4	2182	8.7	25102	100.0
1990	16393	64.0	4412	17.2	2493	9.7	2336	9.1	25634	100.0
1991	15914	64.6	4153	16.9	2362	9.6	2187	8.9	24616	100.0
1992	15987	64.2	4119	16.5	2559	10.3	2253	9.0	24918	100.0
1993	15825	63.5	3869	15.5	2763	11.1	2459	9.9	24916	100.0
1994	15880	63.5	3899	15.6	2729	10.9	2492	10.0	25000	100.0
1995	16147	64.5	3815	15.2	2740	11.0	2318	9.3	25020	100.0
1996	16058	63.9	3912	15.6	2865	11.4	2283	9.1	25118	100.0
1997	15693	63.3	3649	14.7	3039	12.3	2413	9.7	24794	100.0

Excludes births less than 500 grams birthweight.

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

Table 24: Frequency of complications of labour and delivery for women confined by caesarean section in Western Australia, 1997

Number of complications of labour and delivery	Women confined by caesarean section	
	No.	%
1	3532	23.4
2	1414	9.4
3	385	2.6
4	101	0.7
5	20	0.1
TOTAL	5452	36.1

Excludes births less than 500 grams birthweight.

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

Table 25: Complications of labour and delivery for women confined by caesarean section in Western Australia, 1997

Complications of labour and delivery ¹	Elective Caesarean		Emergency Caesarean		TOTAL	
	No.	%	No.	%	No.	%
Umbilical cord complications	60	1.6	132	3.2	192	2.4
Cephalopelvic disproportion	520	13.5	429	10.3	949	11.8
Breech and other malpresentation	600	15.6	347	8.3	947	11.8
Previous caesarean section or other uterine surgery	1478	38.4	275	6.6	1753	21.9
Fetal distress	29	0.8	851	20.4	880	11.0
Multiple pregnancy	86	2.2	39	0.9	125	1.6
Pregnancy induced disorders	278	7.2	444	10.7	722	9.0
Obstruction or delayed labour	-	-	133	3.2	133	1.7
Abnormal forces of labour	-	-	747	17.9	747	9.3
Placental disorders/haemorrhage	357	9.3	582	14.0	939	11.7
Medical/Physiological	79	2.1	32	0.8	111	1.4
Infection	54	1.4	40	1.0	94	1.2
Previous poor obstetric and/or reproductive history	61	1.6	9	0.2	70	0.9
Other	251	6.5	106	2.5	357	4.5
TOTAL	3853	100.0	4166	100.0	8019	100.0

Excludes births less than 500 grams birthweight.

¹ A woman may have more than one complication of labour and delivery.

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

Table 26: Place of confinement and type of delivery for women confined in Western Australia, 1997

Place of Birth	Type of Delivery								TOTAL	
	Spontaneous		Assisted Vaginal		Elective		Emergency		No.	%
	No.	%	No.	%	No.	%	No.	%		
Metropolitan										
Teaching	3060	61.5	728	14.6	470	9.5	715	14.4	4973	100.0
Departmental	4136	66.5	750	12.1	789	12.7	544	8.7	6219	100.0
Private	3852	61.9	1409	22.7	1272	20.5	734	11.8	7267	100.0
Country										
Regional	2171	71.1	424	13.9	209	6.8	249	8.2	3053	100.0
Private	278	58.9	75	15.9	65	13.8	54	11.4	472	100.0
Other	2022	76.7	262	9.9	234	8.9	117	4.4	2635	100.0
Non-hospital	174	99.4	1	0.6	-	-	-	-	175	100.0
TOTAL	15693	63.3	3649	14.7	3039	12.3	2413	9.7	24794	100.0

Excludes births less than 500 grams birthweight.

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

Table 27: Anaesthesia/analgesia and type of delivery for women confined in Western Australia, 1997

Type of Anaesthesia/ Analgesia	Type of Delivery								TOTAL	
	Spontaneous		Assisted Vaginal		Elective		Emergency		No.	%
	No.	%	No.	%	No.	%	No.	%		
None	3666	14.8	108	0.4	-	-	-	-	3774	15.2
Epidural	3299	13.3	2522	10.2	2759	11.1	2003	8.1	10583	42.7
General	61	0.2	11	0.0	248	1.0	334	1.3	654	2.6
Epidural and General	3	0.0	2	0.0	32	0.1	73	0.3	110	0.4
Other	8664	34.9	1006	4.1	-	-	3	0.0	9673	39.0
TOTAL	15693	63.3	3649	14.7	3039	12.3	2413	9.7	24794	100.0

Excludes births less than 500 grams birthweight.

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

Table 28: Epidural and general anaesthesia/analgesia for women confined by caesarean section in Western Australia, 1986-1997

Year of Birth	Type of Delivery								Number of Caesareans	
	Elective Caesarean				Emergency Caesarean				Elective No.	Emerg. No.
	Epidural		General		Epidural		General			
No.	%	No.	%	No.	%	No.	%			
1986	1089	58.8	622	33.6	868	47.3	823	44.9	1851	1835
1987	1436	69.6	610	29.6	1008	51.3	930	47.3	2063	1966
1988	1560	71.0	632	28.8	1047	52.5	928	46.5	2196	1995
1989	1774	75.3	581	24.7	1257	57.6	906	41.5	2356	2182
1990	1923	77.1	570	22.9	1435	61.4	901	38.6	2493	2336
1991	1846	78.2	516	21.8	1432	65.5	755	34.5	2362	2187
1992	2070	80.9	489	19.1	1486	66.0	767	34.0	2559	2253
1993	2282	82.6	481	17.4	1749	71.1	710	28.9	2763	2459
1994	2347	86.0	382	14.0	1890	75.8	602	24.2	2729	2492
1995	2371	86.5	369	13.5	1807	78.0	511	22.0	2740	2318
1996	2548	88.9	317	11.1	1860	81.5	423	18.5	2865	2283
1997	2759	90.8	280	9.2	2003	83.0	407	16.9	3039	2413

Excludes births less than 500 grams birthweight.

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

Table 29: Hours of established labour and onset of labour for women confined in Western Australia, 1997

Hours of Labour	Onset of Labour			
	Spontaneous		Induction	
	No.	%	No.	%
< 1	303	2.1	223	3.2
1-4	4909	34.2	3080	44.0
5-12	7429	51.7	3305	47.2
13-18	1298	9.0	328	4.7
19-24	324	2.3	59	0.8
> 24	107	0.7	7	0.1
TOTAL	14370	100.0	7002	100.0

Excludes births less than 500 grams birthweight.

Excludes 3,390 women who did not experience labour and 32 women for whom hours of established labour was not recorded.

Table 30: Type of delivery and hours of established labour for women confined in Western Australia, 1997

Type of Delivery	Hours of Established Labour							TOTAL No.
	No Labour No.	< 1 No.	1-4 No.	5-12 No.	13-18 No.	19-24 No.	> 24 No.	
Normal	-	39	7094	7584	768	140	44	15669
Vacuum	-	-	315	1520	378	94	25	2332
Forceps	-	-	166	774	206	41	12	1199
Breech Manoeuvre	-	1	51	51	8	1	2	114
Elective Caesarean	3039	-	-	-	-	-	-	3039
Emergency Caesarean	351	486	363	805	266	107	31	2409
TOTAL	3390	526	7989	10734	1626	383	114	24762
	%	%	%	%	%	%	%	%
Normal	-	7.4	88.8	70.7	47.2	36.6	38.6	63.3
Vacuum	-	-	3.9	14.2	23.2	24.5	21.9	9.4
Forceps	-	-	2.1	7.2	12.7	10.7	10.5	4.8
Breech Manoeuvre	-	0.2	0.6	0.5	0.5	0.3	1.8	0.5
Elective Caesarean	89.6	-	-	-	-	-	-	12.3
Emergency Caesarean	10.4	92.4	4.5	7.5	16.4	27.9	27.2	9.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Excludes births less than 500 grams birthweight.

Excludes 32 women for whom hours of established labour was not recorded.

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

Table 31: Selected complications of labour and delivery and plurality for women confined in Western Australia, 1997

Complications of Labour and Delivery ¹	Plurality				TOTAL	
	Singleton		Multiple		No.	%
	No.	%	No.	%		
Precipitate delivery	1230	5.0	12	3.2	1242	5.0
Fetal distress	3100	12.7	30	8.0	3130	12.6
Prolapsed cord	50	0.2	4	1.1	54	0.2
Cord tightly around neck	2	0.0	-	-	2	0.0
Cephalopelvic disproportion	918	3.8	5	1.3	923	3.7
Post partum haemorrhage	1855	7.6	73	19.4	1928	7.8
Other	11969	49.0	457	121.2	12426	50.1
No complications of labour and delivery	12019	49.2	68	18.0	12087	48.8

Excludes births less than 500 grams birthweight.

¹ A woman may have more than one complication of labour and delivery.

Table 32: Type of delivery and repair of perineum and/or vagina for women confined in Western Australia, 1997

Type of Delivery	Repair of perineum and/or Vagina					TOTAL No.
	None No.	Episiotomy No.	1 or 2 degree tear No.	3 or 4 degree tear No.	Other No.	
Normal	6614	2506	5609	130	834	15693
Vacuum	247	1281	664	70	73	2335
Forceps	54	959	121	54	12	1200
Breech Manoeuvre	49	53	7	3	2	114
Elective Caesarean	3039	-	-	-	-	3039
Emergency Caesarean	2399	5	4	-	5	2413
TOTAL	12402	4804	6405	257	926	24794
	%	%	%	%	%	%
Normal	53.3	52.2	87.6	50.6	90.1	63.3
Vacuum	2.0	26.7	10.4	27.2	7.9	9.4
Forceps	0.4	20.0	1.9	21.0	1.3	4.8
Breech Manoeuvre	0.4	1.1	0.1	1.2	0.2	0.5
Elective Caesarean	24.5	-	-	-	-	12.3
Emergency Caesarean	19.3	0.1	0.1	-	0.5	9.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Excludes births less than 500 grams birthweight.

Women with multiple pregnancies are classified according to the features of the first multiple delivered.

Table 33: Condition at birth and crude birth rate in Western Australia, 1983-1997

Year of Birth	Condition at Birth				TOTAL	
	Livebirth		Stillbirth		No.	Crude Birth Rate
	No.	%	No.	%	No.	
1983	22868	99.3	157	0.7	23025	16.9
1984	22779	99.4	134	0.6	22913	15.6
1985	23138	99.4	150	0.6	23288	16.4
1986	23693	99.4	145	0.6	23838	16.6
1987	24004	99.4	136	0.6	24140	15.4
1988	24961	99.5	117	0.5	25078	16.3
1989	25343	99.5	138	0.5	25481	15.7
1990	25826	99.5	118	0.5	25944	15.8
1991	24801	99.5	134	0.5	24935	15.2
1992	25143	99.5	115	0.5	25258	15.1
1993	25142	99.5	123	0.5	25265	15.0
1994	25210	99.5	131	0.5	25341	14.8
1995	25238	99.5	128	0.5	25366	14.6
1996	25365	99.5	136	0.5	25501	14.4
1997	25072	99.6	107	0.4	25179	13.9

Excludes births less than 500 grams birthweight.

¹ Crude birth rate is the number of livebirths per 1,000 total population.

Table 34: Condition at birth and gender of births in Western Australia, 1997

Gender	Condition at Birth				TOTAL	
	Livebirth		Stillbirth		No.	%
	No.	%	No.	%	No.	%
Male	12943	51.6	51	47.7	12994	51.6
Female	12129	48.4	56	52.3	12185	48.4
TOTAL	25072	100.0	107	100.0	25179	100.0

Excludes births less than 500 grams birthweight.

Table 35: Condition at birth and Aboriginality of mother for births in Western Australia, 1997

Aboriginality of Mother	Condition at Birth				TOTAL		Still Birth Rate
	Livebirth		Stillbirth		No.	%	
	No.	%	No.	%	No.	%	
Aboriginal	1544	6.2	21	19.6	1565	6.2	13.4
Non-aboriginal	23528	93.8	86	80.4	23614	93.8	3.6
TOTAL	25072	100.0	107	100.0	25179	100.0	4.2

Excludes births less than 500 grams birthweight.

Table 36: Condition at birth and place of birth for births in Western Australia, 1997

Place of Birth	Condition at Birth				TOTAL		Still Birth Rate
	Livebirth		Stillbirth		No.	%	
	No.	%	No.	%	No.	%	
Metropolitan							
Teaching	5103	20.4	50	46.7	5153	20.5	9.7
Department	6243	24.9	14	13.1	6257	24.9	2.2
Private	7370	29.4	15	14.0	7385	29.3	2.0
Country							
Regional	3066	12.2	18	16.8	3084	12.2	5.8
Private	479	1.9	1	0.9	480	1.9	2.1
Other	2637	10.5	8	7.5	2645	10.5	3.0
Non-Hospital							
Homebirths	113	0.5		0.0	113	0.4	0.0
BBA	61	0.2	1	0.9	62	0.2	16.1
TOTAL	25072	100.0	107	100.0	25179	100.0	4.2

Excludes births less than 500 grams birthweight.

Table 37: Plurality of all births in Western Australia, 1983-1997

Year of Birth	Plurality							
	Singleton		Twins		Triplets		Other Multiple	
	No.	%	No.	%	No.	%	No.	%
1983	22546	97.9	464	2.0	15	0.1	-	-
1984	22416	97.8	479	2.1	18	0.1	-	-
1985	22749	97.7	515	2.2	24	0.1	-	-
1986	23289	97.7	522	2.2	23	0.1	4	0.0
1987	23540	97.5	576	2.4	24	0.1	-	-
1988	24405	97.3	625	2.5	48	0.2	-	-
1989	24743	97.1	671	2.6	54	0.2	13	0.1
1990	25330	97.6	602	2.3	12	0.0	-	-
1991	24298	97.4	619	2.5	18	0.1	-	-
1992	24582	97.3	644	2.5	32	0.1	-	-
1993	24575	97.3	653	2.6	37	0.1	-	-
1994	24661	97.3	650	2.6	27	0.1	3	0.0
1995	24679	97.3	663	2.6	24	0.1	-	-
1996	24746	97.0	712	2.8	36	0.1	7	0.0
1997	24417	97.0	725	2.9	27	0.1	10	0.0

Excludes births less than 500 grams birthweight.

Table 38: Apgar score at one minute and time to spontaneous respiration of livebirths in Western Australia, 1997

Time to Spontaneous Respiration	Apgar Score at 1 Minute								TOTAL	
	0		1-3		4-7		8-10		No.	%
<= 1	-	-	19	4.1	3202	57.8	18490	97.2	21711	86.7
2-3	-	-	89	19.1	1762	31.8	492	2.6	2343	9.4
4-6	-	-	153	32.8	315	5.7	20	0.1	488	1.9
7-10	-	-	23	4.9	36	0.6	3	0.0	62	0.2
> 10	1	25.0	5	1.1	3	0.1	-	-	9	0.0
Intubation ¹	3	75.0	177	38.0	224	4.0	22	0.1	426	1.7
TOTAL	4	100.0	466	100.0	5542	100.0	19027	100.0	25039	100.0

Excludes births less than 500 grams birthweight.

Excludes 33 livebirths for whom Apgar Score at 1 minute and/or T.S.R. was unknown.

¹ These babies were intubated at birth and T.S.R. was not recorded.

Table 39: Apgar score at five minutes and time to spontaneous respiration of livebirths in Western Australia, 1997

Time to Spontaneous Respiration	Apgar Score at 5 Minutes								TOTAL	
	0		1-3		4-7		8-10		No.	%
<= 1	1	33.3	3	10.3	110	15.6	21600	88.9	21714	86.7
2-3	-	-	-	-	162	23.0	2181	9.0	2343	9.4
4-6	-	-	3	10.3	188	26.7	297	1.2	488	1.9
7-10	-	-	3	10.3	52	7.4	7	0.0	62	0.2
> 10	-	-	1	3.4	7	1.0	1	0.0	9	0.0
Intubation ¹	2	66.7	19	65.5	186	26.4	219	0.9	426	1.7
TOTAL	3	100.0	29	100.0	705	100.0	24305	100.0	25042	100.0

Excludes births less than 500 grams birthweight.

Excludes 30 livebirths for whom Apgar Score at 5 minute and/or T.S.R. was unknown.

¹ These babies were intubated at birth and T.S.R. was not recorded.

Table 40: Apgar score at five minutes and resuscitation methods of livebirths in Western Australia, 1997

Resuscitation	Apgar Score at 5 Minute								TOTAL	
	0		1-3		4-7		8-10		No.	%
None	1	33.3	6	19.4	20	2.8	15723	64.7	15750	62.9
Oxygen Only	-	-	-	-	103	14.6	4234	17.4	4337	17.3
Intubation	2	66.7	18	58.1	221	31.3	268	1.1	509	2.0
Bag & Mask	-	-	3	9.7	322	45.5	1411	5.8	1736	6.9
Other	-	-	4	12.9	41	5.8	2671	11.0	2716	10.8
TOTAL	3	100.0	31	100.0	707	100.0	24307	100.0	25048	100.0

Excludes births less than 500 grams birthweight.

Excludes 24 livebirths for whom Apgar Score at 5 minute was unknown.

Table 41: Birthweight and resuscitation methods of livebirths in Western Australia, 1997

Resuscitation	Birthweight								TOTAL	
	500-1499		1500-1999		2000-2499		> 2500		No.	%
	No.	%	No.	%	No.	%	No.	%		
None	8	3.2	77	24.7	456	46.9	15232	64.7	15773	62.9
Oxygen Only	81	32.4	146	46.8	315	32.4	3795	16.1	4337	17.3
Intubation	146	58.4	43	13.8	38	3.9	283	1.2	510	2.0
Bag & Mask	9	3.6	23	7.4	74	7.6	1630	6.9	1736	6.9
Other	6	2.4	23	7.4	89	9.2	2598	11.0	2716	10.8
TOTAL	250	100.0	312	100.0	972	100.0	23538	100.0	25072	100.0

Excludes births less than 500 grams birthweight.

Table 42: Birthweight distribution and Aboriginality of mother for births in Western Australia, 1997

Birthweight	Aboriginality of Mother				TOTAL	
	Aboriginal		Non-Aboriginal		No.	%
	No.	%	No.	%		
500-999	17	1.1	104	0.4	121	0.5
1000-1499	12	0.8	153	0.6	165	0.7
1500-1999	42	2.7	284	1.2	326	1.3
2000-2499	130	8.3	855	3.6	985	3.9
< 2500	201	12.8	1396	5.9	1597	6.3
2500-2999	385	24.6	3732	15.8	4117	16.4
3000-3499	519	33.2	8670	36.7	9189	36.5
3500-3999	347	22.2	7218	30.6	7565	30.0
4000-4499	86	5.5	2270	9.6	2356	9.4
>= 4500	27	1.7	328	1.4	355	1.4
TOTAL	1565	100.0	23614	100.0	25179	100.0

Excludes births less than 500 grams birthweight.

Mean = 3346 grams. Standard deviation = 581 grams.

Table 43: Low birthweight and very low birthweight by Aboriginality of mother for births in Western Australia, 1983-1997

Year of Birth	Aboriginality of Mother							
	Aboriginal				Non-Aboriginal			
	Low birthweight ¹		Very low birthweight ²		Low birthweight ¹		Very low birthweight ²	
	No.	%	No.	%	No.	%	No.	%
1983	151	13.1	20	1.7	1310	6.0	254	1.2
1984	157	13.2	34	2.9	1224	5.6	232	1.1
1985	170	13.6	40	3.2	1287	5.8	254	1.2
1986	146	11.7	27	2.2	1285	5.7	261	1.2
1987	142	10.6	25	1.9	1345	5.9	251	1.1
1988	188	13.1	35	2.4	1350	5.7	270	1.1
1989	155	10.7	32	2.2	1519	6.3	302	1.3
1990	167	10.8	24	1.5	1392	5.7	215	0.9
1991	213	14.4	41	2.8	1338	5.7	244	1.0
1992	161	11.3	25	1.8	1423	6.0	251	1.1
1993	179	12.4	50	3.5	1398	5.9	223	0.9
1994	197	13.6	38	2.6	1366	5.7	273	1.1
1995	170	11.7	34	2.3	1424	6.0	250	1.0
1996	190	13.2	31	2.2	1467	6.1	274	1.1
1997	201	12.8	29	1.9	1396	5.9	257	1.1

Excludes births less than 500 grams birthweight.

¹ Low birthweight less than 2500 grams.

² Very low birthweight less than 1500 grams.

Table 44: Birthweight distribution and condition at birth for total births in Western Australia, 1997

Birthweight	Condition at Birth				TOTAL	
	Livebirth		Stillbirth		No.	%
	No.	%	No.	%		
500-999	92	0.4	29	27.1	121	0.5
1000-1499	158	0.6	7	6.5	165	0.7
1500-1999	312	1.2	14	13.1	326	1.3
2000-2499	972	3.9	13	12.1	985	3.9
< 2500	1534	6.1	63	58.9	1597	6.3
2500-2999	4101	16.4	16	15.0	4117	16.4
3000-3499	9173	36.6	16	15.0	9189	36.5
3500-3999	7558	30.1	7	6.5	7565	30.0
4000-4499	2354	9.4	2	1.9	2356	9.4
≥ 4500	352	1.4	3	2.8	355	1.4
TOTAL	25072	100.0	107	100.0	25179	100.0

Excludes births less than 500 grams birthweight.

Table 45: Birthweight distribution and condition at birth for singleton births in Western Australia, 1997

Birthweight	Condition at Birth				TOTAL	
	Livebirth		Stillbirth		No.	%
	No.	%	No.	%		
500-999	68	0.3	27	27.0	95	0.4
1000-1499	108	0.4	7	7.0	115	0.5
1500-1999	207	0.9	13	13.0	220	0.9
2000-2499	748	3.1	11	11.0	759	3.1
< 2500	1131	4.7	58	58.0	1189	4.9
2500-2999	3840	15.8	14	14.0	3854	15.8
3000-3499	9088	37.4	16	16.0	9104	37.3
3500-3999	7552	31.1	7	7.0	7559	31.0
4000-4499	2354	9.7	2	2.0	2356	9.6
>= 4500	352	1.4	3	3.0	355	1.5
TOTAL	24317	100.0	100	100.0	24417	100.0

Excludes births less than 500 grams birthweight.

Table 46: Birthweight distribution and condition at birth for multiple births in Western Australia, 1997

Birthweight	Condition at Birth				TOTAL	
	Livebirth		Stillbirth		No.	%
	No.	%	No.	%		
500-999	24	3.2	2	28.6	26	3.4
1000-1499	50	6.6	-	-	50	6.6
1500-1999	105	13.9	1	14.3	106	13.9
2000-2499	224	29.7	2	28.6	226	29.7
< 2500	403	53.4	5	71.4	408	53.5
2500-2999	261	34.6	2	28.6	263	34.5
3000-3499	85	11.3	-	-	85	11.2
3500-3999	6	0.8	-	-	6	0.8
4000-4499	-	-	-	-	-	-
>= 4500	-	-	-	-	-	-
TOTAL	755	100.0	7	100.0	762	100.0

Excludes births less than 500 grams birthweight.

Table 47: Birthweight distribution and gestation for total births in Western Australia, 1997

Birthweight	Gestation										TOTAL	
	20-27		28-32		33-36		37-42		≥ 43		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
500-999	94	83.2	26	8.8	-	-	1	0.0	-	-	121	0.5
1000-1499	19	16.8	125	42.4	20	1.5	1	0.0	-	-	165	0.7
1500-1999	-	-	117	39.7	170	12.9	39	0.2	-	-	326	1.3
2000-2499	-	-	23	7.8	489	37.2	473	2.0	-	-	985	3.9
< 2500	113	100.0	291	98.6	679	51.7	514	2.2	-	-	1597	6.3
2500-2999	-	-	1	0.3	463	35.3	3653	15.6	-	-	4117	16.4
3000-3499	-	-	2	0.7	136	10.4	9046	38.6	5	71.4	9189	36.5
3500-3999	-	-	-	-	27	2.1	7538	32.1	-	-	7565	30.0
4000-4499	-	-	1	0.3	7	0.5	2346	10.0	2	28.6	2356	9.4
≥ 4500	-	-	-	-	1	0.1	354	1.5	-	-	355	1.4
TOTAL	113	100.0	295	100.0	1313	100.0	23451	100.0	7	100.0	25179	100.0

Excludes births less than 500 grams birthweight.

Table 48: Birthweight distribution and gestation for singleton births in Western Australia, 1997

Birthweight	Gestation										TOTAL	
	20-27		28-32		33-36		37-42		≥ 43		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
500-999	76	85.4	18	8.6	-	-	1	0.0	-	-	95	0.4
1000-1499	13	14.6	86	41.1	15	1.4	1	0.0	-	-	115	0.5
1500-1999	-	-	81	38.8	113	10.7	26	0.1	-	-	220	0.9
2000-2499	-	-	20	9.6	363	34.2	376	1.6	-	-	759	3.1
< 2500	89	100.0	205	98.1	491	46.3	404	1.8	0	0.0	1189	4.9
2500-2999	-	-	1	0.5	406	38.3	3447	15.0	-	-	3854	15.8
3000-3499	-	-	2	1.0	128	12.1	8969	38.9	5	71.4	9104	37.3
3500-3999	-	-	-	-	27	2.5	7532	32.7	-	-	7559	31.0
4000-4499	-	-	1	0.5	7	0.7	2346	10.2	2	28.6	2356	9.6
≥ 4500	-	-	-	-	1	0.1	354	1.5	-	-	355	1.5
TOTAL	89	100.0	209	100.0	1060	100.0	23052	100.0	7	100.0	24417	100.0

Excludes births less than 500 grams birthweight.

Table 49: Birthweight distribution and gestation for multiple births in Western Australia, 1997

Birthweight	Gestation										TOTAL	
	20-27		28-32		33-36		37-42		≥ 43		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%		
500-999	18	75.0	8	9.3	-	-	-	-	-	-	26	3.4
1000-1499	6	25.0	39	45.3	5	2.0	-	-	-	-	50	6.6
1500-1999	-	-	36	41.9	57	22.5	13	3.3	-	-	106	13.9
2000-2499	-	-	3	3.5	126	49.8	97	24.3	-	-	226	29.7
< 2500	24	100.0	86	100.0	188	74.3	110	27.6	-	-	408	53.5
2500-2999	-	-	-	-	57	22.5	206	51.6	-	-	263	34.5
3000-3499	-	-	-	-	8	3.2	77	19.3	-	-	85	11.2
3500-3999	-	-	-	-	-	-	6	1.5	-	-	6	0.8
4000-4499	-	-	-	-	-	-	-	-	-	-	-	-
≥ 4500	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	24	100.0	86	100.0	253	100.0	399	100.0	-	-	762	100.0

Excludes births less than 500 grams birthweight.

Table 50: Births identified with birth defects in Western Australia, 1993-1997

Diagnostic Category (and British Paediatric Association Code)	Year of Birth									
	1993		1994		1995		1996		1997	
	No.	Rate ¹	No.	Rate ¹	No.	Rate ¹	No.	Rate ¹	No.	Rate ¹
Nervous System Defects (74000-74299)	111	4.4	115	4.5	108	4.2	86	3.4	88	3.5
Cardiovascular Defects (74500-74799)	313	12.3	298	11.7	285	11.2	309	12.1	290	11.6
Respiratory System Defects (74800-74899)	28	1.1	29	1.1	36	1.4	44	1.7	34	1.3
Gastro-Intestinal Defects (74900-75199)	168	6.6	169	6.6	162	6.4	153	6	170	6.8
Uro-Genital Defects (75200-75399)	438	17.3	431	16.9	404	15.9	361	14.1	308	12.3
Musculo-Skeletal Defects (75400-75699)	398	15.7	386	15.2	414	16.3	497	19.4	439	17.5
Chromosome Defects (75800-75899)	103	4.1	94	3.7	111	4.4	104	4.1	106	4.2

¹ Rate per 1000 births

SOURCE: Western Australian Birth Defects Registry

Table 51: Length of stay in special care and plurality for livebirths in Western Australia, 1997

Length of Stay ¹ (days)	Plurality				Total	
	Singleton		Multiple		No.	%
	No.	%	No.	%		
1	478	33.9	25	11.5	503	30.9
2	233	16.5	18	8.3	251	15.4
3	144	10.2	12	5.5	156	9.6
4	79	5.6	12	5.5	91	5.6
5	69	4.9	7	3.2	76	4.7
6	49	3.5	9	4.1	58	3.6
7	29	2.1	3	1.4	32	2.0
8-14	123	8.7	37	17.0	160	9.8
15-20	45	3.2	25	11.5	70	4.3
21-28	48	3.4	23	10.6	71	4.4
29-60	62	4.4	36	16.5	98	6.0
61-90	35	2.5	4	1.8	39	2.4
91-180	13	0.9	7	3.2	20	1.2
> 180	1	0.1	-	-	1	0.1
TOTAL	1408	100.0	218	100.0	1626	100.0

Excludes births less than 500 grams birthweight.

¹ Excludes births with less than 24 hours stay in Special Care Nurseries.

Table 52: Length of stay in hospital of birth and birthweight distribution of livebirths in Western Australia, 1997

Birthweight	Length of Stay (Days)						TOTAL
	≤1	2-7	8-14	15-20	21-28	≥ 28	No.
500-999	15	3	2	2	2	68	92
1000-1499	18	6	-	3	25	106	158
1500-1999	37	61	78	50	44	42	312
2000-2499	70	560	260	53	21	8	972
< 2500	140	630	340	108	92	224	1534
2500-2999	359	3250	456	24	5	7	4101
3000-3499	986	7525	640	12	3	7	9173
3500-3999	810	6232	492	11	3	10	7558
4000-4499	221	1972	151	7	-	3	2354
≥ 4500	32	289	26	4	-	1	352
TOTAL	2548	19898	2105	166	103	252	25072
	%	%	%	%	%	%	%
500-999	0.6	0.0	0.1	1.2	1.9	27.0	0.4
1000-1499	0.7	0.0	-	1.8	24.3	42.1	0.6
1500-1999	1.5	0.3	3.7	30.1	42.7	16.7	1.2
2000-2499	2.7	2.8	12.4	31.9	20.4	3.2	3.9
< 2500	5.5	3.2	16.2	65.1	89.3	88.9	6.1
2500-2999	14.1	16.3	21.7	14.5	4.9	2.8	16.4
3000-3499	38.7	37.8	30.4	7.2	2.9	2.8	36.6
3500-3999	31.8	31.3	23.4	6.6	2.9	4.0	30.1
4000-4499	8.7	9.9	7.2	4.2	-	1.2	9.4
≥ 4500	1.3	1.5	1.2	2.4	-	0.4	1.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Excludes births less than 500 grams birthweight.

Includes homebirths in midwife's care.

Table 53: Length of stay in hospital of birth and birthweight distribution of surviving livebirths in Western Australia, 1997

Birthweight	Length of Stay (Days)						TOTAL
	<=1	2-7	8-14	15-20	21-28	>= 28	No.
500-999	-	2	-	-	1	49	52
1000-1499	-	1	-	-	11	83	95
1500-1999	2	37	42	31	37	39	188
2000-2499	28	507	237	48	17	8	845
< 2500	30	547	279	79	66	179	1180
2500-2999	279	3185	447	23	4	5	3943
3000-3499	846	7432	634	12	2	7	8933
3500-3999	705	6172	490	11	2	9	7389
4000-4499	198	1944	150	7	-	3	2302
>= 4500	26	282	26	4	-	1	339
TOTAL	2084	19562	2026	136	74	204	24086
	%	%	%	%	%	%	%
500-999	-	0.0	-	-	1.4	24.0	0.2
1000-1499	-	0.0	-	-	14.9	40.7	0.4
1500-1999	0.1	0.2	2.1	22.8	50.0	19.1	0.8
2000-2499	1.3	2.6	11.7	35.3	23.0	3.9	3.5
< 2500	1.4	2.8	13.8	58.1	89.2	87.7	4.9
2500-2999	13.4	16.3	22.1	16.9	5.4	2.5	16.4
3000-3499	40.6	38.0	31.3	8.8	2.7	3.4	37.1
3500-3999	33.8	31.6	24.2	8.1	2.7	4.4	30.7
4000-4499	9.5	9.9	7.4	5.1	-	1.5	9.6
>= 4500	1.2	1.4	1.3	2.9	-	0.5	1.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Excludes births less than 500 grams birthweight.

Includes homebirths in midwife's care.

Excludes 946 inter-hospital transfers and 40 deaths in hospital of birth.

Table 54: Length of stay in hospital of birth and gestational age of livebirths in Western Australia, 1997

Gestation (weeks)	Length of Stay (Days)						TOTAL No.
	<=1 No.	2-7 No.	8-14 No.	15-20 No.	21-28 No.	>= 28 No.	
20-27	12	4	2	1	1	69	89
28-32	39	9	19	26	52	132	277
33-36	93	660	386	90	38	23	1290
37-42	2403	19220	1697	49	12	28	23409
>= 43	1	5	1	-	-	-	7
TOTAL	2548	19898	2105	166	103	252	25072
	%	%	%	%	%	%	%
20-27	0.5	0.0	0.1	0.6	1.0	27.4	0.4
28-32	1.5	0.0	0.9	15.7	50.5	52.4	1.1
33-36	3.6	3.3	18.3	54.2	36.9	9.1	5.1
37-42	94.3	96.6	80.6	29.5	11.7	11.1	93.4
>= 43	0.0	0.0	0.0	-	-	-	0.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Excludes births less than 500 grams birthweight.

Includes homebirths in midwife's care.

Table 55: Length of stay in hospital of birth and gestational age of surviving livebirths in Western Australia, 1997

Gestation (weeks)	Length of Stay (Days)						TOTAL No.
	<=1 No.	2-7 No.	8-14 No.	15-20 No.	21-28 No.	>= 28 No.	
20-27	-	2	-	-	-	53	55
28-32	1	3	2	12	29	103	150
33-36	23	574	339	75	37	23	1071
37-42	2059	18978	1684	49	8	25	22803
>= 43	1	5	1	-	-	-	7
TOTAL	2084	19562	2026	136	74	204	24086
	%	%	%	%	%	%	%
20-27	-	0.0	-	-	-	26.0	0.2
28-32	0.0	0.0	0.1	8.8	39.2	50.5	0.6
33-36	1.1	2.9	16.7	55.1	50.0	11.3	4.4
37-42	98.8	97.0	83.1	36.0	10.8	12.3	94.7
>= 43	0.0	0.0	0.0	-	-	-	0.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Excludes births less than 500 grams birthweight.

Includes homebirths in midwife's care.

Excludes 946 inter-hospital transfers and 40 deaths in hospital of birth.

Table 56: Perinatal mortality in Western Australia using birthweight criteria, 1997

Birthweight	Stillbirth rate	Neonatal death rate	Perinatal death rate
>= 400 grams	5.0	2.4	7.5
>= 500 grams	4.2	2.0	6.3

Stillbirth rate: the number of stillbirths per 1000 total births

Neonatal death rate: the number of neonatal deaths per 1000 livebirths

Perinatal death rate: the number of stillbirths and neonatal deaths per 1000 total births

Table 57: Perinatal mortality in Western Australia using gestation criteria, 1997

Gestation	Stillbirth rate	Neonatal death rate	Perinatal death rate
>= 20 weeks	6.8	2.4	9.2
>= 22 weeks	5.5	2.3	7.8

Stillbirth rate: the number of stillbirths per 1000 total births

Neonatal death rate: the number of neonatal deaths per 1000 livebirths

Perinatal death rate: the number of stillbirths and neonatal deaths per 1000 total births

Table 58: Stillbirth, neonatal and perinatal mortality rates by maternal ethnic origin in Western Australia, 1997

Type of Death	Ethnic origin of Mother			TOTAL
	Caucasian	Aboriginal	Other	
Stillbirth rate	3.4	13.4	5.9	4.2
Neonatal death rate	2.0	3.2	1.5	2.0
Perinatal death rate	5.4	16.6	7.4	6.3

Excludes births less than 500 grams birthweight.

Stillbirth rate: the number of stillbirths per 1000 total births.

Neonatal death rate: the number of neonatal deaths per 1000 livebirths.

Perinatal death rate: the number of stillbirths and neonatal deaths per 1000 total births.

Table 59: Stillbirth rate by Aboriginality of mother in Western Australia, 1983-1997

Year of Birth	Aboriginality of Mother		Total Rate
	Aboriginal Rate	Non-Aboriginal Rate	
1983	12.2	6.5	6.8
1984	13.4	5.4	5.8
1985	11.2	5.7	6.4
1986	12.8	5.7	6.1
1987	9.7	5.3	5.6
1988	8.3	4.4	4.7
1989	11.7	5.0	5.4
1990	7.7	4.3	4.5
1991	11.5	5.0	5.4
1992	11.9	4.1	4.6
1993	8.3	4.7	4.9
1994	13.1	4.7	5.2
1995	8.9	4.8	5.0
1996	9.0	5.1	5.3
1997	13.4	3.6	4.2

Excludes births less than 500 grams birthweight.

Stillbirth rate: the number of stillbirths per 1000 total births.

Table 60: Neonatal mortality by Aboriginality of mother in Western Australia, 1983-1997

Year of Birth	Aboriginality of Mother		Total Rate
	Aboriginal Rate	Non-Aboriginal Rate	
1983	9.7	4.5	4.7
1984	12.8	4.7	5.1
1985	10.5	4.4	4.7
1986	10.6	5.2	5.4
1987	5.3	4.2	4.3
1988	11.9	3.7	4.2
1989	7.7	4.6	4.8
1990	5.9	3.2	3.4
1991	4.8	2.6	2.7
1992	9.9	3.5	3.8
1993	4.9	2.3	2.5
1994	4.9	2.6	2.7
1995	8.3	2.0	2.3
1996	7.0	2.8	2.9
1997	3.2	2.0	2.0

Excludes births less than 500 grams birthweight.

Neonatal death rate: the number of neonatal deaths per 1000 livebirths.

Table 61: Perinatal mortality by Aboriginality of mother in Western Australia, 1983-1997

Year of Birth	Aboriginality of Mother		Total Rate
	Aboriginal Rate	Non-Aboriginal Rate	
1983	21.8	11.0	11.5
1984	26.0	10.1	10.9
1985	21.6	10.6	11.1
1986	23.3	10.9	11.5
1987	14.9	9.5	9.8
1988	20.1	8.1	8.8
1989	19.4	6.4	10.2
1990	13.6	7.5	7.9
1991	16.2	7.6	8.1
1992	21.7	7.6	8.4
1993	13.2	7.0	7.3
1994	18.0	7.3	7.9
1995	17.1	6.8	7.4
1996	16.0	7.9	8.2
1997	16.6	5.6	6.3

Excludes births less than 500 grams birthweight.

Perinatal death rate: the number of stillbirths and neonatal deaths per 1000 total births.

Table 62: Birthweight distribution of stillbirths, neonatal and perinatal deaths in Western Australia, 1997

Birthweight	Stillbirths		Neonatal deaths		Perinatal deaths	
	No.	%	No.	%	No.	%
500-999	29	27.1	13	25.5	42	26.6
1000-1499	7	6.5	7	13.7	14	8.9
1500-1999	14	13.1	7	13.7	21	13.3
2000-2499	13	12.1	7	13.7	20	12.7
< 2500	63	58.9	34	66.7	97	61.4
2500-2999	16	15.0	4	7.8	20	12.7
3000-3499	16	15.0	8	15.7	24	15.2
3500-3999	7	6.5	4	7.8	11	7.0
4000-4499	2	1.9	-	-	2	1.3
>= 4500	3	2.8	1	2.0	4	2.5
TOTAL	107	100.0	51	100.0	158	100.0

Excludes births less than 500 grams birthweight.

Table 63: Plurality of stillbirths, neonatal and perinatal deaths in Western Australia, 1997

Plurality	Stillbirths		Neonatal deaths		Perinatal deaths	
	No.	Rate	No.	Rate	No.	Rate
Singleton	100	4.1	44	1.8	144	5.9
Multiple	7	9.2	7	9.3	14	18.4
TOTAL	107	4.2	51	2.0	158	6.3

Excludes births less than 500 grams birthweight.

Stillbirth rate, singletons: the number of singleton stillbirths per 1000 singleton births

Neonatal death rate, singletons: the number of singleton neonatal deaths per 1000 singleton livebirths

Perinatal death rate, singletons: the number of singleton stillbirths and singleton neonatal deaths per 1000 singleton births

Stillbirth rate, multiples: the number of multiple stillbirths per 1000 multiple births

Neonatal death rate, multiples: the number of multiple neonatal deaths per 1000 multiple livebirths

Perinatal death rate, multiples: the number of multiple stillbirths and multiple neonatal deaths per 1000 multiple births

Table 64: Age at death for neonatal deaths in Western Australia, 1997

Age at Neonatal death	No.	% of neonatal deaths
< Day 1	19	37.3
Day 1	9	17.6
Day 2	8	15.7
Day 3	2	3.9
Day 4	-	-
Day 5	-	-
Day 6	-	-
Day 7	2	3.9
Day 8-14	5	9.8
Day 15-21	4	7.8
Day 22-28	2	3.9
TOTAL	51	100.0

Excludes births less than 500 grams birthweight.

Table 65: Causes of stillbirths and neonatal deaths in Western Australia, 1997

Causes of Death	Stillbirths		Neonatal Deaths	
	No.	%	No.	%
Lethal birth defects	15	14.0	18	35.3
Extremely low birthweight (< 1000 grams) ¹	28	26.2	11	21.6
Low birthweight (1000-2499 grams) ²	-	-	5	9.8
Asphyxia	42	39.3	10	19.6
Maternal - Obstetric	2	1.9	-	-
Medical	5	4.7	-	-
Hypertension	-	-	-	-
Placenta & cord	14	13.1	-	-
Hydrops fetalis	-	-	-	-
Infection	-	-	3	5.9
Sudden Infant Death Syndrome	-	-	1	2.0
Other	1	0.9	-	-
Unknown	-	-	3	5.9
TOTAL	107	100.0	51	100.0

Excludes births less than 500 grams birthweight.

¹ Any non-malformed perinatal death of birthweight less than 1000 grams was included in the extremely low birthweight category.

² Any non-malformed perinatal death of birthweight greater than 999 grams and less than 2500 grams was included in the low birthweight category.

Table 66: Autopsy requests for stillbirths, neonatal and perinatal deaths in Western Australia, 1997

Autopsy Request	Stillbirths		Neonatal Deaths		Perinatal Deaths	
	No.	%	No.	%	No.	%
Yes	66	61.7	25	49.0	91	57.6
No	33	30.8	20	39.2	53	33.5
Unknown	8	7.5	6	11.8	14	8.9
TOTAL	107	100.0	51	100.0	158	100.0

Excludes births less than 500 grams birthweight.

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APPENDIX 'A'

Age Specific Birth Rate	The total births (livebirths and stillbirths) per 1000 to women aged between 15-44 years.
Apgar Score	A numerical scoring system applied after birth to evaluate the condition of the baby. It is based on the heart rate, respiration, muscle tone, reflexes and colour. Low scores indicate poor condition.
Birth Defects	Any defect present at birth, probably of developmental origin.
Birthweight	The first weight, measured to the nearest five grams, of the newborn which is usually obtained within the first hour of birth.
Low Birthweight	A birthweight of less than 2500 grams.
Very Low Birthweight	A birthweight of less than 1500 grams.
Caesarean Section	<p>A delivery of the fetus through an incision in the abdominal wall.</p> <p>Elective Caesarean Section - Is a planned procedure prior to onset of labour and before spontaneous rupture of membranes or without any induction procedure.</p> <p>Emergency Caesarean Section - Is an unplanned procedure, performed because of a complication. May be performed before the onset of labour or during labour.</p>
Crude Birth Rate	The number of livebirths per 1000 person-years of total population.
Ethnic Origin	<p>Refers to mother's ethnic origin.</p> <p>Caucasian - includes all persons of caucasoid (European) heritage.</p> <p>Aboriginal - includes persons of Australian Aboriginal heritage (Australoid) or of mixed Aboriginal caucasian heritage or of mixed Aboriginal and other heritage.</p> <p>Other - includes Asian, Indian, Polynesian, etc.</p>

Length of Stay	The total number of patient days in hospital at time of discharge. A stay of less than 1 day (patient admission/birth and discharge on the same day) is counted as one day, in the total days of care. For patients admitted and discharged on different days, the number of days is computed by subtracting the date of admission from the day of separation. For planned homebirths it is routinely coded as 10 days from date of birth.
Livebirth	The complete expulsion or extraction from its mother of a product of conception, irrespective of duration of pregnancy, which after separation shows signs of life.
Mortality Rates	Stillbirth - the number of stillbirths per 1000 total births in a year. Neonatal Mortality - the number of neonatal deaths per 1000 livebirths in a year. Perinatal Mortality - the number of stillbirths and neonatal deaths per 1000 total births in a year.
Neonatal Death	The death of a liveborn infant within 28 days of birth.
Parity	The total number of livebirths and stillbirths of the mother prior to the parturition under consideration. Nulliparous - never having completed a pregnancy beyond 20 weeks gestation.
Perinatal Death	A stillbirth or neonatal death.
Plurality	The number of fetuses or babies resulting from the pregnancy. On this basis pregnancy may be classified as singleton or multiple.
Stillbirth	The complete expulsion or extraction from its mother of a product of conception of at least 20 weeks gestation or 400 grams birthweight, which after separation did not show any sign of life.

APPENDIX 'B'

MR 15

Health Act (Midwifery Nurses) Regulations Form 2 NOTIFICATION OF CASE ATTENDED

Hospital

PARTICULARS RELATING TO MOTHER

PRINT
IN
BLOCK
LETTERS

SURNAME		UNIT RECORD No.	
FORENAMES		BIRTH DATE	
ADDRESS OF USUAL RESIDENCE		POSTCODE	
MAIDEN NAME		TELEPHONE NUMBER	

Current Conjugal State:

1. single

2. married (incl. de facto) or other (please specify)

Race:

1. Caucasian

2. Aboriginal (full or part)

3. Other (please specify)

Height (cms)

PREGNANCY

PREVIOUS PREGNANCIES (excluding this pregnancy)

Total Number of:

Previous Pregnancies

Previous children now living

born alive, now dead

stillborn

THIS PREGNANCY

Date of LMP

This date: 1. certain 2. not certain

Expected due date

Complications of Pregnancy:

threatened abortion (under 20 weeks) A

urinary tract infection B

pregnancy induced hypertension C

APH -placenta praevia D

-abruptio E

-other F

prem rupture of membranes G

other H

Medical Conditions:

Procedures/Treatments:

fertility drug treatment (incl drugs used for IVF/GIFT etc) A

cervical suxup B

CVS/placental biopsy C

amniocentesis D

ultrasound E

CTG - antepartum/intrapartum F

LABOUR AND DELIVERY

Onset of Labour:

A. spontaneous B. induced

D. no labour

Augmentation of Labour:

1. no 2. yes

Presentation:

1. vertex 2. breech

3. other (please specify)

Type of Delivery:

normal A

vacuum -successful B

-failed C

forceps -successful D

-failed E

breech manoeuvre F

*caesarean -elective G

-emergency H

Anaesthesia/Analgesia:

none Z

general A

epidural/spinal B

other (please specify) C

Hours of established labour:

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

PPH (≥500mls) G

other F

Repair Perineum and/or Vagina:

1. none 2. episiotomy

3. 1° or 2° tear 4. 3° or 4° tear

5. other (please specify)

BABY

Separate Form for each Baby

Adoption Yes () No ()

Birth Date:

Time (24 hour clock)

Plurality:

1. single birth 2. first twin

3. second twin 4. multiple birth (specify baby number ____ of ____)

Sex:

1. male 2. female

Condition:

1. liveborn 2. stillborn

Birthweight (grams)

Length (cms)

Head circumference (cms)

Time to establish unassisted regular breathing (mins)

Resuscitation:

0. none 3. intubation

5. bag & mask 8. oxygen only

other (please specify)

Apgar Score 1 min

5 min

Estimated Gestation (weeks)

Vitamin K - first dose given 1. oral 2. IM/IV/SC 3. nil

Birth Defects

Birth Trauma (eg. cephalhaematoma)

BABY'S SEPARATION DETAILS

Date of Discharge

Transfer or Death

Type of Separation:

1. discharged home 2. died

3. transferred to

Special Care (wholedays only)

COMPLETE SECTION ON SEPARATION
Attach to Mother and Baby's Inpatient Summaries (HA22).
Forward to Epidemiology and Health Statistics Section,
Health Dept of Western Australia P.O. Box 8172,
Stirling Street, PERTH 6849 after discharge of mother
and/or baby whichever is later. Guidelines for completion
of this form available from above address.

ARCH/6/94-20MSETS

Reg. No. Date

HEALTH DEPARTMENT COPY

