

Trends in the health of mothers and babies, Northern Territory: 1986–2005

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Key findings

In the Northern Territory (NT) details of the perinatal outcomes of all women who give birth in the NT are collected by midwives and recorded immediately after birth. In the past these data were recorded onto paper-based forms and more recently onto electronic systems. These include the Birthing Suite Module of the patient management system (Caresys) for public hospital patients, or onto a web-based database for private hospital patients, planned homebirths and community health centre births. This information comprises the mother's antenatal and birthing details plus the baby's details. The data from the birthing suite module and the web-based database are pooled to create the NT Midwives' Collection.

The NT Midwives' Collection is the key data source for the annual NT perinatal report, *Northern Territory Midwives' Collection: Mothers and babies*, and contributes to the annual national report, *Australia's mothers and babies*. Information from the NT Midwives' Collection is also used to formulate important indicators such as the incidence of low birth weight babies, teenage pregnancies, and gestational age at first antenatal visit, as well as neonatal and perinatal death rates.

This report provides a detailed overview of perinatal trends and changes to the health profile of NT resident mothers and babies, for both Indigenous and non-Indigenous, across the 20-year period from 1986 to 2005.

Total babies born in the NT (including fetal deaths)

- Over the 1986 to 2005 period there were 68,075 babies born in the NT to 67,311 NT resident mothers, 36% of whom were Indigenous.
- The average annual count of Indigenous babies rose from 1112 per year to 1348 (21% increase), and for non-Indigenous babies from 2128 per year to 2218 (4% increase).

Mothers

Fertility

- The total fertility rate (TFR) of Indigenous women declined significantly from 2.5 to 2.4. The TFR of non-Indigenous women remained relatively stable at 1.9.
- The age-specific fertility rates of all women declined in all age groups except among non-Indigenous women aged 35 years and over. Their fertility rate rose over time, from 14.5 to 22.7 babies per 1000 female population.

Average age of mothers

- The average age of all mothers increased over time, including first-time mothers.
- The average age of non-Indigenous first-time mothers increased from 25.2 to 27.5 years of age and Indigenous first-time mothers from 18.5 to 19.4 years of age.

Antenatal care

- The proportion of Indigenous mothers attending their first antenatal visit during the first trimester rose significantly from 17% to 38%, and from 49% to 65% for non-Indigenous mothers.
- The trend for smoking during pregnancy declined among non-Indigenous mothers but rose among Indigenous mothers. By the early 2000s 53% of Indigenous mothers and 22% of non-Indigenous mothers reported smoking during pregnancy.

Birth methods

- The proportion of mothers with induced onset of labour rose significantly, from 10% to 16% for Indigenous mothers and 19% to 24% for non-Indigenous mothers.
- Similarly, the proportion of mothers who had a caesarean section delivery also rose over time, particularly among non-Indigenous mothers.
- During the six-years of available data, the likelihood of having an elective caesarean section delivery increased markedly among non-Indigenous mothers, and to a lesser extent among Indigenous mothers.

Labour or childbirth complication(s)

- Fetal distress was consistently the most frequently reported childbirth complication.
- The proportion of mothers who had a post-partum haemorrhage doubled over time.
- The proportion of mothers who had a perineal tear increased from 40% to 44% for Indigenous mothers and from 41% to 47% for non-Indigenous.

Pregnancy-related hospital admissions

- The prevalence of gestational diabetes among antenatal women increased from 6% to 8% for Indigenous mothers and from 4% to 6% for non-Indigenous mothers.
- Indigenous mothers were more likely than non-Indigenous mothers to experience gestational diabetes, hypertension complicating pregnancy and puerperal sepsis.

Liveborn babies**Low birthweight**

- The proportion of Indigenous babies with low birthweight (less than 2500 grams), declined from 15% to 14%. There was no change in the proportion of non-Indigenous low birthweight babies.
- The gap between the average birthweight of Indigenous and non-Indigenous babies lessened over time. By the 2000s the gap was just less than 250 grams.

Preterm

- The proportion of preterm Indigenous babies rose from 13% to 15%. The non-Indigenous proportion of preterm babies also rose, from 6% to 8%.
- Babies born to rural-remote based Indigenous mothers were more likely to be preterm.

Low Apgar score

- An Indigenous baby was twice as likely to be born with a low Apgar score (less than 7 at five minutes) compared with a non-Indigenous baby.
- The proportion of Indigenous babies born with a low Apgar declined significantly, from 6% to 4%.

Perinatal deaths

- Indigenous perinatal death rates declined considerably, falling from 39 deaths per 1000 total births to 23. This was largely due to a substantial fall in fetal deaths over time. Indigenous neonatal deaths also declined, but to a much lesser extent.
- There was a similar trend among non-Indigenous babies. The non-Indigenous perinatal death rate fell from 14 deaths per 1000 total births to 11, this gain almost entirely due the neonatal death rate halving over time.

Introduction

The Northern Territory (NT) Department of Health and Families (DHF) reports perinatal outcomes on an annual basis and has done so since 1986. These outcomes are mainly derived from the NT Midwives' Collection, a dataset containing the details of all births in the NT, including stillbirths. The NT Midwives' Collection is Australia's longest time series of maternal and infant health data available by Indigenous status.

Since inclusion of data for the year 2005 the dataset now covers a 20-year period from 1986 to 2005. This has presented an unprecedented opportunity to report long-term changes to the perinatal profile of Indigenous and non-Indigenous mothers and babies.

Approval to report the perinatal trends of NT residents was received from the Northern Territory Department of Health and Families and the Menzies School of Health Research Human Research Ethics Committee in December 2008 (08/78).

Purpose and structure of this report

The purpose of this report is to provide feedback to midwives, Aboriginal health workers, community health nurses and medical practitioners concerned with maternal and child health, as well as informing and encouraging professional discussion among health care providers and policy makers about the health status of NT resident mothers and babies, the services they require and the adequacy of current services.

Structure

This report is comprised of two parts: Mothers and Babies

The mothers' part consists of three sections: all mothers, first-time mothers and pregnancy-related hospital admissions. Mothers are NT residents only. Interstate mothers who give birth in the NT are excluded from this report. First-time mothers are reported separately from all mothers because they are at much higher risk than multiparous women for complications during pregnancy, birth and the puerperium.

Pregnancy-related hospital admissions including induced abortions, gestational diabetes and hypertension complicating pregnancy are also reported separately. This is done primarily to highlight that their source is the public hospitals morbidity dataset which has different data limitations to the NT Midwives' Collection (see data sources and data limitations for more information on public hospital morbidity dataset).

The babies' part consists of four sections: all babies, liveborn babies, liveborn babies born to first time mothers and perinatal deaths. The all babies section features the average number of babies, both liveborn and fetal deaths, born to NT mothers over five-year periods. The second and third sections provide summary statistics for liveborn babies born to NT mothers and first-time mothers. Perinatal deaths, including fetal and neonatal deaths are provided in the final section.

Trends

Trends are presented in two formats.

- Annual trends are depicted in graph format, two per page, each graph representing either Indigenous or non-Indigenous statistics.
- Trends over time, plus overall and annual percentage changes, are presented in tables with confidence intervals shown for annual changes.

The text is presented in dot point format. For each perinatal outcome we provide comparisons in terms of ethnicity, i.e. Indigenous versus non-Indigenous, and in terms of locality where relevant. This is followed by a discussion of the trends over time with statistically significant changes ($p < 0.05$) noted where relevant.

All statistics are disaggregated by Indigenous status and, where numbers permit, by geographic location.

Regional comparisons are provided by health district and by urban/rural-remote area. Urban/rural-remote areas are in-house remoteness categories assigned to mothers on the basis of their place of usual residence prior to birth. All mothers residing in any of the five major centres: Darwin, Alice Springs, Katherine, Tennant Creek or Nhulunbuy plus those residing in towns and communities within Darwin Urban or Alice Springs Urban health districts are urban based. Mothers residing anywhere else in the NT are rural-remote based. The aim of this categorisation is to highlight differences in maternal health status and outcomes between those who have ready access to birth centres and those who do not.

Statistical methodology

Time-trend analyses were performed using generalised linear models from STATA version 9.1,¹ disaggregated by Indigenous status. Different models were fitted according to the distribution of each dependent variable, i.e. simple linear regression for normal distribution, logistic regression for binomial distribution and Poisson regression for discrete distribution. The time trend lines shown on the graphs were created using predicted values for the year of each fitted model. The rate of annual change was assessed using coefficients for simple linear regression, odds ratios (OR) for logistic regression or incidence rate ratios (IRR) for Poisson regression. The 95% confidence interval (CI) was calculated for each parameter.

Compared with other methods, the use of generalised linear models to analyse time trends is a relatively simple process and easy to present. A limitation of this approach is that it is only capable of accommodating “monotonic” change (i.e. the underlying rates are constant, and continuously increase or decrease throughout the whole period). Generalised linear models are therefore useful for determining the existence of a trend for the data period, but not for predicting future changes. For that reason forecasting of future changes was considered beyond the scope of this report, as were analyses on the causes underpinning trends.

Data sources

The key data source for this report was the NT Midwives’ Collection. Additional data were extracted from the perinatal death register and the public hospitals morbidity dataset to supplement statistics not currently collected or readily available from the NT Midwives’ Collection.

Northern Territory Midwives’ Collection

The NT Midwives’ Collection is an electronic dataset maintained by midwives and managed by the NT Perinatal Data Manager. The methodology for reporting births to the NT Midwives’ Collection has changed over time, moving from paper-based notifications for all births in the 1980s to electronic notifications, initially for hospital births in mid 1990s and for non-hospital birth notifications in the mid 2000s.

The NT Midwives' Collection contains antenatal and birthing details for all births occurring in any public or private birth facility throughout the NT. It does not include postnatal details. All births include liveborn babies and stillbirths (birthweight is at least 400 grams or the gestational age is 20 weeks or more). The antenatal and birthing details are entered by the birth attendant immediately following delivery, either onto the birthing suite module of the patient management system (Caresys) for public patients; or onto a web-based database for private patients and planned homebirths. Birth details for unplanned births occurring outside a birth facility are documented onto a form by the birth attendant and forwarded onto the Perinatal Data Manager for entry onto the web-based database.

Ongoing validation of data in the NT Midwives' Collection is extensive, sometimes taking up to 12 months to complete. The data are initially validated by the NT Perinatal Data Manager to detect duplicate records and errors in birth dates, birth outcomes, and baby measurements. Additional validation is performed on a limited number of labour and childbirth complications including cord prolapse, fetal distress, post partum haemorrhage and manual removal of placenta. Pregnancy-related complications such as gestational diabetes, maternal medical conditions and other labour and childbirth complications are not currently validated.

Following local validation an extract of the NT Midwives' Collection is sent to the Australian Institute of Health and Welfare (AIHW) National Perinatal Statistics Unit (NPSU). The NPSU perform a series of further validation checks prior to incorporating the extract into the national report; *Australia's mothers and babies*. On completion of national validation, further validation of the NT Midwives' Collection data is undertaken by staff located at the NT DHF Health Gains Planning Branch whilst conducting specific analyses for the annual report; *Northern Territory Midwives' Collection: mothers and babies*.

Perinatal deaths register

Perinatal deaths data were obtained from the perinatal deaths register. Key sources of deaths data for the register include the NT Midwives Collection, the Department of Births, Deaths and Marriage (BDM) and the Australian Bureau of Statistics (ABS). The details of fetal and neonatal deaths which occurred in any NT hospital are extracted from Caresys. The details of neonatal deaths that occurred within the NT but outside of a hospital facility are provided to the Health Gains Planning branch by BDM on a monthly basis. Limited details of NT neonates who died interstate are extracted on an annual basis from the ABS unit record file deaths data.

Public hospital morbidity dataset

Pregnancy-related hospital admissions data were obtained from the public hospital morbidity dataset. It contains demographic and clinical details of all patients admitted to any of the five NT public hospitals.

Clinical details, which include the main reason for each admission (the principal diagnosis) and other co-morbidities associated with the admission (secondary diagnoses), are entered by medical officers directly onto the discharge module of the patient management system (Caresys) at time of discharge. The principal and secondary diagnoses are subsequently coded by clinical coders using the International Classification of Diseases (ICD) system. For the financial years 1992/93 to 1997/98 the ninth revision of ICD was used to code patient diagnoses. After 1998/99 the tenth revision was adopted. The public hospital morbidity dataset is constructed from the ICD-coded diagnoses.

The ICD-coded principal diagnosis and up to ten secondary diagnosis codes were downloaded from the public hospital morbidity dataset to ensure the maximum capture of pregnancy complications and maternal medical conditions for this report. A counting rule was defined for each condition to avoid multiple counting. Details of this rule, and other rules used to count episodes are outlined in the Appendices section (Table 49).

Australian Bureau of Statistics population data

The Australian Bureau of Statistics (ABS) estimated resident population and experimental Indigenous population estimates data were used to construct the Indigenous and non-Indigenous population denominators used in this report (Table 51 and Table 52).

Data limitations

Due to the complexity of this report there were a number of unavoidable data limitations. These are outlined as follows:

Incomplete data

Some data items were not available for the entire 20-year period. These include state of the perineum, smoking status, type of caesarean section, labour and child birth complications such as meconium stained liquor and post partum haemorrhage. Gestational age at time of first antenatal visit was collected intermittently. This data item was complete from 1986 until 1995, at which point recording stopped for several years, and then resumed in 2000.

Data sources also changed over time. Until the late 1980s public hospital births and out of hospital births were the key sources of data for the NT Midwives' Collection. In 1988 the Darwin Private Hospital (DPH) opened to private patients and commenced providing data for the collection.

Missing data

The majority of data items in the NT Midwives' Collection were missing data to a small degree and several were missing considerable amounts of data. This was particularly evident in the early years of the collection. Two notable examples were the smoking and alcohol status of antenatal women. Collection of these data items did not commenced until the mid 1990s. At this point the proportion of antenatal women with no response recorded for smoking and alcohol status was large (around 26%). Since the mid 1990s the level of missing data among antenatal women has more than halved so that by the mid 2000s both data items (smoking and alcohol status) were almost 90% complete.

It is important to account for the effect of missing data, particularly when proportions are large. While there are no hard and fast rules as to how missing data are reported, as a default position, the Australian Institute of Health and Welfare (AIHW) recommends that 'not stated' responses are enumerated in tables but excluded from the percentage distribution calculations. This methodology assumes that 'stated' and 'not stated' responses share the same distribution (unpublished guidelines, AIHW, 2008). We initially applied this approach only to those data items where the amount of missing data was substantial, such as smoking status. In this instance excluding the 'not stated' raised the prevalence of smoking among Indigenous mothers from 25% to 31%. Subsequently, and for consistency this approach was applied, irrespective of the amount of missing data.

One other notable example of missing data in the NT Midwives Collection concerns the undercount of births to non-Indigenous mothers in 1988 and 1989. At this time DPH was in its first two years of operation and many birth records from DPH were not submitted to the collection. This caused the number of births to non-Indigenous mothers to decline markedly during these years (Figure 1). Data for 1988 and 1999 are not included in the fertility analyses shown in this report.

Multiple births

A potential data limitation was associated with multiple births. Standard reporting methodology requires that the birthing details of the first born baby are recorded for all subsequent babies. While birth and labour details do not generally vary between births different birth methods occur sporadically, such as a caesarean section delivery following a vaginal delivery. In the NT, where the multiple births are few in number, the impact of this data limitation was minimal.

Pregnancy-related hospital admissions

Another potentially significant limitation was the absence of private hospital data in the pregnancy-related hospital admissions tables. Pregnancy-related hospital admissions (gestational diabetes, hypertension or a major infection of the puerperium) and induced abortions were extracted from the hospital morbidity dataset which does not include admissions to the Darwin Private Hospital. Since non-Indigenous mothers are more likely to utilise the private hospital than Indigenous mothers who predominantly utilise the public system, the number of pregnancy-related conditions among non-Indigenous mothers is expected to be an undercount of undeterminable size.

Irrespective of this limitation the public hospital morbidity dataset, as opposed to the NT Midwives' Collection, was the preferred source of data for pregnancy-related hospital admissions. This approach was taken because of uncertainty about the accuracy of certain conditions captured in the NT Midwives' Collection, particularly gestational diabetes. Furthermore induced abortions and major infections of the puerperium are not captured in the NT Midwives' Collection, nor are all instances of pre-existing hypertension complicating pregnancy, childbirth and the puerperium.

Small numbers

Because many perinatal outcomes were low in number the usual data quality issues associated with small numbers were encountered. To address this limitation we aggregated the data up by two, three or five-year time periods before disaggregating the data down by Indigenous status. Only when numbers permitted were the data then disaggregated by health district and urban/rural-remote area. Despite this precaution small numbers persisted for several perinatal outcomes causing rates over time and across regions to fluctuate widely. This was particularly evident for remote health districts and caution is advised when interpreting regional trends.

Previous Northern Territory perinatal reports

There were several inconsistencies between this report and prior NT perinatal reports. In this report we excluded non-residents, approximately 100 per year, and reported the perinatal outcomes of NT residents only. This has not always been the practice, and as a result the total number of mothers and babies in this report may be less than the corresponding totals in earlier reports.

The second discrepancy concerns the large number of changes the NT Midwives' Collection has undergone since its inception in 1986. Datasets are downloaded from the NT Midwives' Collection on an annual basis and updated whenever new

information becomes available. However retrospective updates are not performed and as a consequence existing variables may differ in type and format from those used in previous analyses.

Finally internal corrections implemented for the earlier trends report 1986–1995 were unavailable for this report, therefore minor differences between certain indicators reported previously and those reported in this report may have occurred.

Australian Bureau of Statistics births data

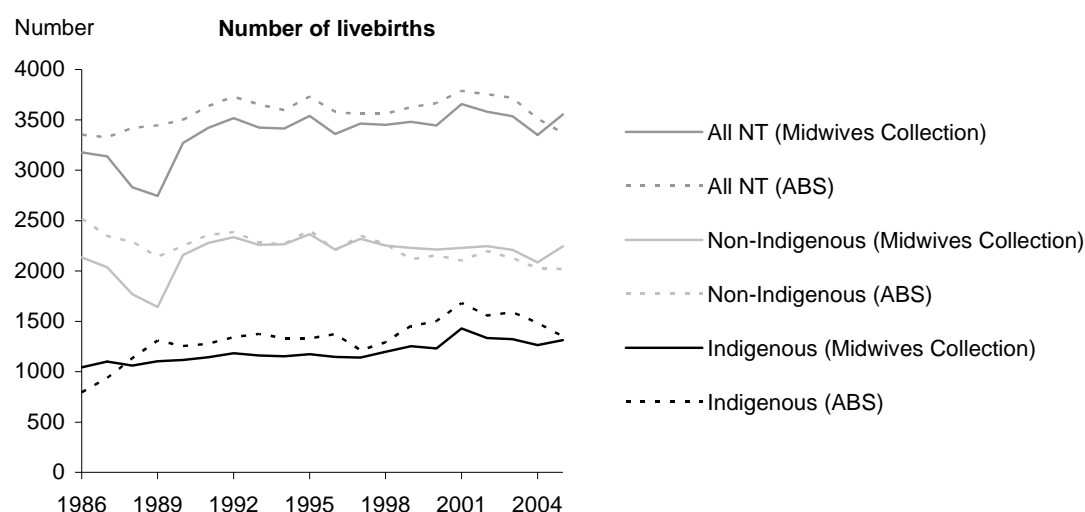
The NT Midwives' Collection count of liveborn babies born to NT resident mothers was compared with the ABS count, and in every year, except 2005, the ABS count was higher than that of the NT Midwives' Collection (see Figure 1).

This difference is partially explained by the fact that the ABS includes in its count those babies born to NT women at an interstate facility, whereas these details are not available to the NT Midwives' Collection. The number of interstate births is variable. According to the publication; *Australia's mothers and babies*, there were 138 NT liveborn babies born at an interstate facility in 2004 and only 53 in 2005.^{2,3}

When broken down by Indigenous status the gap between the two counts was more pronounced for Indigenous births than non-Indigenous births and the direction of the gap changed over time.

One likely explanation for the gap lies with the methodology used to assign Indigenous status. In the ABS collection the Indigenous status of babies is based upon the status of either mother or father, whereas in the NT collection the Indigenous status of babies is based upon the mother's status only. Babies born to non-Indigenous mothers and Indigenous fathers are therefore deemed to be non-Indigenous in the NT Midwives' Collection. Over time these babies have doubled in magnitude. In 1995 there were 67 according to *Births Australia, 1996* but by 2005 there were 119.^{4,5} This may account for upsurge in the NT count of non-Indigenous births since the late 1990s and the resulting change in direction (see Figure 1).

Figure 1 Annual count of Northern Territory liveborn babies, by Indigenous status, Northern Territory Midwives' Collection and Australian Bureau of Statistics registered births, 1986–2005



Note: ABS refers to Australian Bureau of Statistics

Mothers

All mothers

Total fertility rate

Figure 2 Annual total fertility rate by Indigenous status, NT residents, 1986–2005

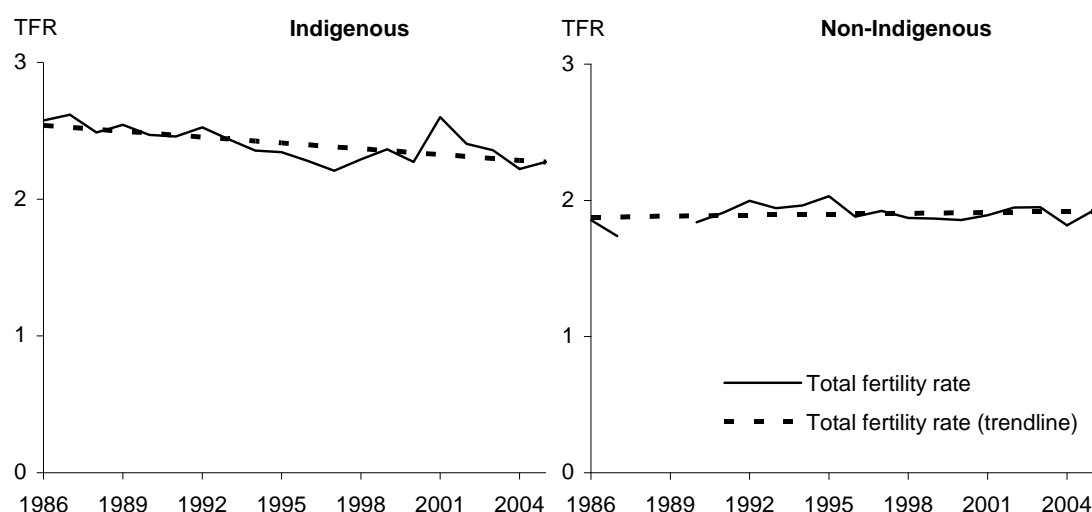


Table 1 Average total fertility rate by five-year periods and Indigenous status, NT residents, 1986–2005

	Average total fertility rate (TFR)				Change in total fertility rate		
	1986–1990 ⁽¹⁾	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous	2.5	2.4	2.3	2.4	-0.269	-0.014	(-0.022, -0.007)
Non-Indigenous	1.8	2.0	1.9	1.9	0.044	0.002	(-0.004, 0.008)

(1) The total fertility rate of non-Indigenous women during the period 1986–1990 is based on 1986–87 and 1990 data only

- The total fertility rate (TFR) is the average number of children that would be born to a woman over her lifetime if she experienced the age-specific fertility rates of a particular year throughout her lifetime.
- The TFR for a population to achieve replacement is 2.1. A population with a TFR higher than 2.1 is generally younger and increasing in size. A population with a TFR less than 2.1 is generally older and, in the absence of immigration, will decline in size.
- Indigenous mothers had a higher TFR than non-Indigenous women. Their TFR consistently exceeded 2.1.
- The TFR of Indigenous mothers significantly declined over time, from 2.5 in the late 1980s to 2.4 in the early 2000s.
- The TFR of non-Indigenous mothers remained relatively stable at between 1.8 and 2.0 which is below replacement level.

Age-specific fertility rate

Figure 3 Annual age-specific fertility rate by Indigenous status, NT residents, 1986–2005

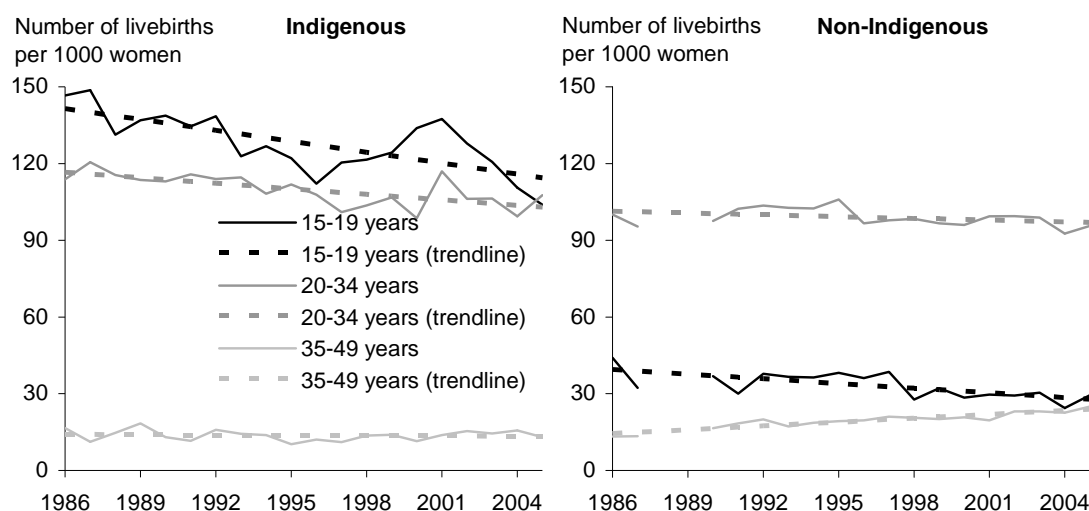


Table 2 Average age-specific fertility rate by five-year periods, Indigenous status and age group, NT residents, 1986–2005

	Average age-specific fertility rate				Change in fertility rate		
	1986–1990 ⁽¹⁾	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous							
15–19 years ⁽²⁾	140.4	128.9	122.6	120.0	-27.07	-1.42	(-2.06, -0.79)
20–34 years	115.2	112.8	103.5	107.2	-13.60	-0.72	(-1.06, -0.37)
35–49 years ⁽³⁾	14.8	13.2	12.5	14.5	-0.74	-0.04	(-0.20, 0.12)
Non-Indigenous							
15–19 years ⁽²⁾	37.6	35.8	32.5	28.7	-11.60	-0.61	(-0.92, -0.30)
20–34 years	97.7	103.4	97.1	97.2	-4.42	-0.23	(-0.50, 0.04)
35–49 years ⁽³⁾	14.5	18.7	20.5	22.7	9.54	0.50	(0.40, 0.60)

Note: Age-specific fertility rates are expressed as number of liveborn babies per 1000 female population

(1) Non-Indigenous age-specific fertility rates during the period 1986–1990 are based on 1986–1987 and 1990 data only

(2) 15–19 year age group includes mothers aged 14 years and under

(3) 45–49 year age group mothers aged 50 years and over

- Indigenous teenage women had a higher fertility rate than all other NT women across all time periods.
- For non-Indigenous women the fertility rate was consistently highest among those aged from 20 to 34 years.
- The fertility rate of Indigenous and non-Indigenous teenagers declined significantly over time, as did the fertility rate for Indigenous women aged from 20 to 34 years.
- The fertility rate of Indigenous women aged 35 years and over and non-Indigenous women aged from 20 to 34 years of age remained stable.
- By contrast the fertility rate of non-Indigenous women aged 35 years and over rose significantly, from 15 liveborn babies per 1000 women in the late 1980s to 23 by the early 2000s.

Parity

Figure 4 Mothers who gave birth to their first, fourth or higher order baby, annual percentage distribution by Indigenous status, NT residents, 1986–2005

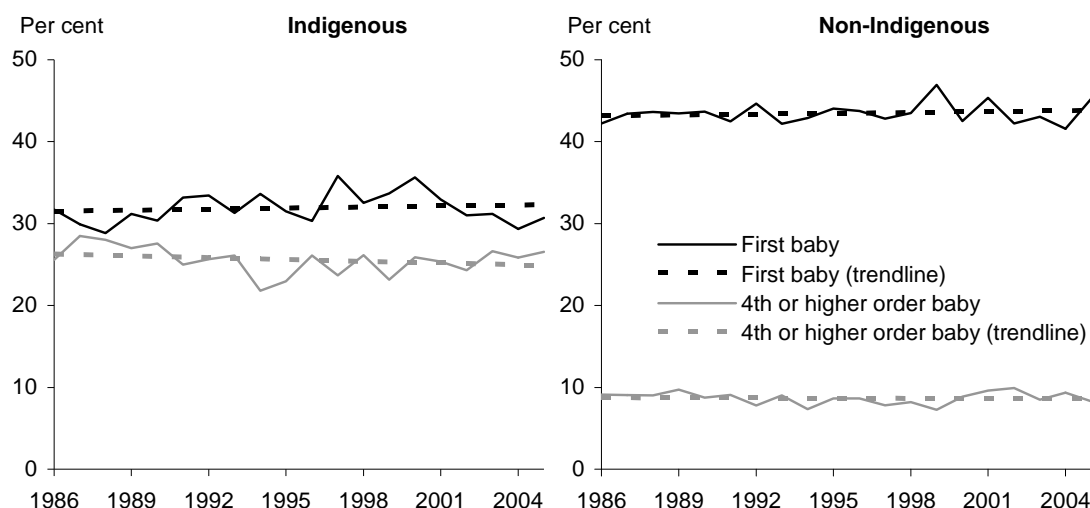


Table 3 Mothers who gave birth to their first, fourth or higher order baby, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous							
First baby	335 (30.4)	383 (32.6)	399 (33.6)	415 (31.1)	3.7	0.2	(-0.3, 0.7)
Fourth baby or more	301 (27.3)	285 (24.3)	296 (25.0)	344 (25.7)	-7.0	-0.4	(-0.9, 0.1)
Total stated	1102	1174	1186	1336			
Total	1102	1175	1200	1337			
Non-Indigenous							
First baby	841 (43.3)	989 (43.3)	962 (43.9)	950 (43.5)	2.7	0.1	(-0.2, 0.5)
Fourth baby or more	177 (9.1)	191 (8.4)	178 (8.1)	199 (9.1)	-1.8	-0.1	(-0.7, 0.5)
Total stated	1943	2,286	2190	2184			
Total	1943	2286	2230	2187			

(1) Percentage change in odds

- Indigenous births were slightly more likely to be a first-time birth as a higher order birth.
- By contrast non-Indigenous births were almost five times as likely to be a first-time birth as a higher order birth.
- The proportion of Indigenous births that were higher order births was almost three times that of non-Indigenous births (26% compared with 9%).

Average parity

Table 4 Average parity by five-year periods and Indigenous status, NT residents, 1986–2005

	Average parity				Percentage change ⁽¹⁾		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous	2.7	2.6	2.6	2.6	-6.5	-0.4	(-0.5, -0.2)
Non-Indigenous	2.0	1.9	1.9	2.0	-0.8	0.0	(-0.2, 0.1)

(1) Percentage change in average parity

- The average parity of Indigenous women consistently exceeded that of non-Indigenous women, and for the period 2001–2005 was 2.6 compared with 2.0.
- There was little change in the average parity of either population group over the 20-year period from 1986 to 2005.

Average age

Figure 5 Average age of mothers, by Indigenous status, NT residents, 1986–2005

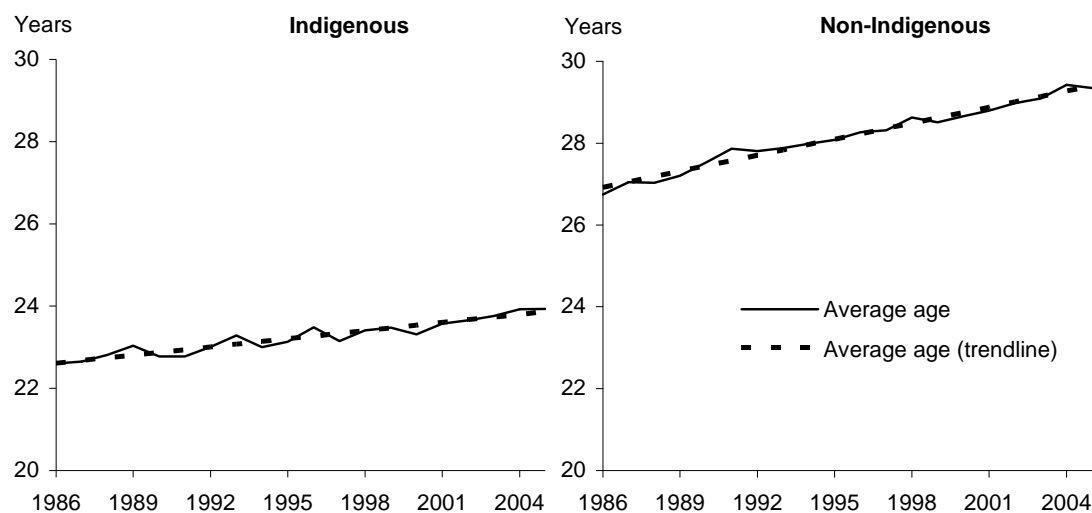


Table 5 Average age of mothers, by five-year periods and Indigenous status, NT residents, 1986–2005

	Average age (years)				Change in age (years)		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous	22.8	23.0	23.4	23.8	1.26	0.07	(0.05, 0.08)
Non-Indigenous	27.1	27.9	28.5	29.1	2.48	0.13	(0.12, 0.14)

- On average Indigenous mothers were around five years younger than non-Indigenous mothers, who were more likely to be in their late twenties.
- The average age of both Indigenous and non-Indigenous mothers increased significantly over the 1986 to 2005 period.
- The average age of non-Indigenous mothers increased by 2 years, but increased by only one year for Indigenous mothers.
- The gap between the average age of Indigenous and non-Indigenous mothers increased over time.
- In the late 1980s non-Indigenous mothers were 4.3 years older than Indigenous mothers but by the early 2000s the gap had increased to 5.6 years.

Age group

Figure 6 Mothers aged less than 20 years, or aged 35 years and over, annual percentage distribution by Indigenous status, NT residents, 1986–2005

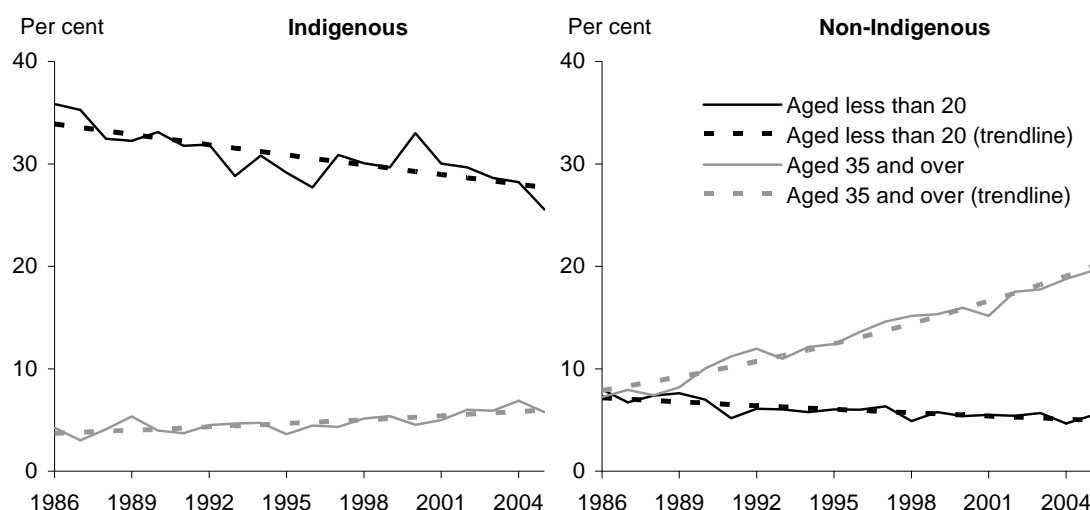


Table 6 Mothers aged less than 20 years, or aged 35 years and over, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous							
Less than 20 years	372 (33.8)	358 (30.5)	363 (30.3)	380 (28.5)	-25.3	-1.5	(-2.0, -1.1)
35 years and over	46 (4.2)	50 (4.3)	57 (4.8)	79 (5.9)	65.5	2.7	(1.6, 3.8)
Total stated	1102	1175	1200	1334			
Total	1102	1175	1200	1337			
Non-Indigenous							
Less than 20 years	142 (7.3)	133 (5.8)	127 (5.7)	117 (5.4)	-32.0	-2.0	(-2.7, -1.3)
35 years and over	159 (8.2)	268 (11.7)	333 (14.9)	387 (17.7)	190.0	5.8	(5.2, 6.3)
Total stated	1943	2286	2228	2182			
Total	1943	2286	2230	2187			

(1) Percentage change in odds

- Up to one third of Indigenous mothers and 5% of non-Indigenous mothers were aged less than 20 years.
- The proportion of mothers who were aged less than 20 years decreased significantly over time, from 34% to 29% among Indigenous mothers and from 7% to 5% among non-Indigenous.
- Conversely both population groups experienced a significant increase in the proportion of mothers aged 35 years and over.
- These trends in Indigenous and non-Indigenous mothers' age group profiles are consistent with the trends in the average age of mothers and age-specific fertility rates.

Age group by locality

Table 7 Mothers aged less than 20 years, percentage distribution by five-year periods, Indigenous status and locality, NT residents, 1986–2005

	Percentage of total stated ⁽¹⁾			
	1986–1990	1991–1995	1996–2000	2001–2005
Indigenous				
<i>Health district</i>				
Darwin Urban	28.3	22.9	21.9	18.6
Darwin Rural	32.0	29.1	29.5	29.5
Katherine	36.7	31.0	32.5	31.5
East Arnhem	33.9	34.1	32.5	28.4
Barkly	36.1	30.2	33.4	33.3
Alice Springs Urban	29.6	27.5	21.6	21.9
Alice Springs Rural	35.5	37.0	37.5	35.4
<i>Urban/rural-remote area</i>				
Urban	29.6	26.0	22.3	21.7
Rural-remote	35.2	33.0	34.4	31.4
Non-Indigenous				
<i>Health district</i>				
Darwin Urban	6.1	6.5	5.4	4.9
Darwin Rural	6.9	3.5	5.8	11.3
Katherine	8.9	7.5	7.0	9.3
East Arnhem	2.4	2.9	3.8	3.4
Barkly	9.6	6.8	11.8	8.1
Alice Springs Urban	7.7	4.5	5.7	5.2
Alice Springs Rural	7.1	3.6	5.6	2.5
<i>Urban/rural-remote area</i>				
Urban	7.0	5.9	5.6	5.0
Rural-remote	7.9	5.3	6.6	9.3

(1) Percentage was calculated on the basis of each cell

- Young mothers are mothers aged less than 20 years.
- Young mothers were more likely to reside in a rural-remote area than an urban area, irrespective of Indigenous status.
- The proportion of young Indigenous mothers decreased over time, throughout the NT, both in urban and rural-remote areas.
- A similar trend for young urban-based non-Indigenous mothers was observed, falling from 7% to 5% during past 20-year period.
- This trend was not apparent among rural or remote-based non-Indigenous young mothers. The proportion of these mothers fluctuated over time.

Inadequate antenatal visits

Figure 7 Mothers who attended three or less antenatal visits, annual percentage distribution by Indigenous status, NT residents, 1989–2005

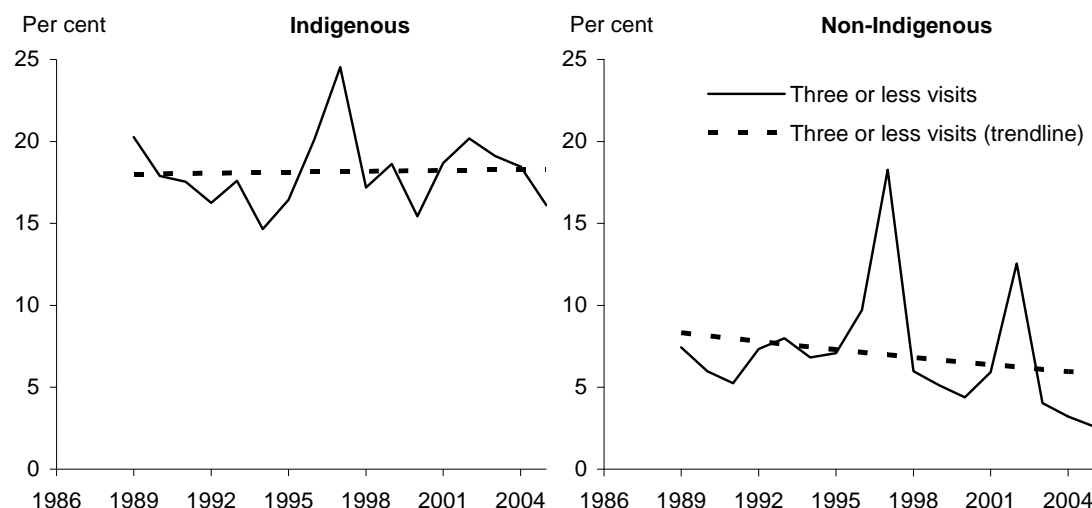


Table 8 Mothers who attended three or less antenatal visits, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1989–2005

	Average annual number (per cent)				Percentage change ⁽²⁾		
	1989–1990 ⁽¹⁾	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous							
Three or less visits	206 (19.1)	178 (16.5)	200 (19.1)	239 (18.5)	2.0	0.1	(-0.6, 0.9)
Total stated	1077	1079	1048	1294			
Total	1124	1175	1200	1337			
Non-Indigenous							
Three or less visits	118 (6.6)	135 (6.9)	163 (8.8)	123 (5.7)	-31.9	-2.4	(-3.2, -1.5)
Total stated	1784	1963	1851	2162			
Total	1901	2286	2230	2187			

Note: The overall change covers the 17-year period 1989–2005

(1) Data for 1986–1988 are not available

(2) Percentage changes in odds

- Having an adequate number of antenatal visits is important for maternal and fetal health. For a term pregnancy, eight antenatal visits is considered optimal. The World Health Organisation (WHO) regards three or less antenatal visits as inadequate.⁶
- Indigenous mothers were more likely to have attended three or less antenatal visits than non-Indigenous mothers.
- The proportion of Indigenous mothers attending three or less antenatal visits fluctuated over time but was still the same (19%) in the early 2000s as it was in the late 1980s.
- There was a minor but statistically significant decline in the proportion of non-Indigenous mothers attending three or less antenatal visits, from 7% in the late 1980s to 6% in the early 2000s.

Inadequate antenatal visits by locality

Table 9 Mothers who attended three or less antenatal visits, percentage distribution by five-year periods, Indigenous status and locality, NT residents, 1989–2005

	Percentage of total stated ⁽¹⁾			
	1989–1990 ⁽²⁾	1991–1995	1996–2000	2001–2005
Indigenous				
<i>Health district</i>				
Darwin Urban	23.3	21.3	24.4	24.5
Darwin Rural	7.6	7.5	19.1	15.5
Katherine	11.9	10.0	13.7	11.4
East Arnhem	20.7	17.3	18.7	19.1
Barkly	27.8	27.1	26.0	25.8
Alice Springs Urban	21.6	19.0	19.0	13.3
Alice Springs Rural	28.9	21.5	18.4	23.4
<i>Urban/rural-remote area</i>				
Urban	23.4	20.7	21.2	20.1
Rural-remote	17.2	14.2	18.0	17.8
Non-Indigenous				
<i>Health district</i>				
Darwin Urban	9.2	9.8	10.1	6.2
Darwin Rural	9.0	8.7	13.0	10.8
Katherine	5.7	5.3	8.5	7.2
East Arnhem	5.4	3.6	4.7	3.7
Barkly	8.5	6.9	6.3	10.1
Alice Springs Urban	2.3	1.7	4.3	1.6
Alice Springs Rural	8.3	6.7	3.3	5.8
<i>Urban/rural-remote area</i>				
Urban	5.5	6.6	8.6	5.5
Rural-remote	9.1	7.9	10.6	7.5

(1) Percentage was calculated on the basis of each cell

(2) Data for 1986–1988 are not available

- Urban-based Indigenous mothers were more likely to have attended an inadequate number of antenatal visits (three or less) than their rural or remote-based counterparts.
- The opposite pattern was observed among non-Indigenous mothers with those living in a rural-remote area more likely to have attended more than three antenatal visits than their urban-based counterparts.
- The proportion of urban-based Indigenous mothers attending three antenatal visits or less declined marginally over time but the attendance pattern of rural or remote-based Indigenous mothers did not change.
- Antenatal attendance among non-Indigenous mothers remained the same over time, regardless of residential location.

First antenatal visit

Figure 8 Mothers who attended first antenatal visit within the first trimester, annual percentage distribution by Indigenous status, NT residents, 1986–2005

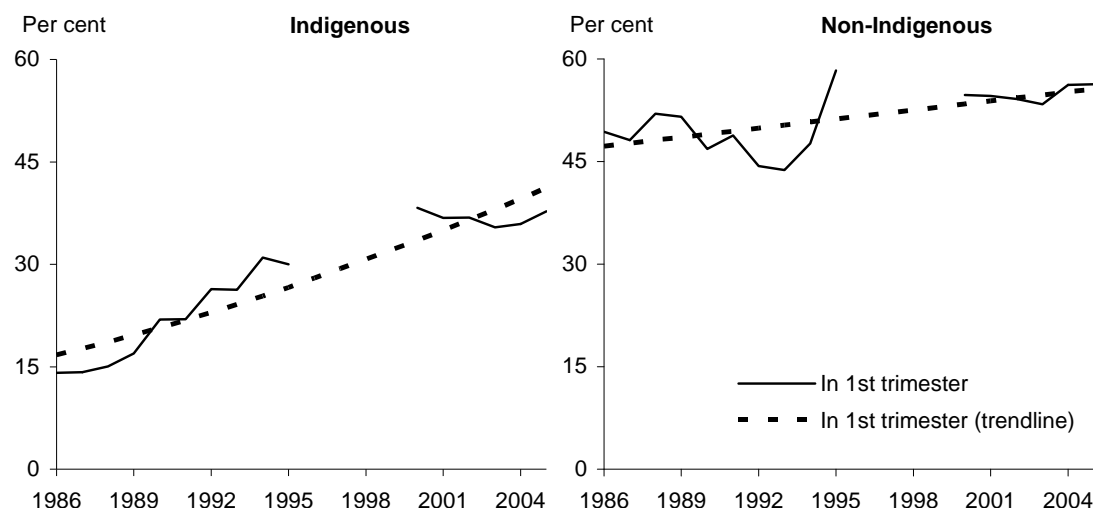


Table 10 Mothers who attended first antenatal visit within the first trimester, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽²⁾		
	1986–1990	1991–1995	2000 ⁽¹⁾	2001–2005	Overall	Annual	(95% CI)
Indigenous							
First trimester	163 (16.5)	270 (26.9)	428 (37.0)	482 (38.4)	287.5	7.4	(6.8, 8.0)
Total stated	988	1003	1156	1256			
Total	1102	1175	1236	1337			
Non-Indigenous							
First trimester	905 (49.3)	912 (48.5)	1222 (58.2)	1360 (65.0)	144.3	4.8	(4.4, 5.2)
Total stated	1835	1880	2101	2093			
Total	1943	2286	2197	2187			

Note: The overall percentage change covers the 20-year period 1986–2005

(1) Data for 1996–1999 are not available

(2) Percentage change in odds

- First trimester of pregnancy covers the period between conception to 12 weeks gestation (inclusive).
- Indigenous mothers were less likely than non-Indigenous mothers to attend their first antenatal visit within the first trimester.
- Just over a third (38%) of Indigenous mothers attended their first antenatal visit within the first trimester compared with nearly two-third (65%) of non-Indigenous mothers.
- The proportion of Indigenous mothers attending their first antenatal visit during the first trimester more than doubled over time, increasing from 16% in the late 1980s to 38% in the early 2000s.
- The proportion of non-Indigenous mothers attending their first antenatal visit during the first trimester also increased over time, but to a lesser extent than Indigenous mothers.

First antenatal visit by locality

Table 11 Mothers who attended first antenatal visit within the first trimester, percentage distribution by five-year periods, Indigenous status and locality, NT residents, 1986–2005

	Percentage of total stated ⁽¹⁾			
	1986–1990	1991–1995	2000 ⁽²⁾	2001–2005
Indigenous				
<i>Health district</i>				
Darwin Urban	17.6	27.0	43.2	34.6
Darwin Rural	21.7	31.4	41.8	38.5
Katherine	21.9	32.1	37.6	41.2
East Arnhem	9.2	18.7	29.0	32.4
Barkly	15.4	21.7	35.1	28.8
Alice Springs Urban	26.4	35.6	60.7	46.4
Alice Springs Rural	8.3	20.6	33.3	33.1
<i>Urban/rural-remote area</i>				
Urban	22.9	30.8	49.7	39.1
Rural-remote	14.4	24.9	33.7	35.5
Non-Indigenous				
<i>Health district</i>				
Darwin Urban	39.5	35.8	52.2	53.2
Darwin Rural	42.3	41.6	57.4	49.6
Katherine	60.8	64.9	59.0	57.9
East Arnhem	51.1	49.0	58.5	51.9
Barkly	44.1	43.0	65.5	46.6
Alice Springs Urban	60.9	68.6	61.3	63.5
Alice Springs Rural	41.0	41.3	62.5	58.9
<i>Urban/rural-remote area</i>				
Urban	53.1	50.2	54.6	55.2
Rural-remote	43.0	42.0	56.4	51.6

(1) Percentage was calculated on the basis of each cell

(2) Data for 1996–1999 are not available

- Irrespective of residential location, Indigenous mothers were less likely to attend their first antenatal visit within first trimester of pregnancy than non-Indigenous mothers.
- Urban-based mothers were more likely to have received antenatal care at the appropriate stage of pregnancy than rural or remote-based mothers.
- This applied to both Indigenous and non-indigenous mothers.
- The proportion of Indigenous mothers attending their first antenatal visit within first trimester improved greatly over time, both among urban and rural or remote-based mothers.
- This improvement was particularly evident among Indigenous mothers living in the remote health districts of East Arnhem and Alice Springs Rural.
- The trend for early antenatal attendance also improved over time among non-Indigenous mothers but to a lesser extent.

Smoking during pregnancy

Figure 9 Mothers who reported smoking during pregnancy, annual percentage distribution by Indigenous status, NT residents, 1996–2005

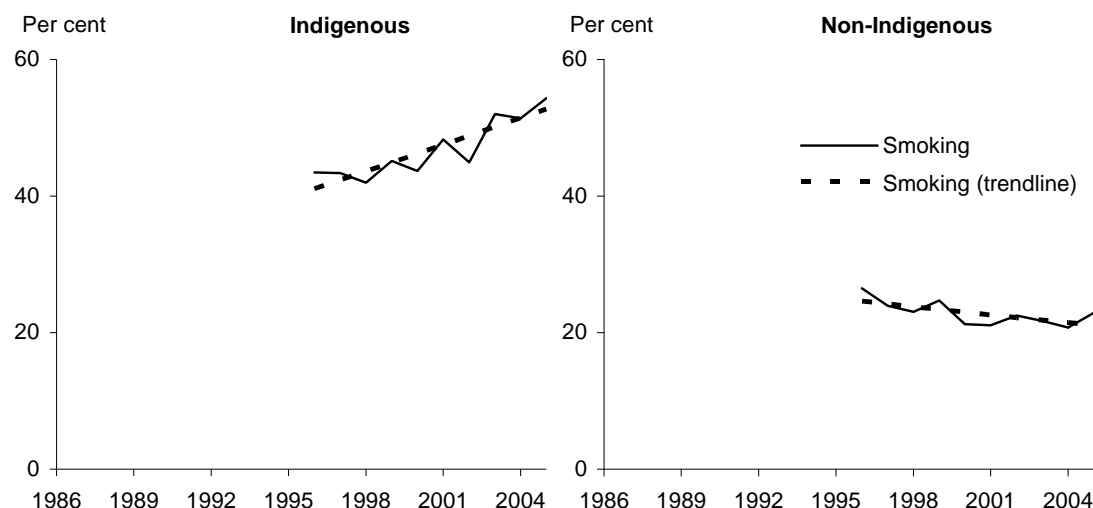


Table 12 Mothers who reported smoking during pregnancy, average annual number and percentage distribution by two-year periods and Indigenous status, NT residents, 1996–2005

	Average annual number (per cent)					Percentage change ⁽²⁾		
	1996–1997 ⁽¹⁾	1998–1999	2000–2001	2002–2003	2004–2005	Overall	Annual	(95% CI)
Indigenous								
Smoking	370 (43.4)	388 (43.7)	503 (46.2)	534 (48.6)	589 (52.9)	60.2	5.4	(3.9, 6.9)
Total stated	853	887	1089	1099	1113			
Total	1150	1234	1333	1333	1295			
Non-Indigenous								
Smoking	466 (25.1)	405 (23.9)	431 (21.2)	464 (22.1)	454 (21.9)	-18.2	-2.2	(-3.3, -1.1)
Total stated	1855	1692	2036	2098	2075			
Total	2253	2225	2205	2214	2147			

Note: The overall percentage change covers the 10-year period 1996–2005

(1) Data for 1986–1995 are not available

(2) Percentage change in odds

- Information about smoking during pregnancy is collected at first antenatal visit and again at 36 weeks.
- By 2004–2005 smoking during pregnancy was reported by more than half (53%) of Indigenous mothers and just over 20% of non-Indigenous.
- Smoking during pregnancy declined over time among non-Indigenous mothers but rose among Indigenous.
- The proportion of non-Indigenous mother who reported smoking during pregnancy dropped from 25% in the late 1990s to 22% by the mid 2000s.
- Conversely the proportion of Indigenous mothers who reported smoking during pregnancy rose from 43% to 53%.
- The persistently high and increasing rate of Indigenous mothers smoking during pregnancy is of great concern.

Smoking during pregnancy by locality

Table 13 Mothers who reported smoking during pregnancy, percentage distribution by two-year periods, Indigenous status and locality, NT residents, 1996–2005

	Percentage of total stated ⁽¹⁾				
	1996–1997	1998–1999	2000–2001	2002–2003	2004–2005
Indigenous					
Health district					
Darwin Urban	51.0	50.8	47.2	52.4	57.5
Darwin Rural	50.0	47.3	52.8	56.5	56.8
Katherine	40.1	43.4	47.8	50.0	57.3
East Arnhem	58.6	57.3	54.7	57.1	62.9
Barkly	37.3	38.5	35.1	41.5	50.7
Alice Springs Urban	45.7	53.8	45.7	48.4	49.5
Alice Springs Rural	18.8	21.5	29.3	25.3	29.5
Region					
Top End ⁽²⁾	49.2	49.5	50.7	53.9	58.3
Central ⁽³⁾	31.2	33.9	35.1	35.4	40.5
Non-Indigenous					
Health district					
Darwin Urban	23.3	20.0	19.0	20.5	21.6
Darwin Rural	34.4	27.1	27.1	29.5	26.7
Katherine	30.1	36.8	31.1	30.6	29.2
East Arnhem	21.9	25.9	14.6	23.1	17.6
Barkly	36.4	36.7	37.0	36.7	33.3
Alice Springs Urban	25.8	27.3	25.6	22.3	19.6
Alice Springs Rural	21.0	18.4	14.8	21.2	20.0
Region					
Top End ⁽²⁾	24.8	23.0	20.2	21.8	22.2
Central ⁽³⁾	26.4	27.7	25.7	23.5	20.6

(1) Percentage was calculated on the basis of each cell

(2) Top End consists of Darwin Urban, Darwin Rural, Katherine, and East Arnhem health districts

(3) Central consists of Barkly, Alice Springs Urban and Alice Springs Rural health districts

- The proportion of Indigenous mothers who reported smoking during pregnancy was much higher than non-Indigenous throughout all districts in the NT except the Barkly health district during the period 2000–2001 and the Alice Springs Rural health district during the period 1996–1997.
- The smoking status of Indigenous mothers varied greatly between regions. Those residing in the Top End of the NT were more likely to smoke during pregnancy than those living in Central Australia.
- By contrast to Indigenous mothers there was little difference between the proportion of Central Australia non-Indigenous mothers who smoked during pregnancy and those who resided in the Top End.
- Over the 10-year period 1996–2005 the smoking during pregnancy trend declined among non-Indigenous mothers and rose among Indigenous.
- This pattern is consistent across each district and region.

Onset of labour

Figure 10 Mothers who had an induced onset of labour or no labour, annual percentage distribution by Indigenous status, NT residents, 1986–2005

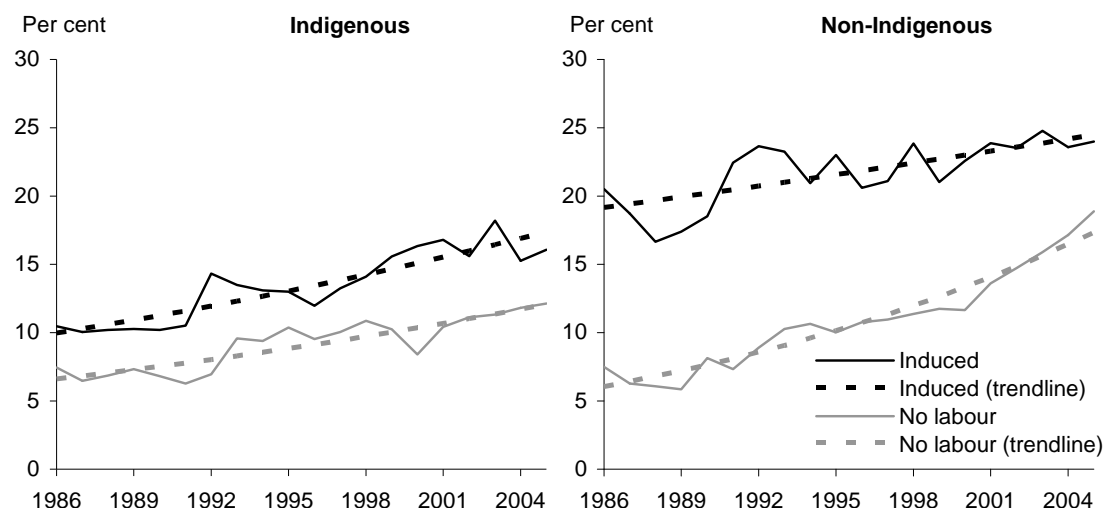


Table 14 Mothers who had an induced onset of labour or no labour, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous							
Induced	113 (10.3)	151 (12.9)	169 (14.3)	219 (16.4)	89.9	3.4	(2.8, 4.1)
No labour	77 (7.0)	100 (8.5)	116 (9.8)	152 (11.4)	93.9	3.5	(2.8, 4.3)
Total stated	1102	1172	1184	1337			
Total	1102	1175	1200	1337			
Non-Indigenous							
Induced	359 (18.5)	518 (22.7)	485 (21.8)	524 (24.0)	36.8	1.7	(1.3, 2.1)
No labour	133 (6.8)	215 (9.4)	251 (11.3)	351 (16.0)	225.1	6.4	(5.8, 7.0)
Total stated	1943	2284	2222	2187			
Total	1943	2286	2230	2187			

(1) Percentage change in odds

- Indigenous mothers were less likely than non-Indigenous mothers to have an induced labour or have no labour at all.
- Over the 20-year period 1986 to 2005 the proportion of mothers with induced onset of labour increased significantly, from 10% to 16% among Indigenous mothers and from 19% to 24% among non-Indigenous mothers.
- There was also an upwards trend among mothers who did not experience labour, up from 7% to 11% among Indigenous mothers and from 7% to 16% among non-Indigenous mothers.
- This trend is likely associated with the large rise in the proportion of mothers having elective caesarean sections.

Onset of labour by hospital

Table 15 Mothers who had an induced onset of labour or no labour, percentage distribution by five-year periods, Indigenous status and hospital, NT residents, 1986–2005

	Induced onset of labour (percentage of total stated ⁽¹⁾)			
	1986–1990	1991–1995	1996–2000	2001–2005
Indigenous				
Royal Darwin	10.9	12.3	15.3	16.2
Gove District	10.9	9.2	7.4	10.0
Katherine	10.8	9.7	13.4	18.0
Tennant Creek	3.0	4.9	0.0	0.9
Alice Springs	12.7	19.1	18.9	21.3
Darwin Private ⁽²⁾	47.8	36.6	24.6	29.4
Non-Indigenous				
Royal Darwin	19.7	17.4	19.6	22.3
Gove District	11.3	15.5	13.7	18.9
Katherine	17.5	17.7	17.2	16.8
Tennant Creek	6.6	5.5	5.6	0.0
Alice Springs	14.2	19.6	19.3	21.7
Darwin Private ⁽²⁾	27.4	34.5	30.0	31.0
	No labour at onset (percentage of total stated ⁽¹⁾)			
	1986–1990	1991–1995	1996–2000	2001–2005
Indigenous				
Royal Darwin	8.9	9.4	10.9	13.7
Gove District	5.2	6.6	7.9	8.9
Katherine	7.8	8.0	5.9	8.9
Tennant Creek	0.0	0.0	0.0	0.0
Alice Springs	8.0	10.8	13.0	11.7
Darwin Private ⁽²⁾	8.7	15.5	21.1	29.4
Non-Indigenous				
Royal Darwin	6.7	8.5	9.0	12.6
Gove District	6.9	5.8	6.3	10.8
Katherine	6.0	9.5	9.8	12.6
Tennant Creek	0.0	0.0	0.0	0.0
Alice Springs	7.1	7.8	9.3	11.1
Darwin Private ⁽²⁾	9.6	12.5	17.7	26.0

(1) Percentage was calculated on the basis of each cell

(2) Darwin Private Hospital (DPH) data for the 1986–1990 time period refer to 1990 only

- DPH mothers were more likely to have induced onset of labour or have no labour than public hospital mothers.
- At most NT public hospitals the proportion of Indigenous and non-Indigenous mothers having induced onset of labour or no labour rose over time.
- At DPH the incidence of induced onset of labour remained fairly constant among non-Indigenous mothers and declined among Indigenous mothers. The incidence of mothers having no labour rose significantly, for both Indigenous and non-Indigenous.

Birth method

Figure 11 Mothers who had an instrumental vaginal delivery or a caesarean section delivery, annual percentage distribution by Indigenous status, NT residents, 1986–2005

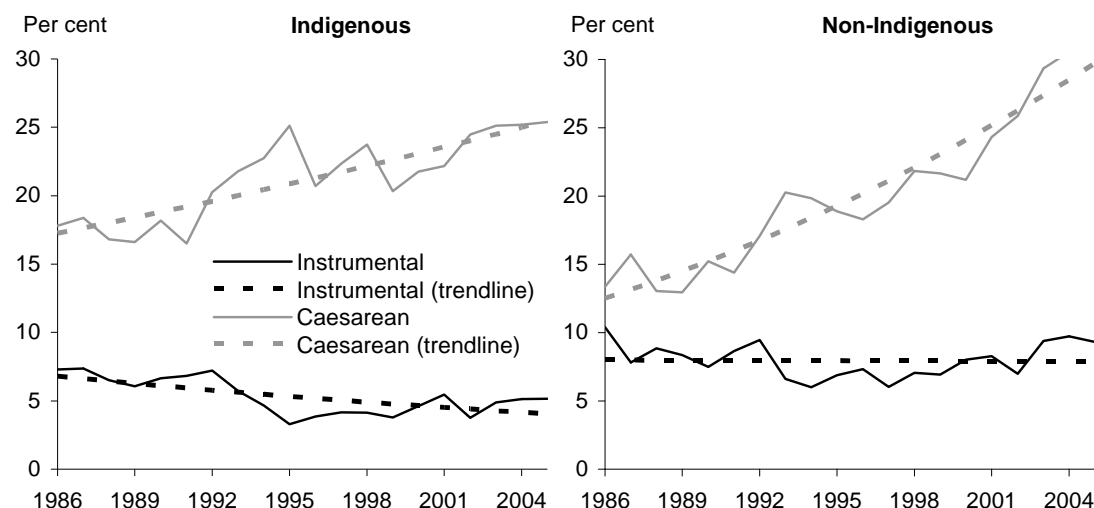


Table 16 Mothers who had an instrumental vaginal delivery or a caesarean section delivery, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous							
Instrumental ⁽²⁾	75 (6.8)	65 (5.5)	49 (4.1)	65 (4.9)	-42.2	-2.8	(-3.8, -1.9)
Caesarean	193 (17.5)	250 (21.3)	258 (21.8)	327 (24.5)	63.8	2.6	(2.1, 3.2)
Total stated	1101	1173	1186	1337			
Total	1102	1175	1200	1337			
Non-Indigenous							
Instrumental ⁽²⁾	167 (8.6)	172 (7.5)	157 (7.1)	191 (8.7)	-1.4	-0.1	(-0.7, 0.5)
Caesarean	275 (14.2)	413 (18.1)	456 (20.5)	619 (28.3)	195.7	5.9	(5.4, 6.3)
Total stated	1942	2285	2226	2187			
Total	1943	2286	2230	2187			

(1) Percentage change in odds

(2) Instrumental birth methods include use of forceps or vacuum extraction

- Indigenous mothers were less likely to have an instrumental vaginal delivery or a caesarean section delivery than non-Indigenous mothers.
- Over time the proportion of Indigenous mothers who had an instrumental vaginal delivery declined significantly, whereas there was almost no change among non-Indigenous mothers.
- The proportion of Indigenous mothers having a caesarean section delivery increased by 40% while the proportion of non-Indigenous mothers almost doubled.

Type of caesarean section deliveries

Figure 12 Mothers who had a caesarean section delivery, annual percentage distribution by Indigenous status and type of delivery, NT residents, 2000–2005

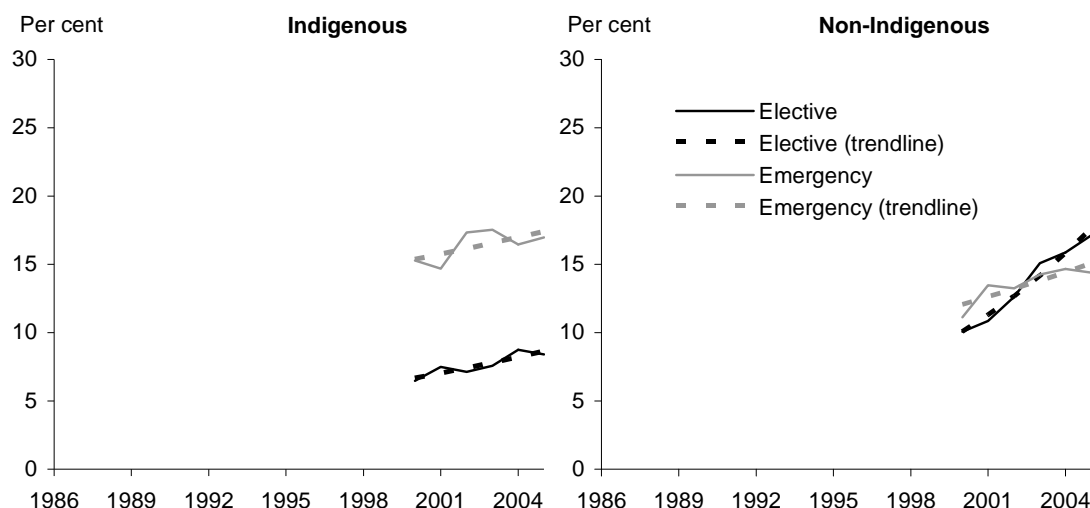


Table 17 Mothers who had a caesarean section delivery, average annual number and percentage distribution by two-year periods, Indigenous status and type of delivery, NT residents, 2000–2005

	Average annual number (per cent)			Percentage change ⁽²⁾		
	2000–2001 ⁽¹⁾	2002–2003	2004–2005	Overall	Annual	(95% CI)
Indigenous						
Elective caesarean	94 (7.1)	98 (7.4)	111 (8.6)	32.0	5.7	(0.7, 11.0)
Emergency caesarean	200 (15.0)	233 (17.5)	217 (16.8)	16.1	3.0	(-0.5, 6.7)
Total stated	1333	1333	1295			
Total	1333	1333	1295			
Non-Indigenous						
Elective caesarean	231 (10.5)	307 (13.9)	355 (16.5)	91.3	13.9	(10.5, 17.3)
Emergency caesarean	271 (12.3)	305 (13.8)	312 (14.5)	29.2	5.3	(2.2, 8.4)
Total stated	2204	2214	2147			
Total	2205	2214	2147			

Note: Percentage overall change covers the six-year period 2000–2005

(1) Data prior to 2000 are not available

(2) Percentage change in odds

- Indigenous mothers were much more likely to have an emergency caesarean section delivery than an elective caesarean section delivery.
- Non-Indigenous mothers were more likely to have an elective caesarean section delivery than an emergency caesarean section delivery.
- During the six-years of available data, the likelihood of having an elective caesarean section delivery increased markedly among non-Indigenous mothers, and to a lesser extent among Indigenous mothers.

Caesarean section deliveries by hospital

Table 18 Mothers who had a caesarean section delivery, percentage distribution by two-year periods, Indigenous status, hospital and type of delivery, NT residents, 2000–2005

	Elective caesarean section			Emergency caesarean section		
	2000 ⁽¹⁾ –2001	2002–2003	2004–2005	2000–2001	2002–2003	2004–2005
Percentage of total stated ⁽²⁾						
Indigenous						
Royal Darwin	8.0	9.1	10.4	15.4	21.1	19.8
Gove District	3.8	7.6	7.1	18.9	14.7	17.3
Katherine	4.9	6.1	8.3	13.9	15.6	14.6
Tennant Creek	0.0	0.0	0.0	0.0	0.0	0.0
Alice Springs	8.9	5.8	8.2	16.8	18.3	16.8
Darwin Private	25.0	28.6	22.2	18.8	7.1	11.1
Non-Indigenous						
Royal Darwin	8.3	9.5	12.1	10.7	15.9	16.8
Gove District	2.8	11.3	13.3	17.6	8.1	11.7
Katherine	12.5	10.7	9.8	11.4	12.7	13.6
Tennant Creek	0.0	0.0	0.0	0.0	0.0	0.0
Alice Springs	8.1	10.5	9.4	11.3	10.7	14.9
Darwin Private	16.4	23.4	29.5	16.1	14.1	12.0

(1) Data prior to 2000 are not available

(2) Percentage was calculated on the basis of each cell

- Mothers who attended DPH were more likely to have had an elective caesarean section delivery than mothers who attended a public hospital.
- Conversely the proportion of mothers who had an emergency caesarean section delivery was higher among those attending Royal Darwin Hospital or Alice Springs Hospital.
- This pattern was the same for both Indigenous and non-Indigenous mothers.
- The proportion of non-Indigenous mothers having an elective caesarean section delivery at DPH rose over time but remained fairly consistent at most public hospitals.
- The opposite trend was observed for emergency caesarean section delivery. The proportion of mothers having an emergency caesarean section delivery at DPH decreased while the proportion at the major public hospitals increased.

Labour or childbirth complication(s)

Figure 13 Mothers who had labour or childbirth complication(s), annual percentage distribution by Indigenous status and type of complication, NT residents, 1986–2005

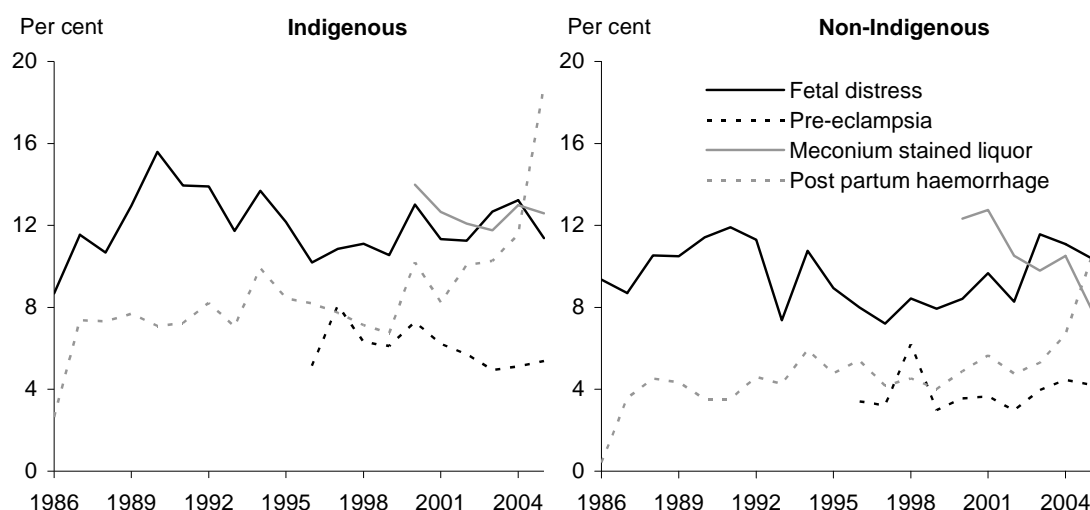


Table 19 Mothers who had labour or childbirth complication(s), average annual number and percentage distribution by five-year periods, Indigenous status and type of complication, NT residents, 1986–2005

	Average annual number (per cent)			
	1986–1990	1991–1995	1996–2000	2001–2005
Indigenous				
Fetal distress	132 (12.0)	154 (13.1)	134 (11.2)	160 (12.0)
Pre-eclampsia ⁽¹⁾	-	-	79 (6.6)	73 (5.5)
Meconium stained liquor ⁽²⁾	-	-	-	166 (12.4)
Post-partum haemorrhage	71 (6.4)	96 (8.2)	96 (8.0)	157 (11.7)
Total	1102	1175	1200	1337
Non-Indigenous				
Fetal distress	196 (10.1)	230 (10.1)	178 (8.0)	223 (10.2)
Hypertension ⁽¹⁾	-	-	86 (3.9)	84 (3.8)
Meconium stained liquor ⁽²⁾	-	-	-	225 (10.3)
Post-partum haemorrhage	62 (3.2)	106 (4.6)	102 (4.6)	143 (6.5)
Total	1943	2286	2230	2187

Note: Changes over time were not analysed for labour and childbirth complications due to modifications in coding and recording methods over the 20-year period

(1) Pre-eclampsia includes pre-eclampsia, eclampsia and hypertension in pregnancy. Data are available from 1996

(2) Meconium stained liquor data are available from 2001

- Indigenous mothers were more likely to experience complications of labour and childbirth than non-Indigenous mothers.
- Fetal distress was the most common labour or childbirth complication.
- The proportion of Indigenous and non mothers who had a post-partum haemorrhage increased over time.

Perineal status following vaginal birth

Figure 14 Mothers who had an intact perineum or perineal tear following vaginal birth, annual percentage distribution by Indigenous status, NT residents, 1996–2005

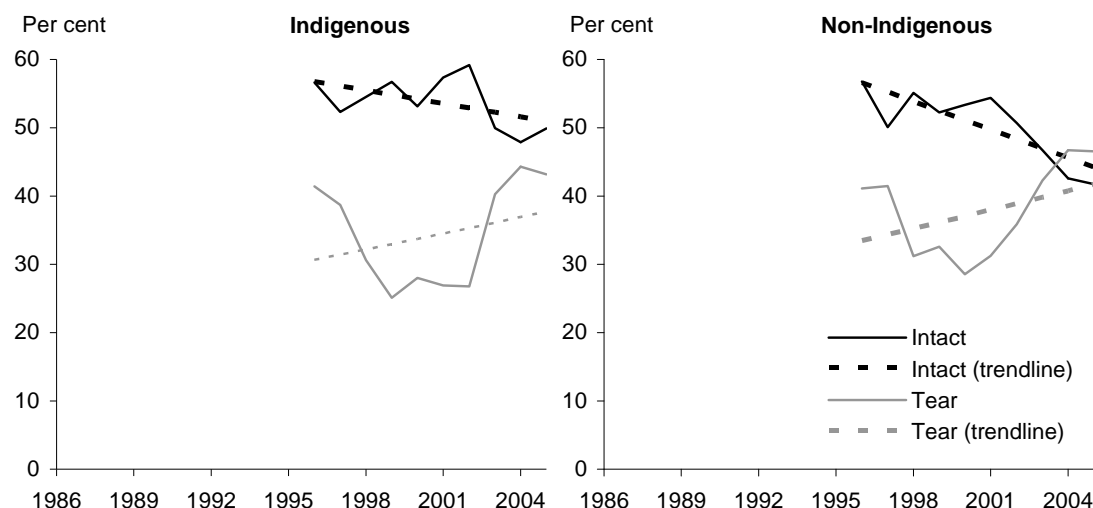


Table 20 Mothers who had an intact perineum, perineal tear or episiotomy following vaginal birth, average annual number and percentage distribution by two-year periods and Indigenous status, NT residents, 1996–2005

	Average annual number (per cent)					Percentage change ⁽¹⁾		
	1996–1997	1998–1999	2000–2001	2002–2003	2004–2005	Overall	Annual	(95% CI)
Indigenous								
Intact	441 (54.4)	505 (55.7)	567 (55.4)	531 (54.6)	473 (48.9)	-20.9	-2.6	(-4.0, -1.1)
Tear	324 (40.0)	252 (27.8)	281 (27.5)	326 (33.5)	423 (43.7)	37.1	3.6	(2.0, 5.2)
Episiotomy	41 (5.1)	78 (8.6)	106 (10.4)	80 (8.2)	59 (6.1)			
Combined ⁽²⁾	4 (0.4)	73 (7.7)	70 (6.7)	36 (3.6)	12 (1.2)			
Total stated	810	907	1023	972	967			
Total	892	944	1040	1003	967			
Non-Indigenous								
Intact	836 (53.2)	860 (53.6)	902 (53.9)	773 (48.8)	624 (42.2)	-39.2	-5.4	(-6.4, -4.3)
Tear	650 (41.3)	512 (31.9)	501 (29.9)	617 (39.0)	690 (46.6)	41.9	4.0	(2.8, 5.2)
Episiotomy	74 (4.7)	139 (8.7)	206 (12.3)	170 (10.7)	150 (10.1)			
Combined ⁽²⁾	13 (0.7)	93 (5.4)	67 (3.9)	24 (1.5)	16 (1.1)			
Total stated	1572	1603	1675	1583	1480			
Total	1824	1735	1702	1603	1480			

Note: Overall percentage change covers the 10-year period 1996–2005

(1) Percentage change in odds (2) Combined includes episiotomy and tear

- Almost 50% of Indigenous mothers and just over 40% of non-Indigenous mothers had an intact perineum following vaginal birth.
- Over time the proportion of mothers with an intact perineum declined and the proportion with a tear increased.
- The proportion with a perineal tear increased, from 40% to 44 % among Indigenous mothers and from 41% to 47% among non-Indigenous mothers.
- The proportion of mothers with an episiotomy doubled until the period 2000–2001 and then decreased.

Out of hospital births

Figure 15 Mothers who gave birth outside of a hospital, annual percentage distribution by Indigenous status, NT residents, 1986–2005

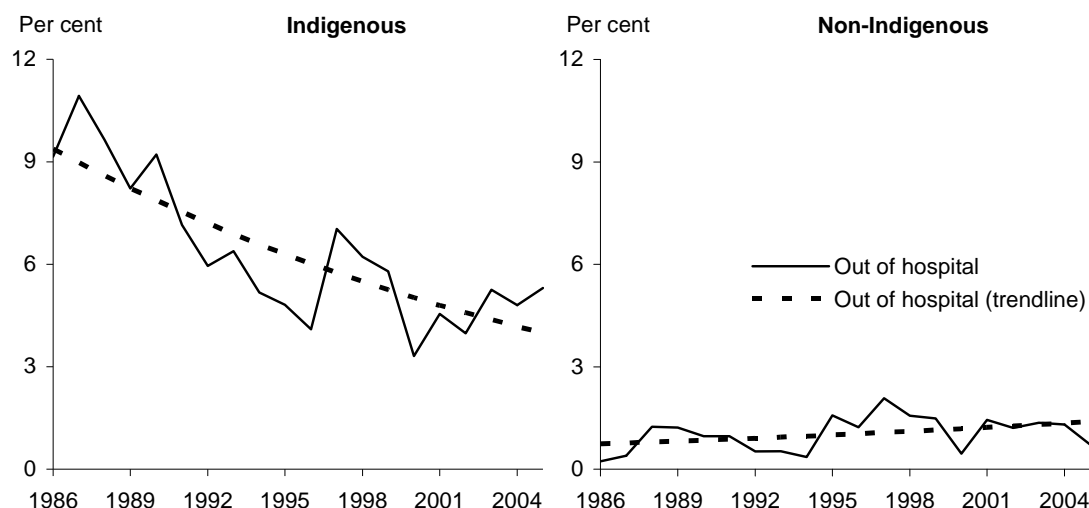


Table 21 Mothers who gave birth out of a hospital, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous							
Out of hospital ⁽²⁾	104 (9.4)	69 (5.9)	63 (5.3)	64 (4.8)	-59.9	-4.7	(-5.6, -3.8)
Total	1102	1175	1200	1337			
Non-Indigenous							
Out of hospital ⁽²⁾	15 (0.8)	18 (0.8)	31 (1.4)	26 (1.2)	89.9	3.4	(1.7, 5.2)
Total	1943	2286	2230	2187			

(1) Percentage change in odds.

(2) Out of hospital includes births where place of birth was not stated

- Indigenous mothers were consistently more likely to give birth outside of a hospital than non-Indigenous mothers.
- The majority of Indigenous mothers who birthed outside a hospital gave birth in a remote community health centre.
- By contrast the majority of outside of a hospital births among non-Indigenous mothers were planned home births.
- The proportion of Indigenous mothers birthing outside of a hospital decreased markedly over time.
- By contrast there was a significant increase in the small proportion of non-Indigenous mothers who gave birth outside of a hospital setting.

Postnatal hospital stay

Figure 16 Average length of postnatal stay and percentage distribution of mothers whose postnatal stay exceeded four days in duration, by Indigenous status, NT residents, 1986–2005

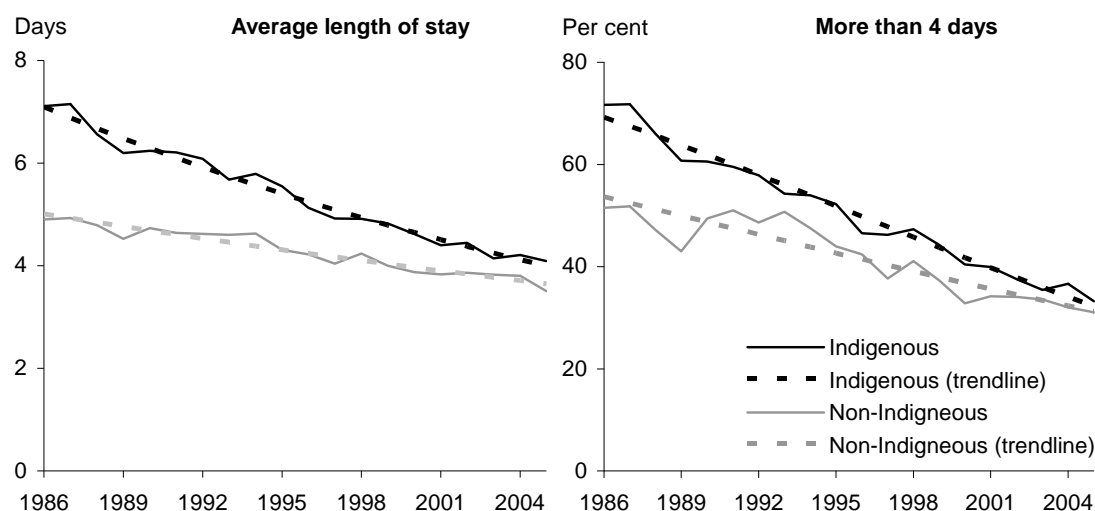


Table 22 Average length of postnatal hospital stay, average annual number and percentage distribution of mothers whose postnatal hospital stay exceeded four days in duration, by Indigenous status, NT residents, 1986–2005

	Average length of postnatal stay (days)				Percentage change ⁽¹⁾		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall Annual	(95% CI)	
Indigenous	6.6	5.8	4.9	4.3	-43.6	-3.0	(-3.1, -2.9)
Non-Indigenous	4.8	4.6	4.1	3.8	-27.2	-1.7	(-1.7, -1.6)
	Average annual number (per cent)				Percentage change ⁽²⁾		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall Annual	(95% CI)	
Indigenous							
More than 4 days	660 (66.1)	614 (55.5)	510 (44.9)	466 (36.6)	-78.8	-7.9	(-8.3, -7.4)
Total stated	998	1106	1137	1273			
Total⁽³⁾	998	1106	1137	1273			
Non-Indigenous							
More than 4 days	942 (48.9)	1,097 (48.4)	841 (38.2)	713 (33.0)	-60.7	-4.8	(-5.1, -4.5)
Total stated	1928	2268	2200	2160			
Total⁽³⁾	1928	2268	2200	2160			

(1) Percentage change in postnatal length of stay

(2) Percentage change in odds

(3) Total number of mothers who birthed in hospital. Out of hospital births are excluded

- In 2001–2005 the average length of postnatal stay was four days, with around two thirds of all mothers discharged before the fifth day.
- Indigenous mothers were slightly more likely to stay longer in hospital following birth.
- The average length of postnatal stay of Indigenous and non-Indigenous mothers declined markedly over time.
- The proportion of all mothers whose postnatal stay exceeded four days also declined, for both Indigenous and non-Indigenous.

Postnatal hospital stay, by hospital

Table 23 Average length of postnatal stay, by five-year periods, Indigenous status and hospital, NT residents, 1986–2005

	Average length of stay (days)			
	1986–1990	1991–1995	1996–2000	2001–2005
Indigenous				
Royal Darwin	7.2	5.9	4.9	4.3
Gove District	6.5	6.0	4.7	5.0
Katherine	6.5	6.0	5.1	4.7
Tennant Creek	4.6	3.5	2.4	2.7
Alice Springs	6.3	5.9	5.0	3.8
Darwin Private ⁽¹⁾	6.0	5.5	5.4	4.7
Non-Indigenous				
Royal Darwin	4.8	4.0	3.3	3.1
Gove District	5.0	4.3	4.0	3.4
Katherine	4.4	4.5	4.1	3.8
Tennant Creek	3.9	3.2	3.2	2.2
Alice Springs	4.4	4.1	3.7	3.1
Darwin Private ⁽¹⁾	5.8	5.7	5.5	5.2

(1) Darwin Private Hospital data for the 1986–1990 time period refer to 1990 only

- The average length of postnatal stay for Indigenous mothers at any public hospital in the NT was between one to two days longer than non-Indigenous mothers.
- By contrast the average length of postnatal stay for Indigenous and non-Indigenous mothers attending the private hospital was similar.
- Non-Indigenous mothers attending the private hospital tended to stay between one to two days longer than those attending a public hospital.
- The shortest average length of postnatal hospital stay for both Indigenous and non-Indigenous mothers was at the Tennant Creek Hospital.
- Over the past 20 years the average length of postnatal hospital stay progressively declined at all hospitals, both private and public. This downward trend was observed for all mothers, irrespective of Indigenous status.

First-time mothers

Average age

Figure 17 Average age of first-time mothers, by Indigenous status, NT residents, 1986–2005

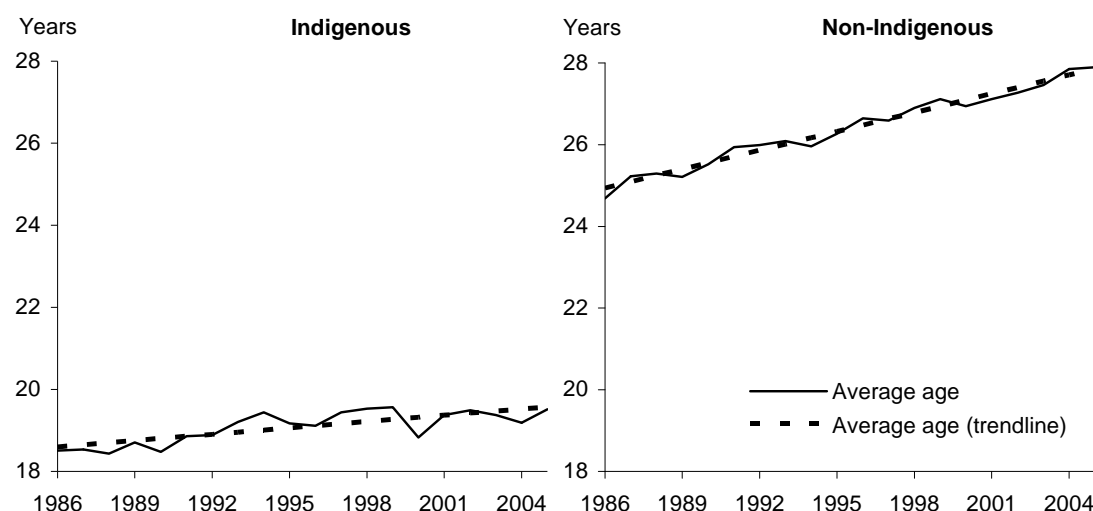


Table 24 Average age of first-time mothers, by five-year periods and Indigenous status, NT residents, 1986–2005

	Average age (years)				Change in age (years)		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous	18.5	19.1	19.3	19.4	0.98	0.05	(0.03, 0.07)
Non-Indigenous	25.2	26.1	26.8	27.5	2.93	0.15	(0.14, 0.17)

- The average age of Indigenous first-time mothers was consistently less than 20 years of age whereas the average age of non-Indigenous first-time mothers was consistently more than 25 years of age.
- The young age of Indigenous first-time mothers has health and social implications. Young mothers are more likely to have lower levels of education, have less job prospects, and their babies are at increased risk of experiencing health problems.
- For first-time non-Indigenous mothers, health and social complications are more likely to be associated with their older age.
- The average age of first-time mothers rose over the 20-year period 1986 to 2005, from 18.5 to 19.4 years among Indigenous mothers, and from 25.2 to 27.5 years among non-Indigenous mothers
- The rise in the average age of first-time mothers was more rapid for non-Indigenous resulting in a widening of the age gap between Indigenous and non-Indigenous first-time mothers.

Age group

Figure 18 First-time mothers aged less than 20 years, or aged 35 years and over, annual percentage distribution by Indigenous status, NT residents, 1986–2005

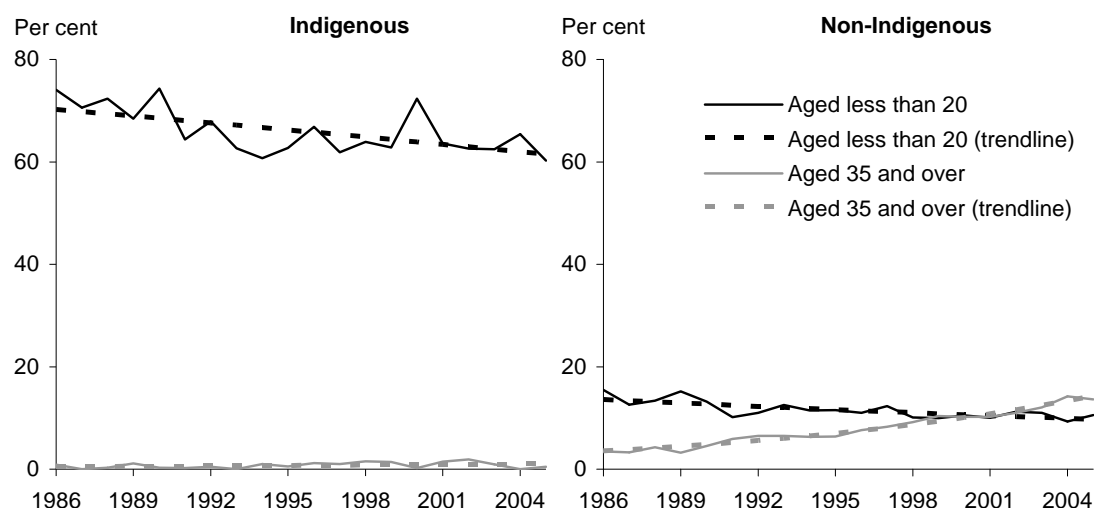


Table 25 First-time mothers aged less than 20 years, or aged 35 years and over, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall Annual	(95% CI)	
Indigenous							
Less than 20 years	241 (71.9)	244 (63.7)	261 (65.6)	261 (62.9)	-32.4	-2.0	(-2.9, -1.2)
35 years and over	2 (0.6)	2 (0.5)	4 (1.0)	4 (1.0)	116.6	4.2	(-0.5, 9.0)
Total stated	335	383	398	415			
Total	335	383	399	415			
Non-Indigenous							
Less than 20 years	117 (13.9)	112 (11.3)	103 (10.7)	99 (10.4)	-31.9	-2.0	(-2.8, -1.2)
35 years and over	32 (3.8)	63 (6.4)	88 (9.2)	116 (12.2)	352.1	8.3	(7.2, 9.3)
Total stated	841	989	960	949			
Total	841	989	962	950			

(1) Percentage change in odds

- Indigenous first-time mothers were constantly much more likely than non-Indigenous first-time mothers to be aged less than 20 years (63% compared with 10% in the period 2001–2005).
- The opposite pattern was observed among older first-time mothers aged 35 years and over. In 2001–2005 approximately 1% of Indigenous first-time mothers were older first-time mothers compared with 12% of non-Indigenous first-time mothers.
- There was a small but significant decline in the proportion of first-time mothers aged less than 20 years, for both Indigenous and non-Indigenous.
- By contrast the proportion of non-Indigenous mothers aged 35 years and over tripled over time, increasing from 4% to 12%.

Locality

Table 26 First-time mothers, percentage distribution by five-year periods, Indigenous status and locality, NT residents, 1986–2005

	Percentage of total stated ⁽¹⁾			
	1986–1990	1991–1995	1996–2000	2001–2005
Indigenous				
Health district				
Darwin Urban	30.8	30.9	33.6	29.3
Darwin Rural	29.8	29.6	32.3	31.0
Katherine	28.6	31.9	30.6	28.2
East Arnhem	31.0	38.0	32.2	31.3
Barkly	34.2	30.0	30.2	31.1
Alice Springs Urban	28.8	32.0	32.5	31.1
Alice Springs Rural	31.1	34.6	41.8	36.0
Urban/rural-remote area				
Urban	29.3	32.3	31.3	30.1
Rural-remote	30.8	32.7	34.8	31.5
Non-Indigenous				
Health district				
Darwin Urban	42.1	43.5	44.8	44.4
Darwin Rural	47.8	45.8	40.8	40.3
Katherine	47.6	44.5	40.4	40.2
East Arnhem	36.7	40.6	37.4	40.5
Barkly	42.1	41.2	48.5	40.1
Alice Springs Urban	44.0	42.0	43.2	43.1
Alice Springs Rural	40.6	44.6	51.3	38.8
Urban/rural-remote area				
Urban	42.7	42.7	44.1	43.8
Rural-remote	44.3	45.9	42.0	39.9

(1) Percentage was calculated on the basis of each cell

- The proportion of mothers living in an urban locality who were first-time mothers was similar to the proportion living in a rural-remote locality, regardless of Indigenous status.
- There was little change in the regional distribution of first-time mothers over time, for both Indigenous and non-Indigenous.
- The exception to this was non-Indigenous first-time mothers living in the Alice Springs Rural health district.
- The proportion of these first-time mothers fluctuated between 38% and 50%. This variability likely due to small numbers.

Inadequate antenatal visits

Figure 19 First-time mothers who attended three or less antenatal visits, annual percentage distribution by Indigenous status, NT residents, 1989–2005

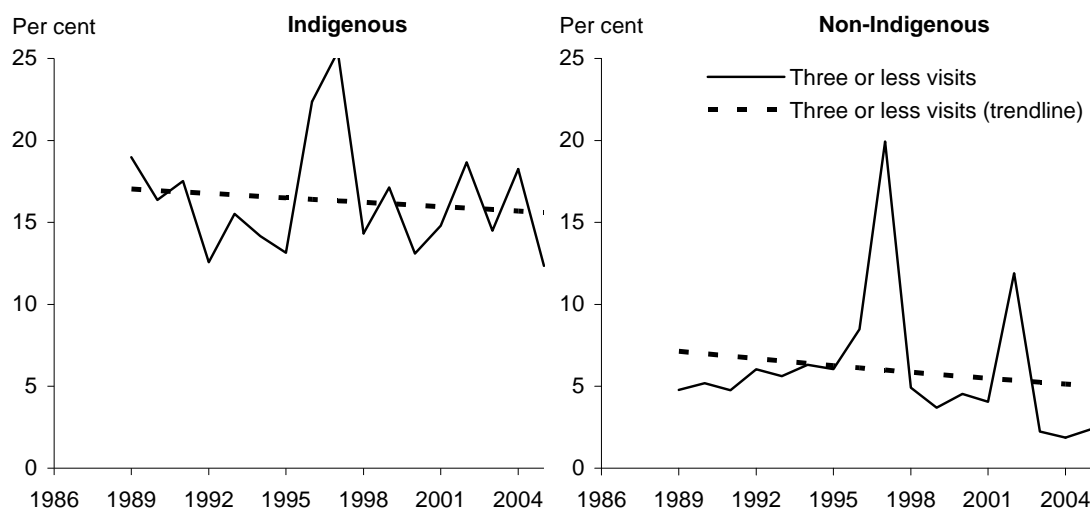


Table 27 First-time mothers who attended three or less antenatal visits, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1989–2005

	Average annual number (per cent)				Percentage change ⁽²⁾		
	1989–1990 ⁽¹⁾	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous							
Three or less visits	59 (17.7)	51 (14.5)	64 (18.3)	64 (15.7)	-10.0	-0.7	(-2.0, 0.7)
Total stated	334	352	349	407			
Total	346	383	399	415			
Non-Indigenous							
Three or less visits	39 (5.0)	49 (5.7)	68 (8.5)	42 (4.5)	-31.2	-2.3	(-3.7, -1.0)
Total stated	778	858	802	940			
Total	829	989	962	950			

Note: The overall percentage change covers the 17-year period 1989–2005

(1) Data for 1986–1988 are not available

(2) Percentage change in odds

- Having an adequate number of antenatal visits is important for maternal and fetal health. For a term pregnancy, eight antenatal visits is considered optimal. The World Health Organisation (WHO) regards three or less antenatal visits as inadequate.⁶
- During the period 2001–2005 16% of Indigenous first-time mothers and 5% of non-Indigenous first-time mothers attended three or less antenatal visits
- There was a small decline in the proportion of first-time mothers attending three or less antenatal visits, for both Indigenous and non-Indigenous. The decline was only significant among non-Indigenous mothers.
- First-time mothers were slightly more likely to have attended an adequate number of antenatal visits compared with all mothers (Table 8).

First antenatal visit

Figure 20 First-time mothers who attended first antenatal visit within the first trimester, annual percentage distribution by Indigenous status, NT residents, 1986–2005

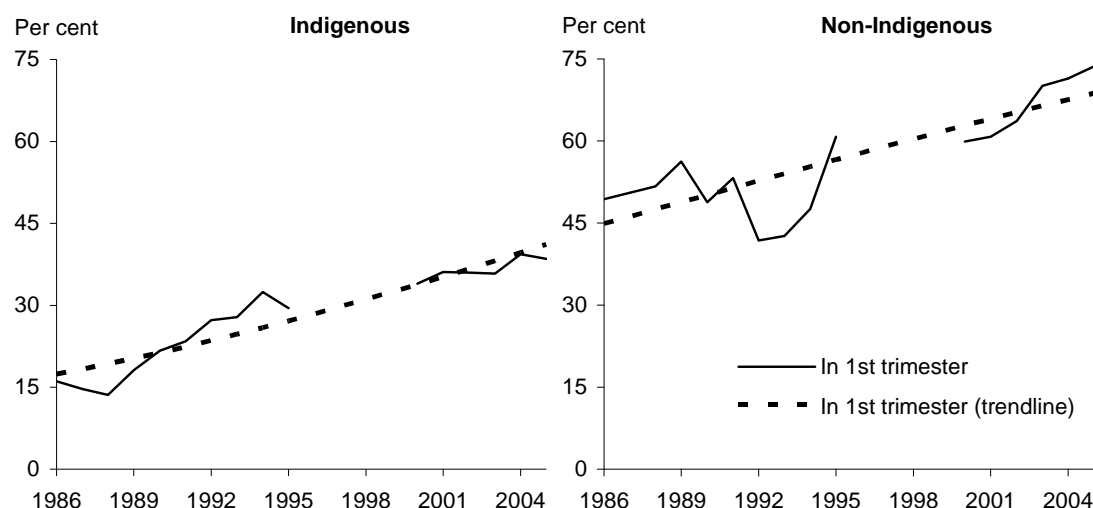


Table 28 First-time mothers who attended first antenatal visit within the first trimester, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽²⁾	
	1986–1990	1991–1995	2000 ⁽¹⁾	2001–2005	Overall	Annual (95% CI)
Indigenous						
First trimester	51 (16.8)	93 (27.9)	141 (34.0)	147 (37.0)	231.0	6.5 (5.5, 7.5)
Total stated	303	333	415	397		
Total	335	383	438	415		
Non-Indigenous						
First trimester	405 (51.0)	407 (49.3)	536 (59.9)	621 (67.9)	169.5	5.4 (4.8, 5.9)
Total stated	794	825	895	914		
Total	841	989	924	950		

Note: The overall percentage change covers the 20-year period 1986–2005

(1) Data for 1996–1999 are not available

(2) Percentage change in odds

- Indigenous first-time mothers were less likely to attend their first antenatal visit during the first trimester of pregnancy than non-Indigenous first-time mothers.
- This pattern was particularly evident in the late 1980s when 17% of Indigenous first-time mothers and 51% of non-Indigenous first-time mothers attended their first antenatal visits during the first trimester.
- Over the ensuing 20-year period 1986–2005 there was considerable improvement in early antenatal attendance by all first-time mothers, particularly Indigenous mothers.
- By the early 2000s 37% of Indigenous first-time mothers and 68% of non-Indigenous first-time mothers attended their first antenatal visit during the first trimester.

Onset of labour

Figure 21 First-time mothers who had an induced onset of labour or no labour, annual percentage distribution by Indigenous status, NT residents, 1986–2005

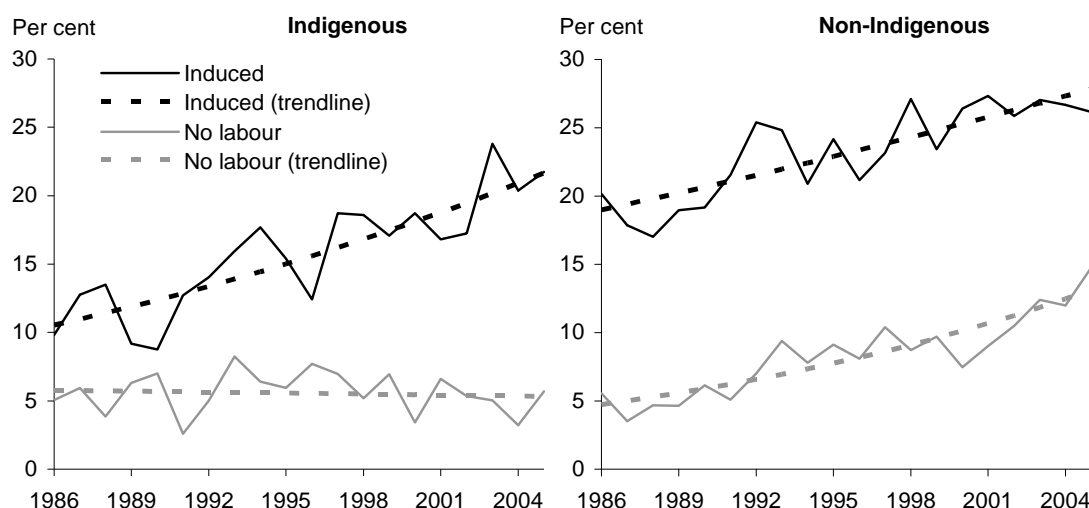


Table 29 First-time mothers who had an induced onset of labour or no labour, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾	
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual (95% CI)
Indigenous						
Induced	36 (10.7)	58 (15.2)	66 (17.2)	83 (20.0)	134.4	4.6 (3.4, 5.7)
No labour	19 (5.7)	21 (5.5)	23 (6.0)	22 (5.3)	-8.2	-0.5 (-2.1, 1.3)
Total stated	335	382	384	415		
Total	335	383	399	415		
Non-Indigenous						
Induced	157 (18.7)	231 (23.4)	232 (24.3)	253 (26.6)	64.6	2.7 (2.0, 3.3)
No labour	42 (5.0)	76 (7.7)	85 (8.9)	112 (11.8)	203.9	6.0 (5.0, 7.0)
Total stated	841	988	955	950		
Total	841	989	962	950		

(1) Percentage change in odds

- Indigenous first-time mothers were less likely to have an induced onset of labour or no labour than non-Indigenous first-time mothers.
- The proportion of Indigenous first-time mothers who had an induced onset of labour almost doubled over time.
- The same pattern was evident among non-Indigenous first-time mothers, although to a lesser extent.
- By contrast the proportion of Indigenous first-time mothers who had no labour remained more or less the same over time, whereas the proportion of non-Indigenous first-time mothers more than doubled.
- The increase in non-Indigenous first-time mothers giving birth without labour is reflected by the increase in elective caesarean sections among these mothers (Figure 23).

Birth method

Figure 22 First-time mothers who had an instrumental vaginal delivery or a caesarean section delivery, annual percentage distribution by Indigenous status, NT residents, 1986–2005

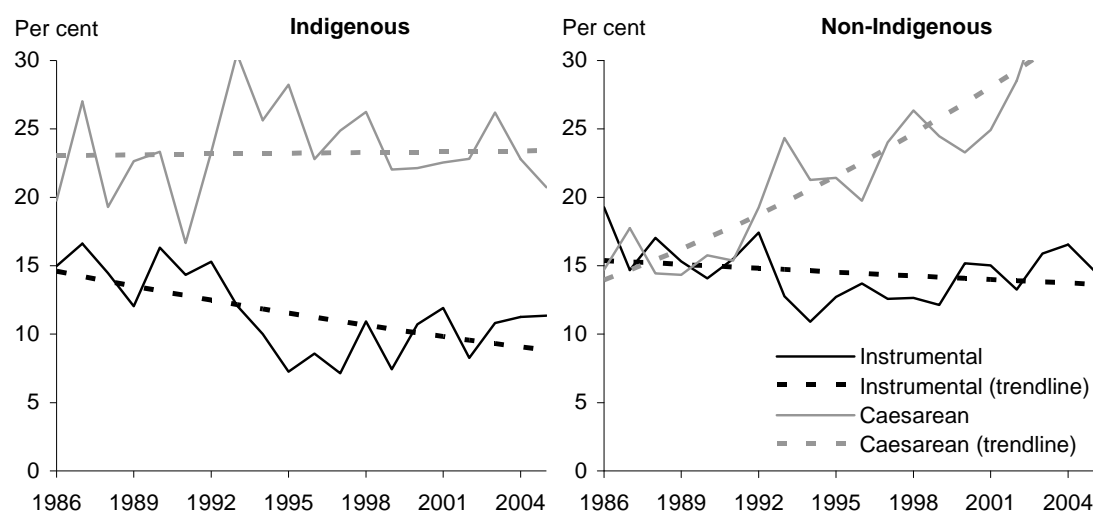


Table 30 First-time mothers who had an instrumental vaginal delivery or a caesarean section delivery, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous							
Instrumental ⁽²⁾	50 (14.9)	45 (11.8)	35 (9.1)	45 (10.8)	-43.4	-3.0	(-4.1, -1.7)
Caesarean	75 (22.4)	95 (24.9)	91 (23.6)	96 (23.1)	2.1	0.1	(-0.8, 1.0)
Total stated	335	382	385	415			
Total	335	383	399	415			
Non-Indigenous							
Instrumental ⁽²⁾	135 (16.1)	137 (13.9)	127 (13.3)	143 (15.1)	-13.0	-0.7	(-1.4, 0.0)
Caesarean	130 (15.5)	201 (20.3)	226 (23.6)	295 (31.1)	203.9	6.0	(5.4, 6.7)
Total stated	840	989	958	950			
Total	841	989	962	950			

(1) Percentage change in odds

(2) Instrumental birth methods include forceps and vacuum device

- Indigenous first-time mothers were less likely than non-Indigenous first-time mothers to have an instrumental vaginal delivery or a caesarean section delivery.
- The proportion of Indigenous first-time mothers having a caesarean section delivery remained fairly constant over time.
- By contrast the proportion of non-Indigenous first-time mothers having a caesarean section delivery almost doubled over time.

Type of caesarean section deliveries

Figure 23 First-time mothers who had a caesarean section delivery, annual percentage distribution by Indigenous status and type of delivery, NT residents, 2000–2005

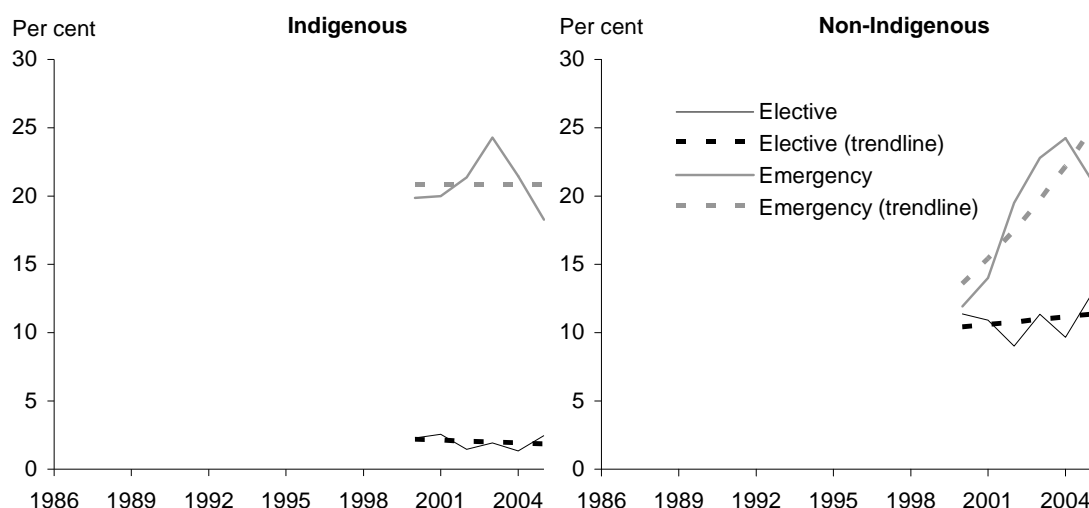


Table 31 First-time mothers who had a caesarean section delivery, average annual number and percentage distribution by two-year periods, Indigenous status and type of delivery, NT residents, 2000–2005

	Average annual number (per cent)			Percentage change ⁽²⁾		
	2000–2001 ⁽¹⁾	2002–2003	2004–2005	Overall	Annual	(95% CI)
Indigenous						
Elective caesarean	11 (2.4)	7 (1.7)	8 (2.1)	-15.5	-3.3	(-17.8, 13.8)
Emergency caesarean	91 (20.0)	95 (22.9)	77 (19.8)	0.0	0.0	(-5.5, 5.8)
Total stated	454	414	389			
Total	454	414	389			
Non-Indigenous						
Elective caesarean	107 (11.1)	96 (10.2)	106 (11.3)	10.3	2.0	(-2.9, 7.1)
Emergency caesarean	125 (13.0)	200 (21.2)	211 (22.6)	110.2	16.0	(11.6, 20.7)
Total stated	961	943	934			
Total	962	943	934			

Note: Percentage overall change covers the six-year period 2000–2005

(1) Data prior to 2000 are not available

(2) Percentage change in odds

- Indigenous first-time mothers were consistently much less likely to have an elective caesarean section delivery than non-Indigenous first-time mothers.
- By 2004–2005 they were also less likely to have an emergency caesarean section, although the gap was far less pronounced.
- Over the period for which data are available the proportion of Indigenous first-time mothers having an elective or an emergency caesarean section delivery remained constant.
- For non-Indigenous first-time mothers, the proportion having an elective caesarean section was constant but the proportion having an emergency caesarean section almost doubled.

Pregnancy-related hospital admissions

Induced abortion

Figure 24 Induced abortions, annual rate by Indigenous status, NT residents admitted to NT public hospitals, 1992–2006

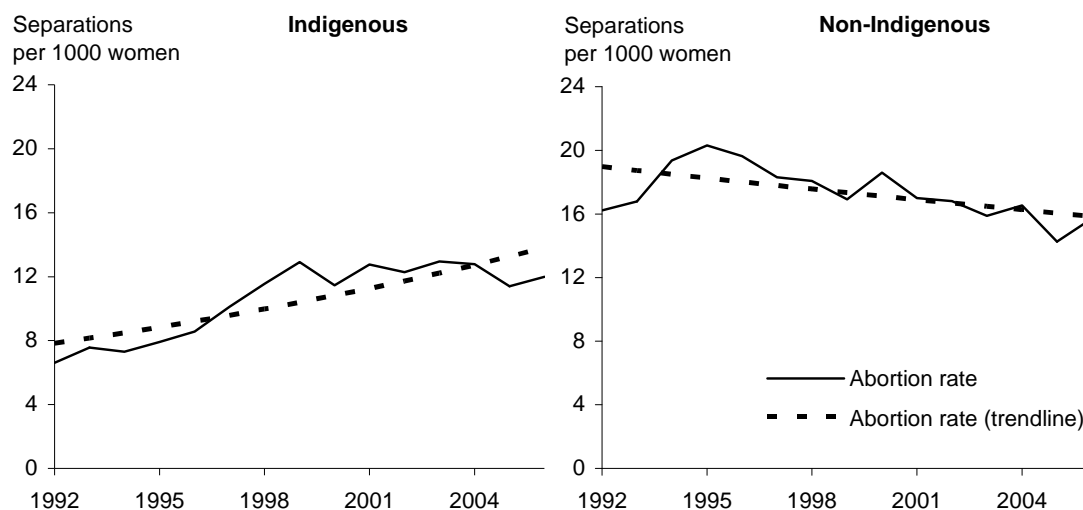


Table 32 Induced abortions, age-specific rate by four-year periods and Indigenous status, NT residents admitted to NT public hospitals, 1992–2006

	Average annual number (rate)				Percentage change ⁽¹⁾		
	1992–1995	1996–1999	2000–2003	2004–2006 ⁽²⁾	Overall	Annual	(95% CI)
Indigenous	99 (7.4)	160 (10.8)	201 (12.4)	208 (12.0)	76.2	4.1	(4.1, 4.2)
Non-Indigenous	664 (18.2)	701 (18.2)	662 (17.1)	605 (15.5)	-16.5	-1.3	(-1.3, -1.3)

Note: Rates are expressed as the number of public hospital separations per 1000 women aged 15–49.

Source: NT public hospital morbidity dataset

(1) Percentage change in rates

(2) Three-year period

- Induced abortion is the termination of pregnancy through medical or surgical intervention.⁷
- Over time the annual rate of induced abortions among Indigenous women increased from seven to 12 per 1000 women.
- By contrast non-Indigenous women experienced a small but significant reduction in this procedure over time.
- The rapid increase in Indigenous cases, combined with a decline in non-Indigenous cases, has made induced abortion rates in the two populations much more comparable in recent years.

Gestational diabetes

Figure 25 Gestational diabetes, annual percentage distribution by Indigenous status, NT residents admitted to NT public hospitals, 1992–2006

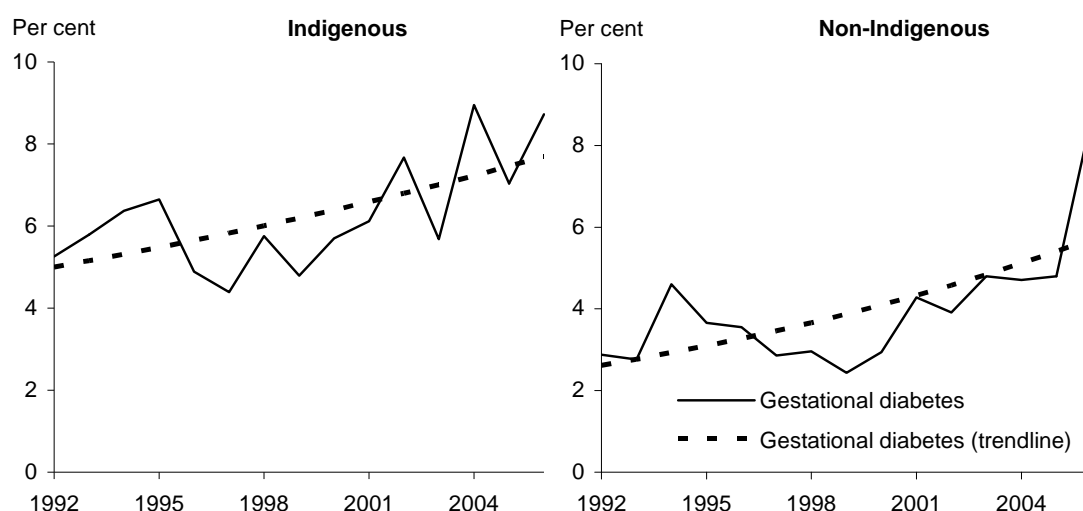


Table 33 Gestational diabetes, average annual number and percentage distribution by four-year periods and Indigenous status, NT residents admitted to NT public hospitals, 1992–2006

	Average annual number (per cent)				Percentage change ⁽¹⁾		
	1992–1995	1996–1999	2000–2003	2004–2006 ⁽²⁾	Overall	Annual	(95% CI)
Indigenous	70 (6.0)	59 (5.0)	83 (6.3)	109 (8.2)	53.8	3.1	(3.0, 3.3)
Non-Indigenous	56 (3.5)	48 (2.9)	63 (4.0)	93 (6.1)	118.2	5.7	(5.6, 5.9)

Source: NT public hospital morbidity dataset

(1) Percentage change in proportions

(2) Three-year period

- Gestational diabetes is diabetes arising during pregnancy.⁸ Mothers with pre-existing diabetes are excluded from this definition.
- During the period 2004–2006 the annual average number of mothers who gave birth at a public hospital and were diagnosed with gestational diabetes reached in excess of 200. Just over half (54%) were Indigenous.
- The proportion of mothers diagnosed with gestational diabetes increased significantly over time. During the 15-year period 1999–2005 the proportion of mothers with gestational diabetes rose from 6% to 8% among Indigenous mothers, and from 4% to 6% among non-Indigenous mothers.

Hypertension complicating pregnancy

Figure 26 Hypertension complicating pregnancy, annual percentage distribution by Indigenous status, NT residents admitted to NT public hospitals, 1992–2006

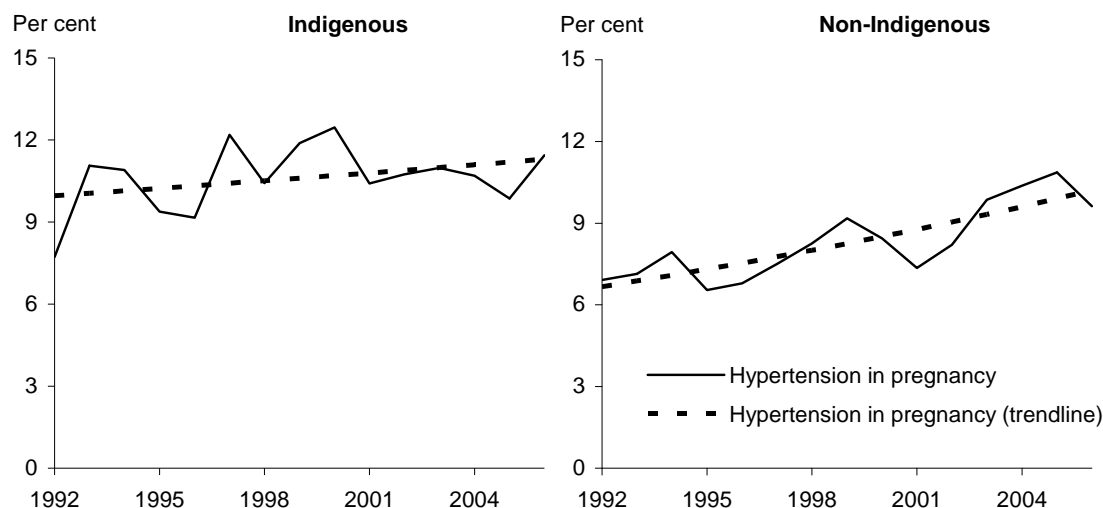


Table 34 Hypertension complicating pregnancy, average annual number and percentage distribution by four-year periods and Indigenous status, NT residents admitted to NT public hospitals, 1992–2006

	Average annual number (per cent)				Percentage change ⁽¹⁾		
	1992–1995	1996–1999	2000–2003	2004–2006 ⁽²⁾	Overall	Annual	(95% CI)
Indigenous	114 (9.8)	129 (10.9)	147 (11.1)	141 (10.7)	13.3	0.9	(0.8, 1.0)
Non-Indigenous	116 (7.1)	128 (7.9)	133 (8.4)	157 (10.3)	53.0	3.1	(3.0, 3.2)

Source: NT public hospital morbidity dataset

(1) Percentage change in proportions

(2) Three-year period

- Hypertension complicating pregnancy includes pre-eclampsia, eclampsia and pregnancy-induced hypertension. Mothers diagnosed with pre-existing essential hypertension are counted in this diagnosis, but only if the mother's pregnancy, childbirth or the puerperium is complicated as a result of the condition.⁸
- Just over 10% of all mothers attending a public hospital were diagnosed with hypertension complicating pregnancy for both Indigenous and non-Indigenous.
- During the 15 years for which data are available there was a small but significant increase in the proportion of Indigenous mothers diagnosed with hypertension complication pregnancy, from 10% to 11%.
- The proportion of non-Indigenous mothers diagnosed with this condition also increased significantly, but to a greater extent, from 7% to 10%.

Puerperal sepsis

Figure 27 Puerperal sepsis, annual percentage distribution by Indigenous status, NT residents admitted to NT public hospitals, 1992–2006

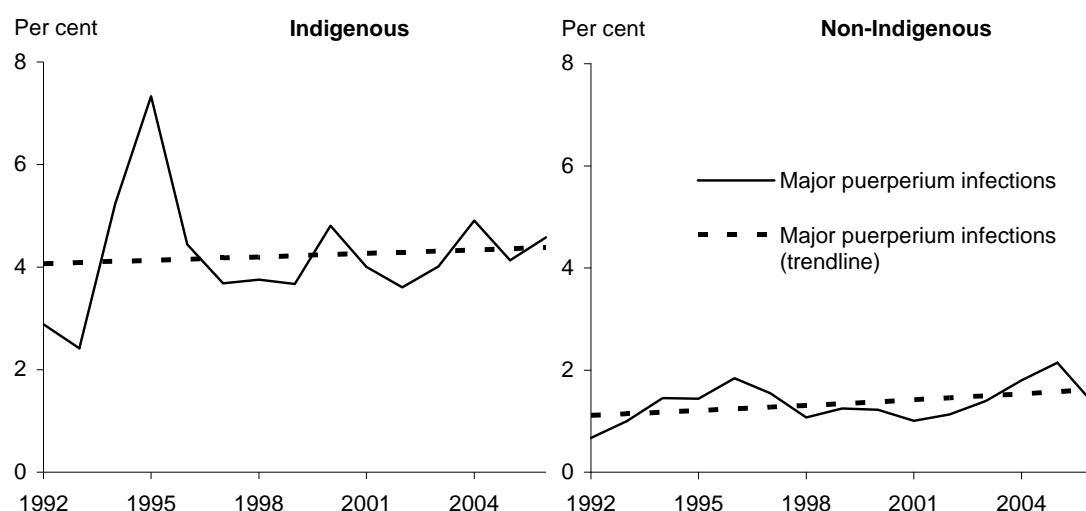


Table 35 Puerperal sepsis, average annual number and percentage distribution by four-year periods and Indigenous status, NT residents admitted to NT public hospitals, 1992–2006

	Average annual number (per cent)				Percentage change ⁽¹⁾		
	1992–1995	1996–1999	2000–2003	2004–2006 ⁽²⁾	Overall	Annual	(95% CI)
Indigenous	52 (4.5)	46 (3.9)	54 (4.1)	60 (4.5)	7.7	0.5	(0.4, 0.7)
Non-Indigenous	19 (1.1)	23 (1.4)	19 (1.2)	27 (1.8)	45.3	2.7	(2.4, 3.0)

Source: NT public hospital morbidity dataset

(1) Percentage change in proportions

(2) Three-year period

- Puerperal sepsis includes all major infections of the puerperium such as endometritis, fever, peritonitis and septicaemia.⁸
- During the period 2004–2006 an annual average of 87 mothers were diagnosed with puerperal sepsis, either following confinement or during emergency readmission to a public hospital. Over two thirds (69%) were Indigenous.
- Over time there was little change in the proportion of Indigenous mothers diagnosed with puerperal sepsis.
- By contrast the small proportion of non-Indigenous mothers diagnosed with puerperal sepsis increased significantly, from 1% to 2%.

Babies

Total babies

Figure 28 Total number of babies born in the NT to resident mothers and annual percentage distribution by Indigenous status, 1986–2005

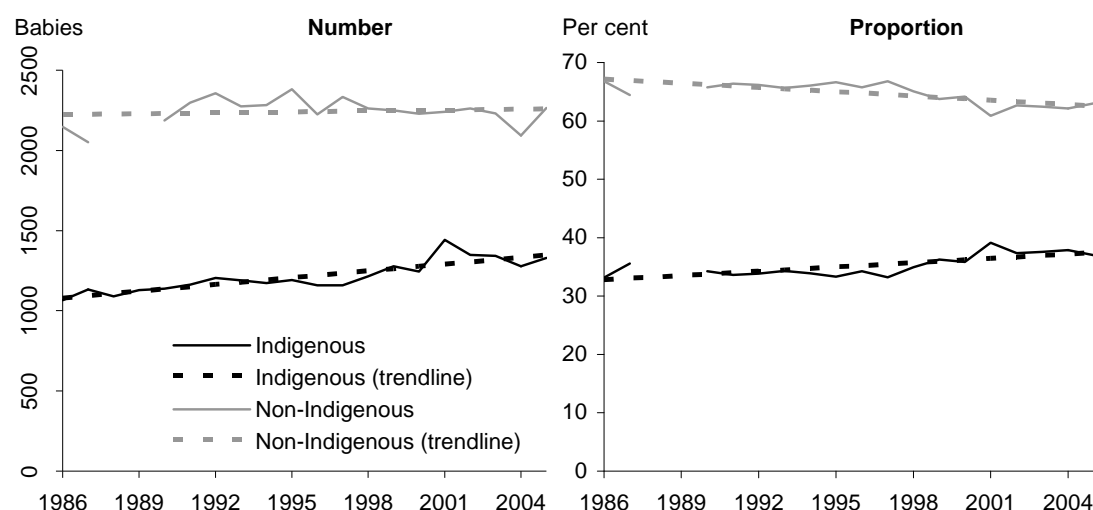


Table 36 Average annual number of babies born in the NT to resident mothers and percentage distribution by five-year periods and Indigenous status, 1986–2005

	Average annual number (per cent) ⁽¹⁾				Change in number		
	1986–1990 ⁽²⁾	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous⁽³⁾	1112 (34.3)	1184 (33.8)	1212 (34.9)	1348 (37.8)	267.7	14.1	(10.3, 17.9)
Non-Indigenous⁽³⁾	2128 (65.7)	2318 (66.2)	2259 (65.1)	2218 (62.2)	37.4	2.0	(-5.1, 9.1)
Total stated	3241	3503	3471	3566			
Total	3241	3503	3471	3566			

(1) Total and average annual number of babies born in the NT includes liveborn babies and fetal deaths

(2) The average annual number of non-Indigenous babies born during the period 1986–1990 is based on 1986–1987 and 1990 data

(3) The Indigenous status of a baby born to a NT resident is based on the mother's Indigenous status.

- The majority of babies born in the NT to resident mothers were non-Indigenous. During the period, 2001–2005, almost 38% babies born in the NT were Indigenous and 62% were non-Indigenous.
- Over the 20 years of available data the average number of babies born in the NT each year increased from 3241 to 3566.
- Over the same period the average number of Indigenous babies born each year increased by 21% whereas the average number of non-Indigenous babies increased by only 4%.
- As a consequence of the differential growth the gap in the proportional distribution of NT babies by Indigenous status has narrowed greatly.

Liveborn babies

Preterm

Figure 29 Preterm liveborn babies, annual percentage distribution by Indigenous status, NT residents, 1986–2005

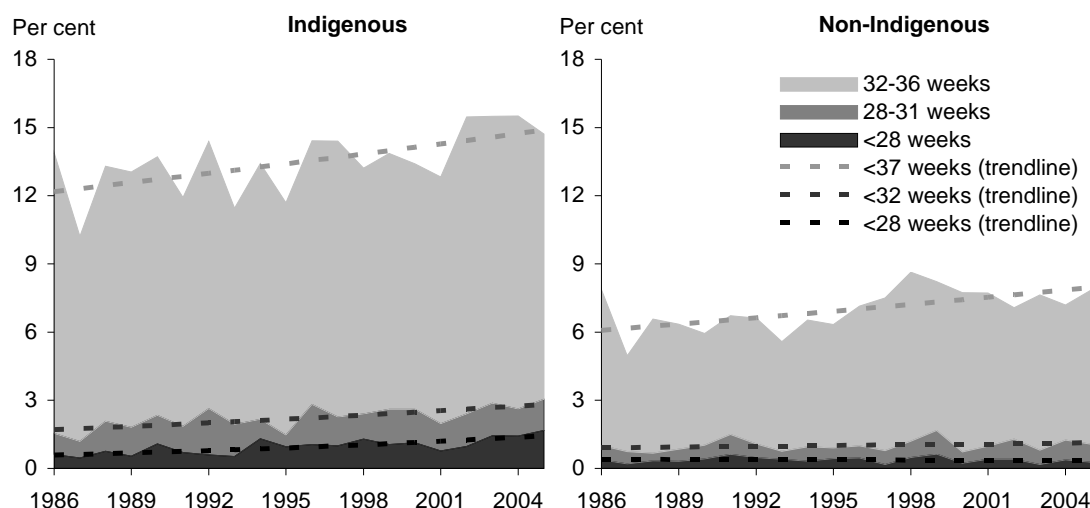


Table 37 Preterm liveborn babies, average annual number and percentage distribution by five-year periods, Indigenous status and gestational age, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾	
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual (95% CI)
Indigenous						
Less than 28 weeks	7 (0.7)	9 (0.8)	13 (1.1)	17 (1.3)	144.7	4.8 (2.4, 7.3)
Less than 32 weeks ⁽²⁾	19 (1.8)	23 (2.0)	30 (2.5)	34 (2.6)	67.0	2.7 (1.2, 4.3)
Less than 37 weeks ⁽³⁾	137 (12.8)	143 (12.3)	163 (13.7)	197 (14.8)	26.1	1.2 (0.6, 1.9)
Total stated	1071	1136	1174	1332		
Total	1085	1162	1194	1332		
Non-Indigenous						
Less than 28 weeks	6 (0.3)	10 (0.4)	9 (0.4)	7 (0.3)	-12.9	-0.7 (-3.4, 2.1)
Less than 32 weeks ⁽²⁾	16 (0.9)	24 (1.0)	24 (1.1)	24 (1.1)	23.9	1.1 (-0.6, 2.9)
Less than 37 weeks ⁽³⁾	115 (6.3)	145 (6.3)	176 (7.8)	165 (7.5)	33.7	1.5 (0.9, 2.2)
Total stated	1834	2274	2238	2203		
Total	1947	2300	2245	2203		

(1) Percentage change in odds

(2) Includes less than 28 weeks (3) Includes less than 28 weeks and less than 32 weeks

- Liveborn babies are preterm if they are born before 37 weeks gestation, very preterm before 32 weeks and extremely preterm before 28 weeks.⁹
- Up to 15% of Indigenous liveborn babies were preterm, almost double the proportion of non-Indigenous preterm liveborn babies.
- The number of preterm liveborn babies increased over time, by 44% for Indigenous and 43% for non-Indigenous.
- The number of extremely preterm Indigenous liveborn babies more than doubled, whereas the number of non-Indigenous stayed constant.

Preterm by locality

Table 38 Preterm liveborn babies, percentage distribution by five-year periods, Indigenous status and locality, NT residents, 1986–2005

	Percentage of total stated ⁽¹⁾			
	1986–1990	1991–1995	1996–2000	2001–2005
Indigenous				
<i>Health district</i>				
Darwin Urban	12.7	13.7	12.6	13.3
Darwin Rural	13.1	15.4	16.7	17.1
Katherine	10.9	9.5	12.0	13.3
East Arnhem	13.7	13.7	15.2	17.6
Barkly	18.0	12.1	15.7	14.5
Alice Springs Urban	13.4	9.4	10.2	9.3
Alice Springs Rural	11.4	13.3	14.3	14.8
<i>Urban/rural-remote area</i>				
Urban	13.2	11.4	12.3	12.2
Rural-remote	12.7	13.2	14.6	15.9
Non-Indigenous				
<i>Health district</i>				
Darwin Urban	6.1	6.8	8.2	7.8
Darwin Rural	8.2	6.5	9.4	5.3
Katherine	6.6	6.5	6.5	8.8
East Arnhem	5.6	6.6	8.7	5.3
Barkly	7.4	5.9	11.2	8.8
Alice Springs Urban	5.3	5.7	5.9	6.8
Alice Springs Rural	6.2	4.5	8.6	2.5
<i>Urban/rural-remote area</i>				
Urban	5.9	6.3	7.7	7.6
Rural-remote	6.9	6.5	8.9	6.9

(1) Percentage was calculated on the basis of each cell

- Indigenous liveborn babies born to rural or remote-based mothers were slightly more likely to be preterm compared with those born to urban-based Indigenous mothers.
- By contrast, remoteness did not appear to be a risk factor for prematurity among non-Indigenous liveborn babies.
- There was little difference between the proportions of preterm liveborn babies born to non-Indigenous mothers with respect to usual place of residence.
- There was no apparent trend in the proportion of Indigenous and non-Indigenous preterm liveborn babies born per health district.

Average birthweight

Figure 30 Average birthweight of liveborn babies, by Indigenous status, NT residents, 1986–2005

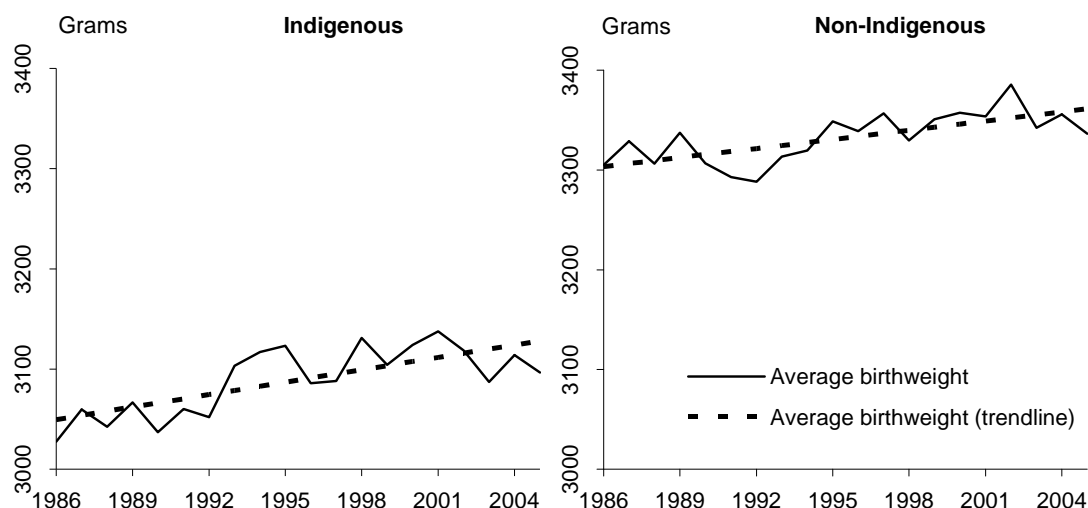


Table 39 Average birthweight of liveborn babies, by five-year periods and Indigenous status, NT residents, 1986–2005

	Average birthweight (grams)				Change in birthweight (grams)		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous	3047	3091	3107	3111	78.5	4.1	(2.7, 5.5)
Non-Indigenous	3316	3313	3347	3355	58.1	3.1	(2.1, 4.0)

- During the period 2001–2005 the average birthweight of liveborn babies born to Indigenous mothers was 244 grams (8%) lighter than liveborn babies born to non-Indigenous mothers.
- The average birthweight of liveborn babies increased significantly over time. For Indigenous babies the increase was estimated to be 78.5 grams and for non-Indigenous babies 58.1 grams.
- The gap between the average birthweight of Indigenous and non-Indigenous babies has improved over time. In the earliest period 1986–1990 the average birthweight of Indigenous babies was 269 grams (9%) lighter.

Low birthweight

Figure 31 Low birthweight liveborn babies, annual percentage distribution by Indigenous status and birthweight, NT residents, 1986–2005

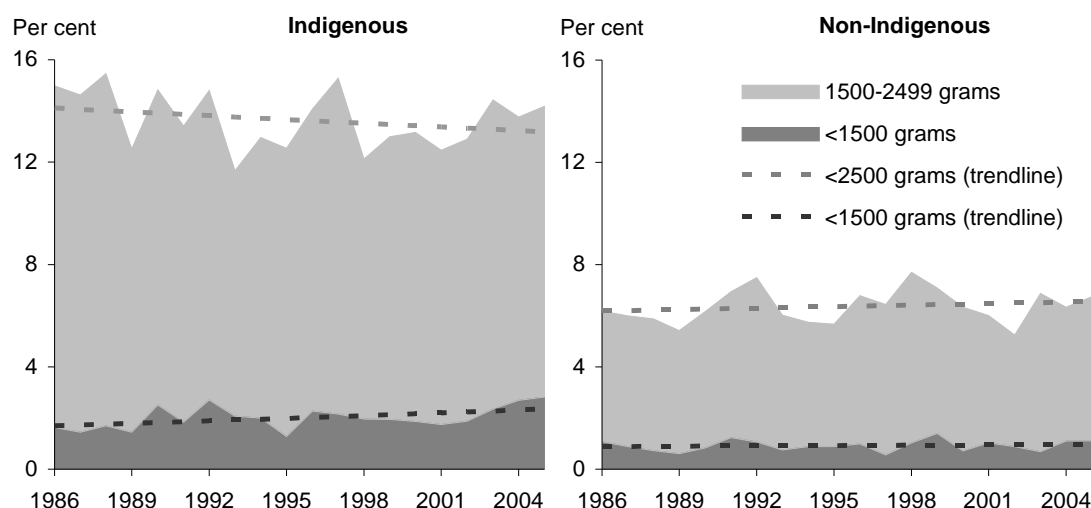


Table 40 Low birthweight liveborn babies, average annual number and percentage distribution by five-year periods, Indigenous status and birthweight, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾	
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual (95% CI)
Indigenous						
Less than 1500g	19 (1.8)	23 (2.0)	24 (2.0)	30 (2.3)	39.1	1.8 (0.2, 3.4)
Less than 2500g ⁽²⁾	157 (14.5)	152 (13.1)	159 (13.3)	180 (13.5)	-7.6	-0.4 (-1.1, 0.2)
Total stated	1084	1160	1178	1332		
Total	1085	1162	1194	1332		
Non-Indigenous						
Less than 1500g	16 (0.8)	22 (1.0)	21 (0.9)	21 (1.0)	9.8	0.5 (-1.2, 2.2)
Less than 2500g ⁽²⁾	116 (6.0)	147 (6.4)	154 (6.9)	137 (6.2)	6.4	0.3 (-0.4, 1.0)
Total stated	1947	2298	2236	2202		
Total	1947	2300	2245	2203		

(1) Percentage change in odds

(2) Includes less than 1500g

- Liveborn babies weighing less than 2500 grams at birth are considered to be low birthweight. Those weighing less than 1500 grams are considered to be very low birthweight.⁹
- The proportion of Indigenous liveborn babies born with a low birthweight was more than twice that of non-Indigenous liveborn babies (14% compared with 6% in 2001–2005).
- The proportion of Indigenous liveborn babies born with a low birthweight declined slightly over time, but not significantly. By contrast there was a small but significant increase in the proportion of Indigenous liveborn babies born with a birthweight of less than 1500 grams.
- The pattern for non-Indigenous liveborn babies born with a low birthweight changed little over time.

Low birthweight by locality

Table 41 Low birthweight liveborn babies, percentage distribution by five-year periods, Indigenous status and locality, NT residents, 1986–2005

	Percentage of total stated ⁽¹⁾			
	1986–1990	1991–1995	1996–2000	2001–2005
Indigenous				
<i>Health district</i>				
Darwin Urban	14.1	15.3	12.4	12.2
Darwin Rural	14.7	15.0	15.8	15.9
Katherine	14.0	11.6	14.2	13.3
East Arnhem	18.7	18.0	14.6	15.3
Barkly	16.6	11.5	12.4	13.3
Alice Springs Urban	12.1	6.8	9.6	10.3
Alice Springs Rural	11.7	11.3	13.1	12.1
<i>Urban/rural-remote area</i>				
Urban	13.8	11.7	11.9	11.5
Rural-remote	14.7	13.8	14.4	14.4
Non-Indigenous				
<i>Health district</i>				
Darwin Urban	6.0	6.8	7.2	6.6
Darwin Rural	6.0	7.5	8.4	5.3
Katherine	6.6	5.9	6.7	7.7
East Arnhem	6.5	5.9	6.7	3.9
Barkly	7.4	6.7	8.8	5.4
Alice Springs Urban	4.4	5.5	5.0	4.8
Alice Springs Rural	6.5	5.2	4.9	5.8
<i>Urban/rural-remote area</i>				
Urban	5.6	6.3	6.8	6.2
Rural-remote	6.6	6.5	7.8	6.6

(1) Percentage was calculated on the basis of each cell

- Indigenous liveborn babies born to mothers residing in rural-remote areas were slightly more likely to be born with a low birthweight than babies born to urban-based Indigenous mothers (14% compared with 12% in 2000–2005).
- There was a similar but smaller difference for non-Indigenous liveborn babies born to rural-remote based mothers.
- Irrespective of mother's usual place of residence, Indigenous liveborn babies were more likely to be born with a low birthweight non-Indigenous liveborn babies.
- Relative to Indigenous babies born to residents of other NT health districts across the four five-year periods, liveborn babies born to East Arnhem Indigenous mothers were the most likely to be born with a low birthweight, and liveborn babies born to Alice Springs Urban Indigenous mothers were the least likely.
- A similar pattern was evident among non-Indigenous liveborn babies. The risk of being born with a low birthweight was generally lowest among Alice Springs-based liveborn babies.

High birthweight

Figure 32 High birthweight liveborn babies, annual percentage distribution by Indigenous status, NT residents, 1986–2005

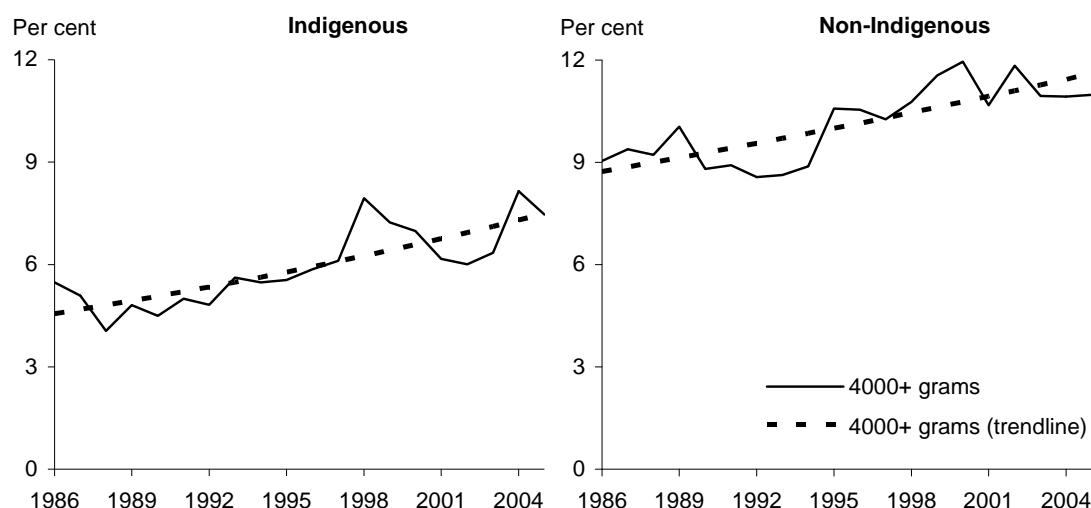


Table 42 High birthweight liveborn babies, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾	
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual (95% CI)
Indigenous						
4000+ grams	52 (4.8)	61 (5.3)	81 (6.9)	91 (6.8)	69.5	2.8 (1.9, 3.8)
Total stated	1084	1160	1178	1332		
Total	1085	1162	1194	1332		
non-Indigenous						
4000+ grams	180 (9.2)	210 (9.1)	246 (11.0)	244 (11.1)	37.3	1.7 (1.1, 2.2)
Total stated	1947	2298	2236	2202		
Total	1947	2300	2245	2203		

(1) Percentage change in odds

- Liveborn babies weighing 4000 grams or more are considered to be of high birthweight.
- Non-Indigenous liveborn babies were more likely to be born with a high birthweight than Indigenous liveborn babies (11% compared with 7% during the period 2001–2005).
- Over time there was a moderate but significant increase in the proportion of high birthweight liveborn babies born to both Indigenous and non-Indigenous mothers.

Apgar score less than 7 at five minutes

Figure 33 Liveborn babies born with an Apgar score of less than 7 at five minutes, annual percentage distribution by Indigenous status, NT residents, 1986–2005

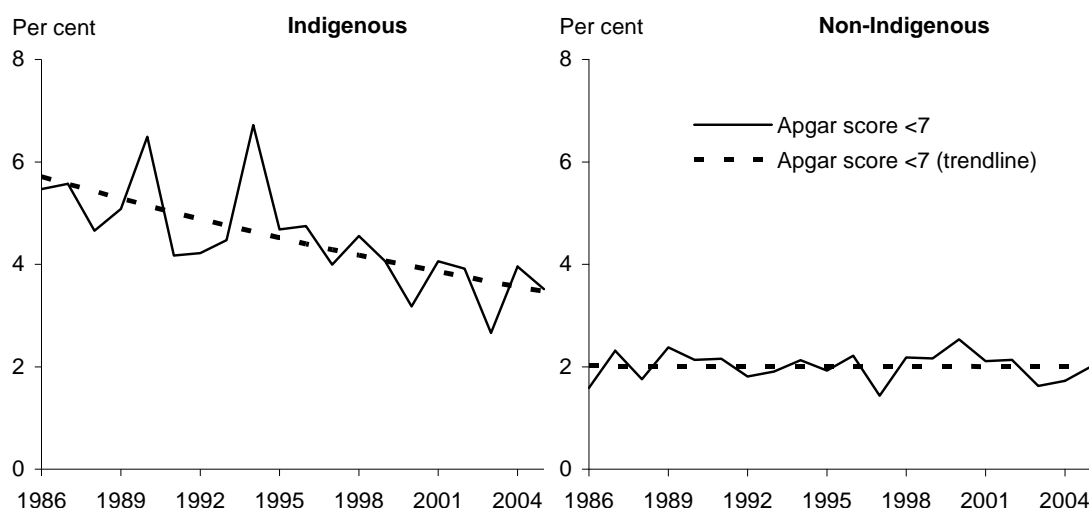


Table 43 Liveborn babies born with an Apgar score of less than 7 at five minutes, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous							
Low Apgar score	58 (5.5)	55 (4.8)	48 (4.1)	48 (3.6)	-40.6	-2.7	(-3.7, -1.7)
Total stated	1061	1142	1172	1328			
Total	1085	1162	1194	1332			
Non-Indigenous							
Low Apgar score	39 (2.0)	45 (2.0)	47 (2.1)	42 (1.9)	-0.8	0.0	(-1.2, 1.1)
Total stated	1944	2287	2235	2202			
Total	1947	2300	2245	2203			

(1) Percentage change in odds

- An Apgar score is a clinical indicator of the condition of the baby at birth. A score of between 7 and 10 indicates lower risk.⁹
- The proportion of NT babies with an Apgar score of less than 7 at five minutes is small, particularly non-Indigenous babies.
- During the most recent time period 2001–2005 around 4% of Indigenous liveborn babies and 2% of non-Indigenous had a low Apgar score.
- Over the 20 year-period 1986–2005 the proportion of Indigenous liveborn babies with an Apgar score of less than 7 fell from 6% to 4%.
- Through the same period the proportion of non-Indigenous liveborn babies with an Apgar score of less than 7 remained relatively constant, at around 2%.

Liveborn babies born to first-time mothers

Preterm

Figure 34 Preterm liveborn babies born to first-time mothers, annual percentage distribution by Indigenous status and gestational age, NT residents, 1986–2005

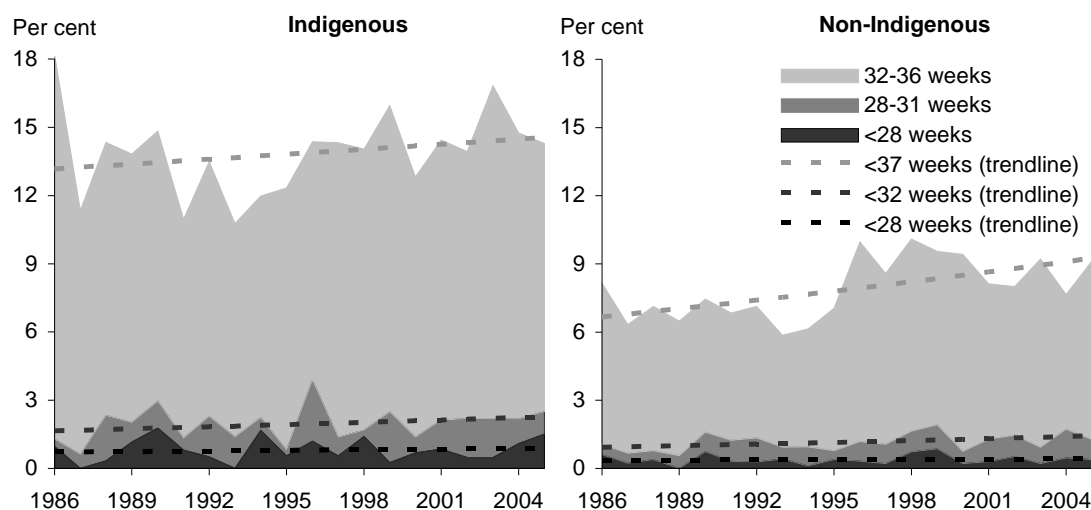


Table 44 Preterm liveborn babies born to first-time mothers, average annual number and percentage distribution by five-year periods, Indigenous status and gestational age, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous							
Less than 28 weeks	3 (0.9)	3 (0.8)	3 (0.8)	4 (1.0)	24.3	1.2	(-3.3, 5.8)
Less than 32 weeks ⁽²⁾	6 (1.9)	6 (1.6)	8 (2.0)	9 (2.2)	38.4	1.7	(-1.2, 4.7)
Less than 37 weeks ⁽³⁾	47 (14.5)	44 (11.6)	54 (13.7)	61 (14.8)	12.3	0.6	(-0.5, 1.8)
Total stated	324	371	378	411			
Total	328	378	394	411			
Non-Indigenous							
Less than 28 weeks	3 (0.4)	3 (0.3)	5 (0.5)	4 (0.4)	18.5	0.9	(-3.2, 5.2)
Less than 32 weeks ⁽²⁾	8 (1.0)	10 (1.0)	13 (1.3)	13 (1.4)	54.3	2.3	(-0.1, 4.8)
Less than 37 weeks ⁽³⁾	56 (7.1)	65 (6.5)	92 (9.5)	81 (8.4)	42.6	1.9	(0.9, 2.9)
Total stated	794	985	964	959			
Total	842	996	970	959			

(1) Percentage change in odds

(2) Includes less than 28 weeks

(3) Includes less than 28 weeks and less than 32 weeks

- Liveborn babies are preterm if they are born before 37 weeks gestation, very preterm before 32 weeks and extremely preterm before 28 weeks.⁹
- Indigenous liveborn babies born to first-time mothers were almost twice as likely as non-Indigenous to be preterm.
- The proportion of preterm liveborn babies increased over time in both populations. The change was statistically significant among non-Indigenous liveborn babies only.

Average birthweight

Figure 35 Average birthweight of liveborn babies born to first-time mothers, by Indigenous status, NT residents, 1986–2005

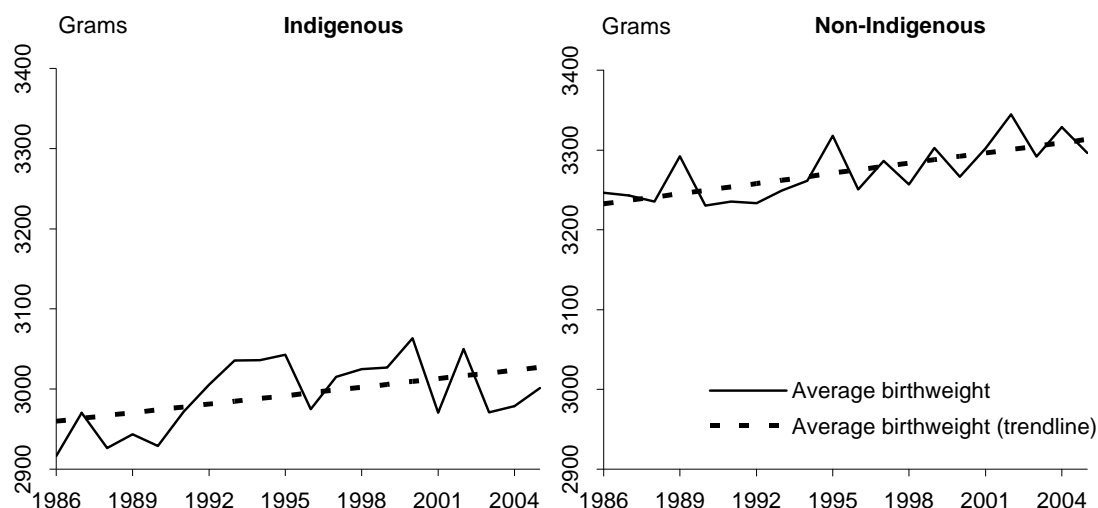


Table 45 Average birthweight of liveborn babies born to first-time mothers, by Indigenous status, NT residents, 1986–2005

	Average birthweight (grams)				Change in birthweight (grams)		
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual	(95% CI)
Indigenous	2937	3018	3024	2994	67.1	3.5	(1.2, 5.9)
Non-Indigenous	3248	3260	3273	3312	80.8	4.3	(2.8, 5.7)

- During the period 2001–2005 the average birthweight of liveborn babies born to Indigenous first-time mothers was 318 grams (11%) lighter than liveborn babies born to non-Indigenous first-time mothers.
- The average birthweight of liveborn babies born to first-time mothers increased significantly over time. For Indigenous babies the increase was estimated to be 67.1 grams and for non-Indigenous babies 80.8 grams.
- Despite the birthweight of Indigenous babies improving over time the gap (11%) between the average birthweight of Indigenous and non-Indigenous babies did not change. Indigenous babies were also 11% lighter on average during the earliest period 1986–1990.
- The average birthweight for all liveborn babies born to first-time mothers was lower than babies born to all mothers, for both Indigenous and non-Indigenous (Table 39).

Low birthweight

Figure 36 Low birthweight liveborn babies born to first-time mothers, annual percentage distribution by Indigenous status, NT residents, 1986–2005

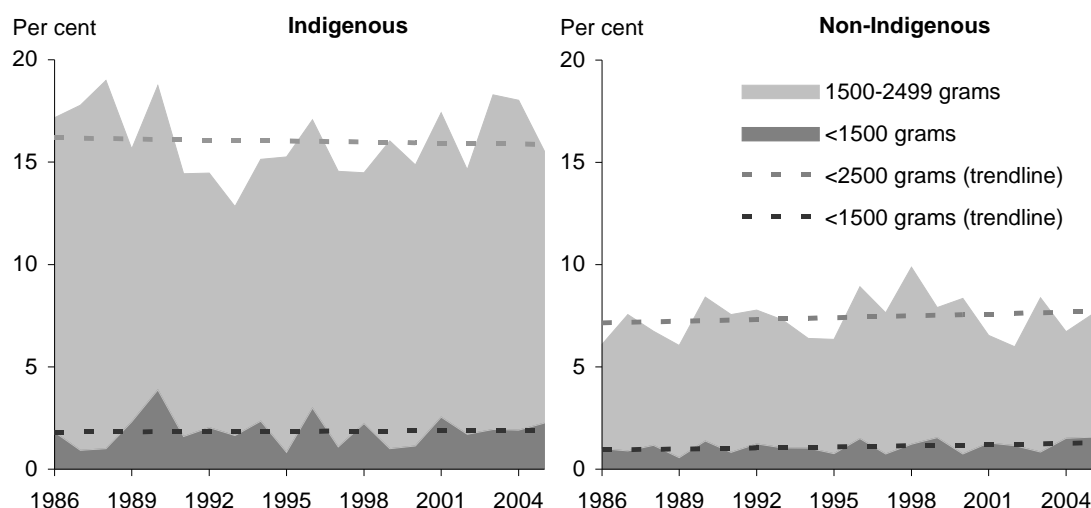


Table 46 Low birthweight liveborn babies born to first-time mothers, average annual number and percentage distribution by five-year periods, Indigenous status and birthweight, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾	
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual (95% CI)
Indigenous						
Less than 1500g	7 (2.1)	6 (1.6)	6 (1.6)	9 (2.2)	4.8	0.2 (-2.7, 3.2)
Less than 2500g ⁽²⁾	58 (17.7)	54 (14.3)	58 (14.7)	69 (16.8)	-2.3	-0.1 (-1.2, 1.0)
Total stated	328	377	379	411		
Total	328	378	394	411		
Non-Indigenous						
Less than 1500g	9 (1.1)	10 (1.0)	11 (1.1)	12 (1.3)	37.7	1.7 (-0.7, 4.2)
Less than 2500g ⁽²⁾	59 (7.0)	70 (7.0)	82 (8.5)	68 (7.1)	8.4	0.4 (-0.5, 1.4)
Total stated	842	995	963	959		
Total	842	996	970	959		

(1) Percentage change in odds

(2) Less than 2500g includes liveborn babies weighing less than 1500g or 1500–2499g at birth

- Liveborn babies weighing less than 2500 grams at birth are considered to be low birthweight. Those weighing less than 1500 grams are considered to be very low birthweight.⁹
- The proportion of Indigenous liveborn babies born with low birthweight to first-time mothers was more than twice the proportion of non-Indigenous liveborn babies born with a low birthweight to first-time mothers in 2001–2005.
- The proportion of Indigenous liveborn babies born with a very low birthweight to first-time mothers was also higher.
- The proportion of Indigenous or non-Indigenous liveborn babies born with a low birth weight to first-time mothers changed little over time.
- Liveborn babies born to first-time mothers were more likely to be born with a low birthweight than babies born to all mothers (Table 40).

Apgar score less than 7 at five minutes

Figure 37 Liveborn babies born with an Apgar score of less than 7 at five minutes to first-time mothers, annual percentage distribution by Indigenous status, NT residents, 1986–2005

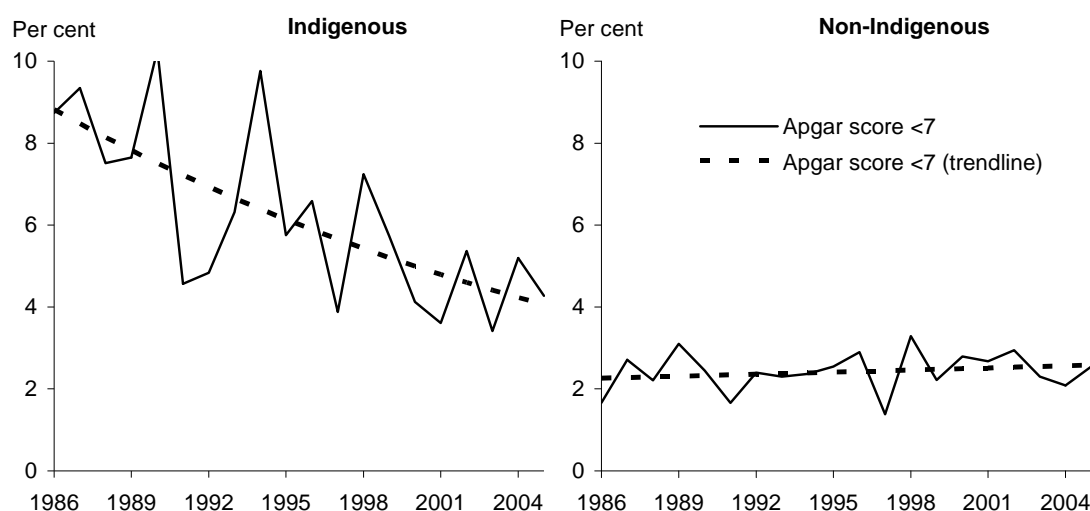


Table 47 Liveborn babies born with an Apgar score of less than 7 at five minutes to first-time mothers, average annual number and percentage distribution by five-year periods and Indigenous status, NT residents, 1986–2005

	Average annual number (per cent)				Percentage change ⁽¹⁾	
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual (95% CI)
Indigenous						
Less than 7	28 (8.7)	23 (6.1)	21 (5.6)	18 (4.4)	-56.3	-4.3 (-5.9, -2.6)
Total stated	323	375	378	411		
Total	328	378	394	411		
Non-Indigenous						
Less than 7	20 (2.4)	22 (2.2)	24 (2.5)	24 (2.5)	14.5	0.7 (-0.9, 2.4)
Total stated	840	991	962	959		
Total	842	996	970	959		

(1) Percentage change in odds

- An Apgar score is a clinical indicator of the condition of the baby at birth. A score of between 7 and 10 indicates lower risk.⁹
- Indigenous liveborn babies born to first-time mothers were more likely than non-Indigenous liveborn babies to have Apgar score less than 7 at five minutes.
- The proportion of Indigenous liveborn babies born with a low Apgar score to first-time mothers decreased significantly over time.
- By contrast the proportion of non-Indigenous liveborn babies born with a low Apgar score remained unchanged.
- The proportion of liveborn babies born with a low Apgar score to first-time mothers was higher than the proportion born to all mothers. This was observed among all liveborn babies, for both Indigenous and non-Indigenous (Table 43).

Perinatal deaths

Figure 38 Fetal, neonatal and perinatal death rates, by Indigenous status, NT residents, 1986–2005

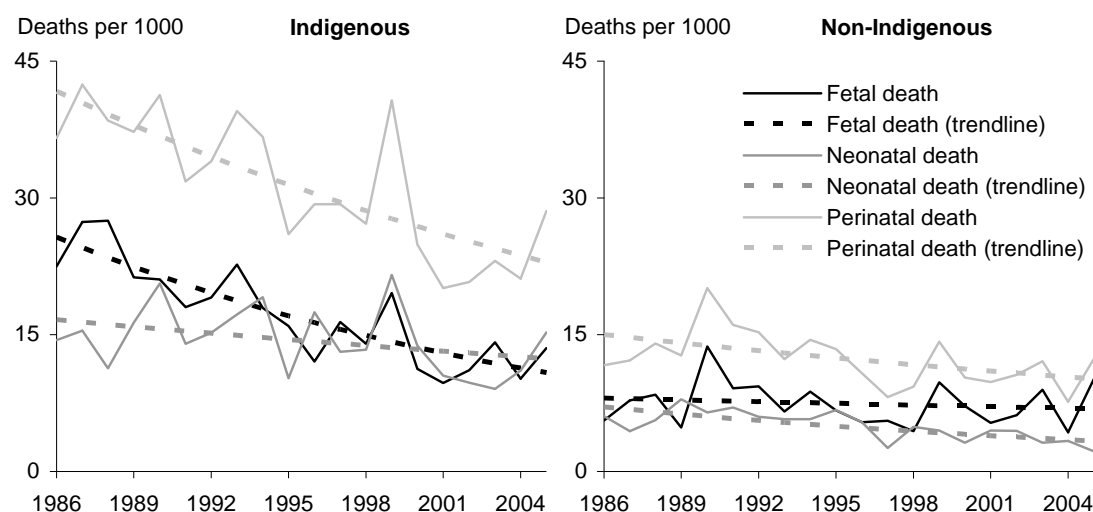


Table 48 Fetal, neonatal and perinatal death rates, by five-year periods and Indigenous status, NT residents, 1986–2005

	Average annual number (rate)				Percentage change ⁽¹⁾	
	1986–1990	1991–1995	1996–2000	2001–2005	Overall	Annual (95% CI)
Indigenous						
Fetal death ⁽²⁾	27 (23.9)	22 (18.7)	18 (14.7)	16 (11.7)	-57.8	-4.4 (-4.5, -4.4)
Neonatal death ⁽³⁾	17 (15.7)	18 (15.1)	19 (15.9)	15 (11.1)	-25.5	-1.5 (-1.6, -1.5)
Perinatal death ⁽⁴⁾	44 (39.2)	40 (33.6)	37 (30.4)	31 (22.7)	-44.9	-3.1 (-3.1, -3.1)
Non-Indigenous						
Fetal death ⁽²⁾	16 (8.3)	19 (8.1)	15 (6.5)	16 (7.0)	-14.7	-0.8 (-0.9, -0.8)
Neonatal death ⁽³⁾	12 (6.1)	14 (6.3)	9 (4.1)	8 (3.5)	-52.5	-3.8 (-3.9, -3.8)
Perinatal death ⁽⁴⁾	28 (14.3)	33 (14.3)	24 (10.5)	23 (10.5)	-32.3	-2.0 (-2.1, -2.0)

(1) Percentage change in rate

(2) Fetal death rates are expressed as number of deaths (stillbirths) per 1000 total births

(3) Neonatal deaths occur within the first 28 days. Neonatal death rates are expressed as number of deaths per 1000 liveborn babies

(4) Perinatal death rates are expressed as the sum of fetal and neonatal deaths per 1000 total births

- The perinatal death rate of Indigenous babies consistently exceeded the non-Indigenous rate.
- During the time period 2001–2005 the rate ratio for Indigenous to non-Indigenous neonatal deaths was 3.2 and the ratio for fetal deaths was 1.7.
- Over time there was a significant decline in the perinatal death rate of all NT babies, for both Indigenous and non-Indigenous.
- The steepest decline occurred in the Indigenous fetal death rate. This rate more than halved over time, falling from 24 to 12 fetal deaths per 1000 total births. The Indigenous neonatal death rate also fell, but to a lesser extent.
- The fall in the non-Indigenous fetal death rate was marginal, from 8 to 7 fetal deaths per 1000 total births, but the neonatal death rate almost halved over time.

Appendices

Table 49 Methods used to select and analyse public hospital morbidity data

Data item	Extracting data		Counting episodes	Denominator for rate or percentage
	ICD* codes	Clinical description		
Induced abortion	635	Termination of pregnancy through medical or surgical intervention	The last admission with a gap of more than 45 days from the previous admission	NT female populations aged 15-49 for each admission year
	O04.5 - 9			
Gestational diabetes	648.8	Diabetes mellitus arising during pregnancy	The last admission with a gap of more than 30 weeks from the previous admission	NT resident mothers giving birth at an NT public hospital for each admission year
	O24.4			
Hypertension complicating pregnancy	642	All hypertensive disorders	The last admission with a gap of more than 30 weeks from the previous admission	NT resident mothers giving birth at an NT public hospital for each admission year
	O10 - O11	complicating pregnancy, childbirth or the puerperium		
	O13 - O16			
Puerperal sepsis	670	Major puerperal infection	The earliest admission with a gap of more than 45 days from the next admission	NT resident mothers giving birth at an NT public hospital for each admission year
	O85	Puerperal sepsis: endometritis, fever, peritonitis or septicaemia		

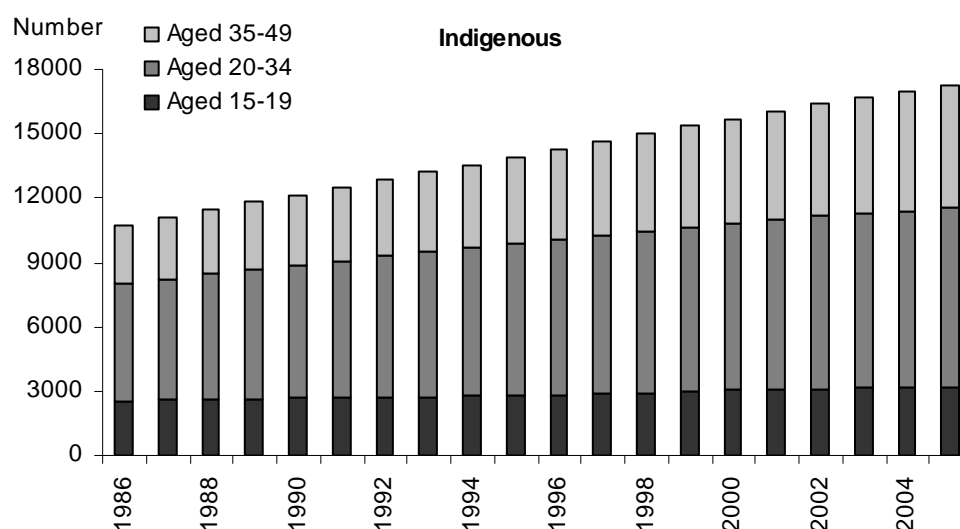
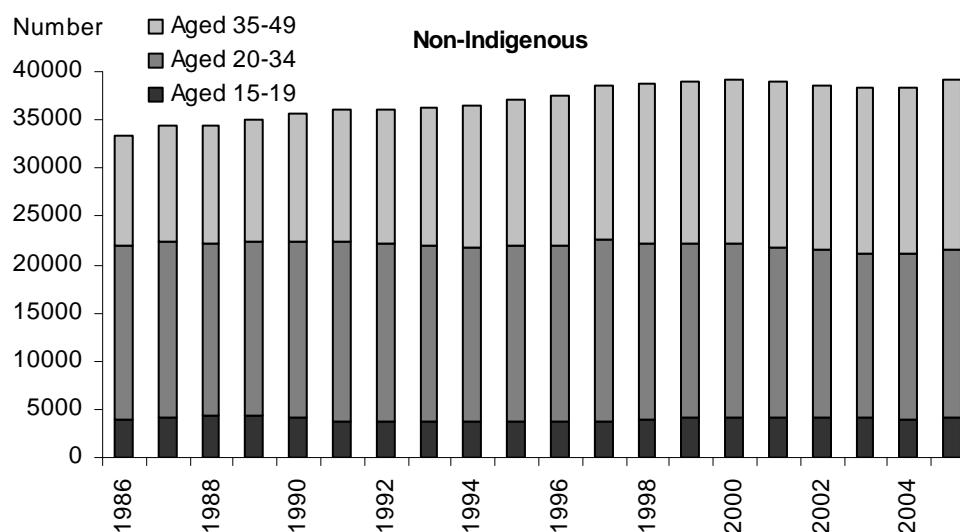
* The International Statistical Classification of Diseases, Ninth or Tenth Revision (ICD-9 or ICD-10)

Table 50 Annual total fertility rate, by Indigenous status, NT residents, 1986–2005

	Indigenous	Non-Indigenous
Total fertility rate (TFR)		
1986	2.57	1.86
1987	2.62	1.74
1988 ⁽¹⁾	2.49	-
1989 ⁽²⁾	2.54	-
1990	2.47	1.84
1991	2.46	1.91
1992	2.52	2.00
1993	2.44	1.94
1994	2.35	1.96
1995	2.34	2.03
1996	2.28	1.88
1997	2.21	1.92
1998	2.29	1.87
1999	2.36	1.87
2000	2.27	1.85
2001	2.60	1.89
2002	2.41	1.95
2003	2.36	1.95
2004	2.22	1.82
2005	2.27	1.92
Change in TFR		
Overall	-0.269	0.044
Annual	-0.014	0.002
(95%CI)	(-0.022, -0.007)	(-0.004, 0.008)

(1) Non-Indigenous total fertility rate not available due to incomplete submission of birth records during 1988

(2) Non-Indigenous total fertility rate not available due to incomplete submission of birth records during 1989

Table 51 Estimated Resident Population, by age group, NT Indigenous female residents, 1986–2005**Table 52 Estimated Resident Population, by age group, NT non-Indigenous female residents, 1986–2005**

Source: Northern Territory Resident Population Estimates by sex, age and Indigenous status (1971–2006) (unpublished data) prepared by the Health Gains Planning, Branch, Department of Health and Families, February 2007 using published Australian Bureau of Statistics Estimated Resident Population data and Indigenous Population Estimates.

Glossary

Note: for a more comprehensive glossary, see *Australia's Mothers and Babies 2005*.³

Apgar score: numerical score used to indicate the baby's condition at one minute and five minutes after birth. Between 0 and 2 points are given for each of five characteristics; heart rate, breathing, colour, muscle tone and reflex irritability, and the total score is between 0 and 10.

Birth status: status of the baby immediately after birth.

Birthweight: the first weight of a baby (stillborn or liveborn) obtained after birth. Weight is measured to the nearest 5 grams and usually obtained within one hour of birth. Low birth weights can be classified at the following levels:

- **Low birthweight:** less than 2500 grams
- **Very low birthweight:** less than 1500 grams
- **Extremely low birthweight:** less than 1000 grams.

Born before arrival: a term used for deliveries which occur before reaching the hospital.

Caesarean section: operative birth by surgical incision through the abdominal wall and uterus. It is often divided into two sub-categories:

- **Elective caesarean section:** A caesarean section (planned or unplanned) performed before the onset of labour, usually due to health risks to the mother or baby.
- **Emergency caesarean section:** A caesarean section performed after the onset of labour, whether or not the onset of labour was spontaneous.

Deaths

- **Fetal death (stillbirth):** 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 400 grams or more birthweight. The death is indicated by the fact that after such separation the foetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.
- **Fetal death rate:** the number of fetal deaths (stillbirths) in a year per 1000 total births in that same year.
- **Neonatal death:** death of a liveborn baby within 28 days of birth.
- **Neonatal death rate:** the neonatal deaths in a year per 1000 live births in that same year.
- **Perinatal death:** a fetal or neonatal death.
- **Perinatal death rate:** the sum of fetal deaths (stillbirths) and neonatal deaths in a year per 1000 total births in that same year.

Episiotomy: an incision of the perineum and vagina to enlarge the vulval orifice.

Forceps: assisted birth using a metallic obstetric instrument.

Fertility

- **Age-specific fertility rate:** a hypothetical measure of the estimated number of live births per individual within a specific age interval during a specified time period.
- **Total fertility rate:** a hypothetical measure of the estimated number of live births a

woman would have if, throughout her reproductive years, she had children at the age-specific rates that were observed in any one year.

First-time mother: also called primiparous mother, refers to a woman who is giving birth for the first-time.

Gestational age: the duration of a pregnancy in completed weeks, as estimated from the date of the first day of a woman's last menstrual period to her baby's date of birth, or by ultrasound. Babies are categorised as term, preterm or post-term according to gestational age as follows:

- **Preterm baby:** born before 37 completed weeks of gestation
- **Term baby:** born from 37 completed weeks up to 41 completed weeks of gestation
- **Post-term baby:** born after 41 completed weeks of gestation.

Induction of labour: intervention to stimulate the onset of labour.

Instrumental birth: includes vaginal birth by forceps or vacuum extraction.

Labour: the process by which the products of conception are expelled from the uterus via the birth canal.

Livebirth: the complete expulsion or extraction from its mother of a product of conception, irrespective of duration of pregnancy, which, after separation, breathes or shows any other evidence of life.

Maternal age: mother's age in completed years at the time of birth of her baby.

Mother's length of hospital stay: number of days between admission date (during the admission resulting in a birth) and separation date (from the hospital where birth occurred). The interval is calculated by subtracting the date of admission from the date of separation.

Parity: number of previous pregnancies resulting in a liveborn baby or a fetal death, excluding the current pregnancy.

Perineal status: status of the perineum after the birth. May involve surgical suturing of perineal laceration (tear) or episiotomy incision.

Plurality: the number of babies resulting from a pregnancy. According to plurality a pregnancy can be defined as either

- **Singleton birth:** one baby
- **Multiple birth:** more than one baby

Spontaneous vaginal: birth without intervention in which the baby's head is the presenting part.

Teenage mother: mother aged less than 20 years at the time of birth of her baby.

Ventouse (Vacuum extraction): assisted birth using a suction cap applied to the baby's head.

Vaginal breech: vaginal birth in which the baby's buttocks or lower limbs are the presenting parts.

Vaginal birth: any birth in which the baby is born through the vagina. This includes including spontaneous vaginal delivery, vaginal breech delivery, forceps and vacuum extraction.

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Selected Health Gains Planning publications

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