



Perinatal Deaths in the ACT 1991-2000

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EXECUTIVE SUMMARY

Perinatal death rates reflect the risk in the population of a fetus being stillborn or not surviving beyond 28 days of life. This report presents summary statistics on perinatal deaths in the ACT and Australia for the period 1991-2000, and discusses the higher rate of perinatal deaths in the ACT observed in 1998.

Nine babies were born in a very low birthweight category (400 to 599 gms) during 1998. This is almost double the number born in this weight category in 1999 and five times the number in 1996.

It is important to note that while these babies had a low probability of survival, the survival rate for ACT babies in this weight category in 1998 was among the highest over the period 1994 and 1999. The higher number of deaths in 1998 did not therefore reflect a lower survival rate, but a larger number of high-risk babies born in the ACT.

Gestational age, maternal age, incidence of multiple pregnancy, Indigenous status of the mother, and assisted conception were not found to contribute to the observed increase in 1998.

It was not feasible to examine the reasons for the higher number of low birth weight babies, as there is insufficient information available to adequately assess the relevant demographic, behavioural and environmental risk factors, for example the prevalence of smoking during pregnancy, low socio-economic status or poor antenatal attendance.

We conclude that the higher rate of ACT perinatal deaths in 1998 noted in the 2002 Report on Government Services reflects the number of very low birth weight babies born that year. Whilst there is no evidence of a trend to increasing numbers of low birth weight babies in the ACT, this will be closely monitored. Since 1998 the rate of perinatal deaths in the ACT has not been significantly higher than observed nationally.

BACKGROUND

In February 2002, the Steering Committee for the Review of Commonwealth/State Service Provision released the Report on Government Services, 2002. This annual publication presents a range of performance indicators in the provision of services for Education, Health, Justice, Emergency Management, Community Services and Housing.

Following the release of the 2002 report, attention was drawn to the apparently higher rate of perinatal deaths in the ACT in 1998 and 1999. Higher rates were also reported for Tasmania and the Northern Territory.

The Population Health Research Centre, a unit in the Population Health Division of ACT Health (incorporating the ACT Maternal Perinatal Data Collection), has examined 10 years of data on perinatal deaths in the ACT and Australia to produce this discussion paper.

INTRODUCTION

Perinatal death rates are an indicator of the health status of a given population. The rate of perinatal deaths reflects the risk in the population of a fetus being stillborn or not surviving beyond 28 days of life.

While perinatal death rates are a useful performance indicator for perinatal services in developing countries, in developed countries the rates have fallen to the point that their usefulness as an indicator of the performance of perinatal services has diminished. This is because a large proportion of the perinatal deaths that do occur are the result of serious birth defects or extreme prematurity, and as such may be unavoidable.

Two important factors determining a newborn baby's health are birthweight and gestational age. Infants of extremely low birthweight and gestational age have a high-risk of perinatal death. The health of the mother and the maternal environment also affect the health of the baby. Factors such as age of the mother, smoking and alcohol consumption during pregnancy, antenatal care and complications during pregnancy all impact on perinatal risk.

METHODS

Definitions

Care needs to be taken when comparing perinatal death rates from different sources, as there are variations in definitions used by statistical institutions within Australia and internationally.

In Australia there are currently two criteria used for the inclusion of cases:

- The National Perinatal Data Collection (NPDC) and the Births Deaths and Marriages Registries (all States and Territories) include infants of at least 20 completed weeks gestation or 400 grams or more in birthweight. This is the legal requirement for perinatal deaths in Australia. These are the criteria used by the ACT Maternal Perinatal Data Collection and the National Perinatal Statistics Unit.
- The Australian Bureau of Statistics (ABS) definition for the reporting of perinatal deaths is based on birthweight, with the inclusion of all fetuses and infants of at least 400 grams birthweight regardless of gestational age. Gestational age is only considered when birthweight is unknown.¹ Since 1996, the ABS has published perinatal death data that included infants of at least 400 grams in birthweight or (when birthweight unavailable) the corresponding gestational age (20 weeks). In publications prior to 1996, the ABS used the national World Health Organisation (WHO) recommended criteria (inclusion of infants at least 22 weeks gestation or 500 grams in birthweight).

For international comparisons the WHO recommend inclusion of infants at least 28 weeks gestation or 1000 grams in birthweight, however neither the NPDC or the ABS routinely report using these criteria.

The differences in rates observed when using the NPDC and ABS criteria are illustrated in Table A1 in the Appendices.

The following definitions have been used in this paper:

Live birth (live born infant) is the birth of a baby of at least 20 completed weeks gestation or 400 grams or more in birthweight who after being born breathes or shows any other evidence of life, such as a heartbeat, pulsation of the umbilical cord or definite movement of voluntary muscles.

Perinatal refers to the period from 20 completed weeks gestation to 28 days after birth.

Fetal death or Stillbirth refers to death prior to the birth of a baby of at least 20 completed weeks gestation or 400 grams or more in birthweight who did not, at any time after birth, breathe or show any other evidence of life, such as a heartbeat, pulsation of the umbilical cord or definite movement of voluntary muscles.

Neonatal death is the death of a live born infant within 28 days of birth.

Perinatal death refers to a fetal death (stillbirth) or a neonatal death.

Data Sources

Data used in this discussion paper have been derived from two sources: the ABS deaths data and the ACT Maternal Perinatal Data Collection (ACT MPDC), part of the NPDC.

The ABS perinatal death data includes perinatal deaths registered with Births, Deaths and Marriages in each of the States and Territories in Australia. These data are reported annually by the ABS by the mother's usual state of residence.

The ACT MPDC collects and reports on all live births and fetal deaths that occur in the ACT to usual residents of the ACT. These data are validated against the ACT Admitted Patient Care Data Collection and ABS Deaths Data to ensure quality and completeness. The ACT MPDC is provided to the NPDC for national reporting. Since 1994, as a result of rigorous crosschecking of various data sources, this data set has provided an extensive and validated source of data on perinatal deaths in the ACT. The quality of data may be less reliable prior to 1994.

The ACT MPDC is considered to be a high quality collection that allows a more clinically relevant examination of this issue than is possible with the ABS death registration data.

Reporting differences in perinatal death rates

Differences in the perinatal death rates published by the ABS and NPDC reflect three important differences in how each organisation reports the rates:

1. The ABS reports deaths by their year of death registration, while the NPDC reports deaths by year of birth. It should be noted that reporting on year of death registration could be misleading when the registration of the death is delayed. This was particularly evident during the late 1990's when a good proportion of deaths of babies born in the previous year were not reported until the following year (Table A2, Appendix). A strategy for dealing with this issue is to report by year of birth cohorts. This strategy has been adopted in this paper.
2. The ABS applies a different interpretation of the birthweight and gestational age criteria than the NPDC, such that fetuses or infants weighing less than 400 grams in birthweight that had completed 20 weeks of gestation would not be included in the ABS reports.
3. The ABS reports perinatal deaths irrespective of the place of birth according to the usual state of residence of the mother, so the ABS collection may include deaths where the birth occurred outside of the ACT. The ACT MPDC only reports perinatal deaths to ACT residents who gave birth in the ACT.

To facilitate comparisons between the ABS and ACT MPDC data, the ABS perinatal death data have been converted to a year of birth structure by the National Perinatal Statistics Unit. However, there may still be slight differences in the rates due to the differences noted above.

STATISTICAL METHODS

Rates are calculated using the case definitions and the following methodology:

- Fetal death rate (per 1,000 total births)
= Number of fetal deaths x 1000 / (total live births + fetal deaths)
- Neonatal death rate (per 1,000 live births)
= Number of neonatal deaths x 1,000 / total live births
- Perinatal death rate (per 1,000 total births)
= (Number of neonatal deaths + fetal deaths) x 1000 / (total live births + fetal deaths)

Differences between the ACT perinatal death rates and the Australian perinatal death rates in the years 1991-2000 were assessed using 95% confidence intervals. Confidence intervals estimate a level of precision against which observed rates can be compared. When the confidence interval around an ACT perinatal death rate includes the Australian perinatal death rate in the same year, the ACT rate can be assumed to be reasonably consistent with the Australian rate.

The analyses in this paper primarily focused on identifying risk factors that may have contributed to a higher perinatal death rate in 1998. Perinatal death rates are already very low in the ACT, therefore the initial focus was on assessing factors that were likely to be associated with unavoidable deaths. While data limitations prevented a classification of each death as preventable or not preventable, an informal year-to-year comparison of the perinatal death rates by risk assessment was made. Risk was assessed in two ways. In the first analysis all infants were classified in risk sets based upon birthweight. In the second analysis, all infants born alive were classified into risk sets by gestational age.

Secondary analyses focused on maternal risk factors that may have contributed to a higher number of high-risk infants. Recognising that maternal age is an important risk factor for perinatal death, indirect age standardisation was used to compare Australian perinatal death rates with ACT perinatal death rates for each year. Other risk factors, such as multiple pregnancies, Indigenous status, smoking, assisted conception and poor antenatal attendance were reviewed in less formal analyses.

Although the appropriate statistical comparisons between the ACT and the rest of Australia would exclude the ACT births and perinatal deaths from the Australian birth and perinatal death count, the numbers that the ACT contributes to the overall count are negligible. Therefore, analyses comparing ACT rates with overall Australian rates give similar results to analyses comparing ACT with the rest of Australia.

ABS Reported Perinatal Deaths 1991-2000

The perinatal deaths data reported in the Report of Government Services 2002 were based on ABS deaths data tables. These tables provide information on perinatal deaths by the year that they were registered, which in some cases may not be the year that they occurred.

In 1991 and 1992, the perinatal death rate in Australia was above ten perinatal deaths per 1,000 births. Since that time, there has been a relatively steady decline in the Australian perinatal death rate. In the three years reported in the 2002 Report on Government Services (1998, 1999 and 2000), the national perinatal death rate was between 8.3 and 8.5 perinatal deaths per 1,000 births (Table 1).

Table 1: ABS perinatal death rates per 1,000 births by year of death registration with 95% confidence intervals, ACT & Australia 1991-2000

Year of death registration	ACT rates		Australian rates	
	Rate	95% CI*	Rate	95% CI*
1991	12.5	9.4 - 15.7	10.6	10.2 - 11.0
1992	9.4	6.6 - 12.2	10.7	10.3 - 11.0
1993	7.7	5.1 - 10.2	9.2	8.8 - 9.6
1994	6.9	4.5 - 9.4	9.1	8.7 - 9.5
1995	9.2	6.4 - 12.0	9.4	9.0 - 9.8
1996	8.8	6.1 - 11.6	10.0	9.6 - 10.4
1997	6.6	4.2 - 9.1	9.2	8.8 - 9.5
1998	12.2	8.8 - 15.6	8.3	8.0 - 8.7
1999	11.7	8.5 - 14.9	8.5	8.2 - 8.9
2000	8.3	5.5 - 11.1	8.3	7.9 - 8.6
1991 – 2000	9.4	8.4 - 10.3	9.3	9.2 - 9.5

Note: The confidence intervals have been calculated for this table using the number of registered births provided by the ABS.
Source: ABS Causes of Death 2000 (Dec 2001) Catalogue no 3303.0 p 61

While the decline in the perinatal death rate observed in the whole of Australia was mirrored in the ACT rates between 1991 and 1997, there was an apparent increase in the ACT perinatal death rate in the years 1998 and 1999. In 1998 the 95% confidence interval for the ACT rates did not include the Australian rate, this indicates that the rate in 1998 was higher than would be expected by chance. By 2000, the ACT rate again decreased to 8.3 per 1,000 births, the same as the Australian rate.

Overall, the average perinatal death rate in the ACT (9.4 per 1,000 births) across the years 1991-2000 was very similar to the average Australian perinatal death rate (9.3 per 1,000 births).

RISK FACTOR ANALYSIS

The most important risk factor to consider is the health of the newborn baby, which depends to a large extent on birthweight and gestational age. Babies of extremely low gestational age or birthweight have a low survival rate. Therefore, when comparing ACT neonatal death rates with the national rates, it is important to compare rates in each of the relevant fetal risk groups.

Secondary analyses of risk factors consider characteristics of the mother or circumstances of birth that may be associated with giving birth to an infant at high-risk of death. Risk factors, including maternal age, incidence of multiple births, assisted conception and indigenous status of mother were evaluated to determine whether they contributed to the higher death rate observed in 1998.

Fetal Risk Factors

Low birthweight

Babies born with a birthweight of less than 1500 grams are at an increased risk of death due to their physiological prematurity. With the advances in neonatal intensive care treatment babies born alive without a major birth defect and between 600 and 999 grams in birthweight had an 80.5% chance of survival in 1998 (NSW).² The NSW survival rates for babies 400 and 599 grams in birthweight born alive (without a major birth defect) are much lower (42.9%).

Neonatal death rates by birthweight are presented in Table 2. Six years of data are examined to provide comparisons for 1998. Note that babies with a major birth defect are included in this analysis; the rates are therefore not comparable with the NSW rates.

Table 2: Neonatal death rates for ACT residents by birthweight, ACT, 1994 – 1999

	400 to 599 gms			600– 999 gms			1000 to 1499 gms			Greater than 1500 gms		
	No. of NND	No. of births	NND rate %	No. of NND	No. of births	NND rate %	No. of NND	No. of births	NND rate %	No. of NND	No. of births	NND rate %
1994	3	4	75.0	2	11	18.2	2	23	8.7	4	4,188	0.1
1995	3	3	100.0	4	11	36.4	2	16	12.5	6	4,295	0.1
1996	2	2	100.0	4	14	28.6	0	21	0.0	5	4,176	0.1
1997	3	3	100.0	2	6	33.3	2	25	8.0	6	4,087	0.1
1998	7	9	77.8	2	14	14.3	1	17	5.9	9	4,037	0.2
1999	3	5	60.0	4	13	30.8	0	26	0.0	3	4,031	0.1

Note: NND = Neonatal Death. Stillbirths and babies less than 400 grams in birthweight have been excluded from this analysis, one neonatal death was excluded from this analysis as birthweight 'not stated' for 1994 data.

Source: ACT Maternal Perinatal Data Collection, 1994 – 1999.

The table shows that in 1998 there were 9 babies born with a birthweight between 400 and 599 grams. This is the highest number of babies born in this weight category during the years 1994-99. It is almost double the number of births in this weight category born in 1999 and almost 5 times the number born in this weight category in 1996. Despite the high number of very low weight babies born in 1998, the death rate was the third lowest, 77.8% over the six year period.

The higher number of deaths in 1998 does not therefore reflect a lower survival rate, but a larger number of high-risk babies born in the ACT.

Low gestational age

Live born babies who are born at a gestational age of less than 28 weeks are also at an increased risk of neonatal death due their physiological prematurity. With the advances in neonatal intensive care treatment those babies born alive between 25 and 27 weeks gestation without a major birth defect had an 86.9% chance of survival in 1998 (NSW)². The survival rates for NSW babies born alive between 22 and 24 completed weeks gestation without a major birth defect in 1998 were much lower (42.4%)².

An examination of survival rates of babies born in the ACT by gestational age does not reveal any differences in the rates observed in 1998 with the other years examined. This may reflect a confounding effect between gestational age and birthweight.

Other Fetal Risk Factors

Birth defects

No ACT or National level data is available on birth defects as a cause of perinatal death. Birth defects were coded as the cause of 31.4% of perinatal deaths in South Australia and 26.4% of perinatal deaths in Western Australia in 1999 using the Modified Whitfield classification.³

Although the ACT does report on the number of babies born with birth defects, the birth defect may have been a minor defect that did not cause death. There is a need to classify birth defects into major lethal, major non-lethal and minor birth defects to report on birth defects in a more meaningful way.

MATERNAL RISK FACTORS

Maternal Age

Maternal age is an important risk factor for adverse perinatal outcomes. Adverse outcomes are more likely to occur in younger (less than 20 years) or older mothers (greater than 40 years)³. Perinatal deaths are between one and a half and twice as likely to be associated with mothers over the age of 40 compared with mothers between 20 and 34 years of age.

On average, ACT women giving birth are older than their counterparts outside the ACT. In 1998, 17.7% (716) of women giving birth in the ACT were 35 years or older, which is higher than the Australian percentage of 15.8%. In the same year, 3.5% (141) of women giving birth in the ACT were younger than 20 years, which is lower than the Australian percentage of 5.1.

Using the 1994-1999 ACT MPDC, perinatal death rates were age-adjusted using indirect age standardisation, this standardised the ACT maternal age rates to the Australian age-specific rates (ABS reported perinatal deaths) for each year. Age-adjusted rates remove the effect that age differences have on the overall (or crude) rates. The ACT age-adjusted rate can be compared directly with the Australian crude rate

The ACT Indirect Standard Rate (age adjusted rate) was slightly higher than the Australian crude rate in each of the years 1994-1999 (Table A3, Appendix). Some of these differences may have been due to differences in reporting (see earlier section). However, the observed number of perinatal deaths in 1998 is still high relative to the number of expected deaths using national age-specific rates for that year.

The results of this analysis suggest that differences in maternal age distribution are unlikely to account for the differences observed in the death rates between the ACT and Australia in 1998.

Multiple pregnancy

Multiple pregnancy is another important risk factor for adverse perinatal outcomes.

Although there has been an increase in the number of multiple pregnancies between 1991 (42 multiple pregnancies) and 1999 (62 multiple pregnancies) in the ACT, there has been no corresponding increase in the number of perinatal deaths in multiple pregnancies. Perinatal deaths associated with multiple pregnancies have varied between 3 and 8 from 1994 to 1999, with highest number recorded in 1995 (Table A4, Appendix). Therefore the apparent increase in the number of perinatal deaths in 1998 cannot be attributed to an increase in the number of multiple pregnancies.

Indigenous status

Indigenous women giving birth are at higher risk for an adverse perinatal outcome compared with other women. The Australian perinatal death rate for Indigenous women for 1994-1996 was 21.8 perinatal deaths per 1,000 births.

ACT Indigenous women giving birth accounted for only 1.3% of all ACT women giving birth between 1994 and 1999. Over this six-year period, there were only 6 perinatal deaths among 378 Indigenous women giving birth in the ACT. The increase in the ACT perinatal death rate in 1998 is not attributable to perinatal deaths in Indigenous women.

Smoking during pregnancy

Maternal smoking has been associated with intrauterine growth restriction (and therefore, low birth weight), sudden infant death syndrome, premature delivery, placental abruption and other adverse maternal and infant outcomes.⁴

Only limited data are available on the prevalence of smoking among ACT women giving birth in the 1990's. No specific smoking prevalence data is available for 1998, however a comparison of self-reported smoking behaviour in pregnant women in the ACT, NSW and South Australia in 1999 shows a similar prevalence of smoking in each State/Territory (Table A5, Appendix).

It is unlikely that the prevalence of maternal smoking during pregnancy contributed to a higher perinatal death rate during 1998. However, it is not possible to quantitatively assess whether smoking prevalence changed over time with changing perinatal death rates.

Assisted conception

The perinatal death rate for pregnancies after assisted conception births in Australia for 1998 was 24.7 per 1,000 births. Factors contributing to the higher perinatal death rate for pregnancies after assisted conception include the relatively high proportion of older mothers, their underlying causes of infertility and the much higher incidence of multiple births than in the general population.⁵

Only 1.1% of all births to ACT residents in 1998 were the result of an assisted conception. This percentage is similar to that reported nationally (1.5%)⁵. Given the small numbers, it is unlikely that perinatal deaths associated with assisted conception played a role in the increased number of perinatal deaths observed in 1998.

Poor antenatal attendance

Poor antenatal attendance is not reported nationally or at a state and territory level. There is currently no reliable information on the antenatal attendance in the ACT.

Substance abuse

A substance abuse data item was introduced on the ACT Midwives form in 2002. This data item is not collected nationally.

Low socio-economic status

The socio-economic status of mothers is not collected in either the ACT or nationally.

DISCUSSION

It should be noted that fluctuating annual perinatal death rates in the ACT in the years 1991-2000 are primarily a reflection of the relatively small number of births in the ACT each year. The small numbers in the ACT also mean that differences in data collection methodology can significantly impact on perinatal death rate estimates. In the comparison between ABS reported perinatal death rates and ACT MPDC reported rates, the definition of a perinatal death, the period of reporting (year of birth versus year of death registration), and the identification of the target population clearly influenced the overall count, the population numbers at-risk, and the resulting rate estimate.

Nevertheless, when compared with Australia higher rates in 1998 were observed in the ACT, prompting the preparation of this paper.

The two most important risk factors for an adverse perinatal outcome are low birthweight and low gestational age. An examination of deaths for ACT resident births in low birth weight categories from 1994 to 1999 showed that the largest number of babies in the highest risk weight category (400 to 599gms) was observed in 1998. Despite the high numbers of very low weight babies born in 1998, the death rate for this weight category was one of the lowest over the six-year period examined. Therefore, the higher number of perinatal deaths in 1998 can be explained by the larger number of very low birth weight babies born during that year. Correspondingly, while a high number of low gestational babies were born during 1998, there was no significant variation in survival rates for these high-risk infants. These findings lead directly to questions regarding the larger number of high-risk babies being born in 1998. However, there is insufficient information on demographic, behavioural and environmental risk factors to adequately examine this issue.

Maternal risk factors were also considered. Maternal age, multiple pregnancies, indigenous status and assisted conception were not found to contribute to the observed increase in perinatal deaths during 1998. Insufficient information was available to quantitatively assess whether the prevalence of smoking during pregnancy, substance abuse, low socio-economic status and poor antenatal attendance changed over time in accordance with changing perinatal death rates.

Further analysis of causes of perinatal death is limited due to the absence of a standard perinatal deaths classification scheme in the ACT for the 1991 to 1999 period. In 2000, the ACT MPDC adopted the recently endorsed Australian and New Zealand Perinatal Mortality Classifications (ANZACPM). Implementation of this scheme throughout the ACT will facilitate a more meaningful analysis of perinatal death data in the future.

GLOSSARY

Birth refers to the delivery or birth of a child.

Birth defects are the structural or anatomical defects that are present at or existing from the time of birth, usually resulting from abnormal development in the first trimester of pregnancy.

Birth status is the condition of the baby immediately after birth. The status may be a live birth or stillbirth.

Birthweight is the first weight of the baby (stillborn or live born) obtained after birth. It is usually measured to the nearest five grams and obtained within one hour of birth.

Congenital anomalies or abnormalities are those malformations that are present at or existing from the time of birth. In this publication the term birth defects has been used instead of congenital anomalies.

Congenital malformations are the structural or anatomical abnormalities that are present at birth, usually resulting from abnormal development in the first trimester of pregnancy. In this publication the term birth defects has been used instead of congenital malformations.

Crude death rate is the number of deaths per 1,000 population (unless otherwise stipulated) in a given year (ABS definition).

Gestation is the period of development of a baby from the time of conception (fertilisation of the ovum) to birth. In humans, this time is usually 37 to 40 weeks gestation.

Gestational age is the duration of the pregnancy in completed weeks from the first day of the last normal menstrual period. This is estimated from clinical assessment (including estimates from ultrasound examinations) when accurate information on the last menstrual period is not available or not consistent with the clinical assessment of gestational age.

Incidence refers to the number of instances of illness commencing, or of persons falling ill, during a given period in a specified population.⁶

Indigenous status refers to whether or not a person is of Aboriginal and/or Torres Strait Islander descent who self identifies as an Aboriginal and/or Torres Strait Islander and is accepted as such by the community with which he or she is associated.

Live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta attached, each product of such a birth is considered live born (**WHO definition**). The Australian definition for a live birth differs from the WHO definition, in that it is not irrespective of the duration of the pregnancy, this is consistent with the definitions for spontaneous or induced abortions. **Live birth** is the complete expulsion or extraction from its mother of a baby of 20 completed weeks gestation or more or at least 400 grams in birthweight or who after being born breathes or shows any other evidence of life, such as a heartbeat (**Australian definition**).

Median is a measure of central tendency. It refers to the point between the upper and lower halves of the set of measurements.

Morbidity is a diseased state or the ratio of sick to well in the community.⁷

Mortality is a fatal outcome or the relative number of deaths (death rate) in a given population at a given time.

Multiple birth refers to pregnancy resulting in more than one birth. For example twins, triplets etc.

Neonatal death is the death of a live born baby within 28 days of birth.

Neonatal morbidity refers to any condition or disease of the baby diagnosed within 28 days of birth.

Perinatal death refers to a stillbirth or a neonatal death.

Perinatal refers to the period from 20 weeks gestation to within 28 days after birth.

Plurality refers to the number of fetuses or babies from a pregnancy. On this basis a pregnancy may be classified as single or multiple⁸.

Post neonatal death refers to the death of a baby aged between 28 and 365 days.

Preterm birth refers to a birth before 37 completed weeks of gestation. Extremely preterm refers to births between 20 and 27 weeks gestation; moderately preterm refers to births between 28 and 31 weeks gestation; and mildly preterm refers to births between 32 and 36 weeks gestation.

Prevalence refers to the number of instances of a given disease or other condition in a given population at a designated time.

Singleton birth refers to a pregnancy resulting in one birth.

Statistically significant infers that it can be concluded on the basis of statistical analysis that it is highly probable.

Stillbirth or fetal death refers to death prior to the birth of a baby of 20 completed weeks gestation or at least 400 grams in birthweight who did not, at any time after birth, breathe or show any other evidence of life, such as a heartbeat. Stillbirth or fetal death refers to death prior to the complete expulsion or extraction from its mother of a product of conception of 20 or more completed weeks of gestation or of 400g or more of birthweight; the death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life, such as the beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles (**WHO definition**).

Appendices

Table A1: Comparison of ACT perinatal death rates using the APDC and ABS case criteria, 1994 – 1999

Year of birth	APDC criteria		ABS criteria	
	No. Perinatal deaths	Rate per 1,000	No. Perinatal deaths	Rate per 1,000
1994	42	9.8	37	8.7
1995	51	11.6	47	10.7
1996	41	9.6	33	7.8
1997	44	10.6	41	10.0
1998	57	13.9	54	13.3
1999	39	9.5	33	8.1

Note: The different criteria (see Definitions) were applied to the ACT MPDC to provide these comparisons.

Source: 1994-1999 ACT Maternal Perinatal Data Collection

Table A2: ABS year of death registration for the ACT perinatal deaths by year of birth, 1991 - 2000

Year of death registration	Year of birth										Total
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
1991	56										56
1992	5	37									42
1993		4	30								34
1994			5	26							31
1995				1	40						41
1996					6	33					39
1997						3	25				28
1998							9	40			49
1999								15	35		50
2000									3	31	34
Total	61	41	35	27	46	36	34	55	38	31	404

Note: Four perinatal deaths registered in 1991 could have been born in 1990, this would be consistent with 1991 to 1993 figures. Any addition perinatal deaths registered in 2001 will increase the number of perinatal deaths for the 2000 birth year.

Source: National Perinatal Statistics Unit cross tabulation of ABS perinatal death data for the ACT (unpublished)

Table A3: ACT Indirect Standardised Rates, 1994 - 1999

	Expected No. of ACT resident perinatal deaths	Observed No. of ACT resident perinatal deaths	ACT Indirect Standardised Rate (ISR)	Crude Rate for Australia
1994	38	42	10.0	9.1
1995	39	51	12.31	9.4
1996	41	41	10.0	10.0
1997	37	44	10.9	9.2
1998	33	57	14.3	8.3
1999	34	38	9.5	8.5

Source: ACT Maternal Perinatal Data Collection 1994 - 1999 & ABS Causes of Death 2000 (Dec 2001) Catalogue no 3303.0

Table A4: Perinatal Deaths in Multiple Pregnancies for ACT Residents, 1994-1999

	Perinatal deaths in multiple pregnancies		Perinatal deaths in single pregnancies		All Perinatal deaths	
	No.	%	No.	%	No.	%
1994	5	11.9	37	88.1	42	100.0
1995	8	15.7	43	84.3	51	100.0
1996	6	14.6	35	85.4	41	100.0
1997	3	6.8	41	93.2	44	100.0
1998	4	7.0	53	93.0	57	100.0
1999	5	12.8	34	87.2	39	100.0

Source: 1994-1999 ACT Maternal Perinatal Data Collection

Table A5: Smoking during the second half of pregnancy for ACT Residents, NSW & SA 1999

Smoked during pregnancy	ACT Residents		NSW*		SA	
	No.	%	No.	%	No.	%
Non smokers	3014	83.4	70391	82.2	13890	78.7
Up to 10 cigarettes per day	396	11.1	7303	8.5	2096	11.9
11 - 20 cigarettes per day	175	4.8	7966	9.3	1310	9.4
More than 20 cigarettes per day	27	0.7	*	*	348	2.0
Not stated	(434)		(307)	(0.4)	(589)	(3.2)

Note: 1999 was the first year for collecting self reported smoking data.

Source: ACT Maternal Perinatal Data Collection 1999, NSW Midwives Data Collection 1999 & Pregnancy Outcome in SA 1999
* NSW data for '11-20 cigarettes per day' includes the category 'More than 20 cigarettes per day'

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