

Trends in the health of mothers and babies

Northern Territory
1986 – 2010

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Table of contents

Table of contents	iii
Key findings	v
Introduction	1
Purpose and structure of this report	1
Statistical methodology	2
Data sources	2
Data limitations	4
Mothers	7
All mothers	7
Total fertility rate	7
Age-specific fertility rate	8
Parity	9
Average parity	10
Parity by locality	11
Average age	12
Age group	13
Age group by locality	14
Country of birth	15
Inadequate antenatal visits	16
Inadequate antenatal visits by locality	17
Duration of pregnancy at first antenatal visit	18
Duration of pregnancy at first antenatal visit by locality	19
Smoking status during pregnancy	20
Smoking status during pregnancy by age group	21
Smoking status during pregnancy by locality	22
Onset of labour	23
Onset of labour by hospital	24
Birth method	25
Caesarean section deliveries by age group	26
Type of caesarean section deliveries	27
Type of caesarean section deliveries by hospital	28
Outcomes following a previous caesarean section	29
Labour or childbirth complication(s)	30
Perineal status following vaginal birth	31
Out of hospital births	32
Length of postnatal stay	33
Length of postnatal stay by birth method	34
Postnatal length of stay by hospital	35
First-time mothers	36
Average age	36

Age group	37
Inadequate antenatal visits	38
First antenatal visit	39
Onset of labour	40
Labour interventions	41
Birth method	42
Type of caesarean section deliveries	43
Pregnancy-related public hospital admissions	44
Induced abortion	44
Diabetes in pregnancy	45
Hypertension complicating pregnancy	47
Puerperal sepsis	48
Babies	49
Total babies	49
Liveborn babies	50
Preterm	50
Preterm by locality	51
Average birthweight	52
Low birthweight	53
Low birthweight by locality	54
High birthweight	55
Small for gestational age	56
Apgar score less than 7 at five minutes	57
Liveborn babies born to first-time mothers	58
Preterm	58
Average birthweight	59
Low birthweight	60
High birthweight	61
Perinatal deaths	62
Appendices	63
Glossary	66
References	68
List of tables	69
List of figures	72
Selected Health Gains Planning publications	74

Key findings

In the Northern Territory (NT) details of the perinatal outcomes of all women who 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, gestational age at first antenatal visit and fertility rates, 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 25-year period from 1986 to 2010.

Total babies born in the NT

- Between 1986 to 2010 there were 86,775 babies, including stillbirths, born in the NT to 85,775 NT resident mothers, 36% of whom were Indigenous.
- The average annual count of Indigenous babies rose from 1112 to 1406 (26% increase), and for non-Indigenous babies from 2128 to 2335 (10% increase).

Mothers

Fertility

- The total fertility rate (TFR) of Indigenous women declined from 2.54 to 2.29. The TFR of non-Indigenous women remained relatively stable at around 1.9.
- The age-specific fertility rates of all women declined in all age groups except among women aged 35 years and over. The fertility rate of this group rose over time, from 14.8 to 17.5 babies per 1000 female population for Indigenous mothers, and 14.4 to 26.9 babies per 1000 female population for non-Indigenous mothers.

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 27.9 years of age, and Indigenous first-time mothers from 18.5 to 19.8 years of age.
- The proportion of non-Indigenous mothers aged 35 and over rose, including first-time mothers.

Country of birth

- On average 23% of non-Indigenous mothers were born overseas. This due to a combination of a rise in the proportion of mothers born in Asia or Africa and a decrease in the proportion of non-Indigenous mothers born in a European country.

Antenatal care

- The proportion of Indigenous mothers not attending adequate antenatal visits was much higher than that of non-Indigenous mothers. The proportion decreased considerably over time among Indigenous mothers but to a lesser extent among non-Indigenous mothers.
- The proportion of Indigenous mothers attending their first antenatal visit during the first trimester rose significantly from 18% to 47%, and from 54% to 78% for non-Indigenous mothers.
- By 2008–2010 53% of Indigenous mothers and 15% of non-Indigenous mothers reported smoking during pregnancy. Smoking prevalence in non-Indigenous mothers decreased markedly over time, while the proportion in Indigenous mothers rose initially but stabilised in the late 2000s.

Birth methods

- The proportion of mothers, both Indigenous and non-Indigenous, having a spontaneous labour without augmentation declined.
- The proportion of mothers having a normal vaginal birth also declined, particularly among non-Indigenous mothers.
- For mothers of all parity, the proportion of caesarean section deliveries rose over time, from around 15% to exceed 25%. During the eleven 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.
- For first-time mothers, the increase in caesarean deliveries among non-Indigenous mothers was mainly due to a rise in emergency caesareans. The likelihood of having a vaginal birth without intervention also decreased among first-time mothers.

Labour or childbirth complication(s)

- The proportion of mothers who experienced fetal distress as a childbirth complication was comparable between Indigenous and non-Indigenous mothers. The level was very stable over time.

Out of hospital births

- The proportion of Indigenous mothers giving birth out of hospital (i.e. unplanned births in community health centres or other settings) declined considerably, from 9% to less than 5%.
- Planned home births increased slightly among non-Indigenous mothers, from 0.5% to 1.4%.

Postnatal length of stay

- Postnatal hospital stay reduced for all mothers, regardless of Indigenous status, delivery method or hospital sector.

Pregnancy-related hospital admissions

- Indigenous mothers were consistently more likely than non-Indigenous mothers to experience pregnancy-related complications such as gestational diabetes, pre-existing diabetes, hypertension and puerperal sepsis.
- There was an increase in the proportion of Indigenous mothers with gestational diabetes (from 6% to 7%) and pre-existing diabetes (from 2% to 4%). The prevalence of gestational diabetes in non-Indigenous mothers also rose from 3% to 4% .

Liveborn babies

Preterm

- The proportion of preterm (less than 37 weeks) babies rose slightly, among both Indigenous and non-Indigenous mothers. The proportion of preterm Indigenous babies was consistently twice that of non-Indigenous babies.
- Babies born to Indigenous mothers living in rural-remote areas were more likely to be preterm than those living in urban areas.

Birthweight

- The gap between the average birthweight of Indigenous and non-Indigenous babies remained constant through the entire 25 years. By the 2006 to 2010 period the gap was around 270 grams for all babies and over 290 grams for first-born babies.
- The proportion of babies with low birthweight (less than 2500 grams) remained stable during the 25-year period, around 13% for Indigenous and 6% for non-Indigenous.
- The proportion of urban-based Indigenous low birthweight babies decreased from 14% to 10%, while the proportion of rural-remote based Indigenous low birthweight babies remained stable at 15%.
- The proportion of babies born weighing 4000 grams or more rose among both Indigenous and non-Indigenous mothers.
- When gestational age was taken into account, the proportion of babies small for gestational age decreased markedly over the 25-year period, for both Indigenous and non-Indigenous singleton babies.

Low Apgar score

- An Indigenous baby was more likely to be born with a low Apgar score (less than 7 at five minutes) compared with a non-Indigenous baby.
- The proportion of babies born with a low Apgar score declined in both Indigenous and non-Indigenous liveborn babies of 28-36 weeks gestation.
- The proportion of term Indigenous babies (37 or more weeks of gestation) born with a low Apgar declined from 4% to 2%, while the proportion in non-Indigenous babies was constant at around 1.5%.

Perinatal deaths

- Indigenous perinatal death rates declined over time, from 39 to 24 deaths per 1000 total births. This was due to substantial falls in both the fetal and neonatal periods.
- The non-Indigenous perinatal death rate fell from 14 to 8 deaths per 1000 total births. This was largely due to a reduction in neonatal deaths.

Introduction

The Northern Territory (NT) Department of Health (DoH) has reported perinatal outcomes on an annual basis 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 the inclusion of data for the year 2010, the dataset now covers a 25-year period from 1986 to 2010. 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 the Menzies School of Health Research Human Research Ethics Committee in October 2013 (HREC ref: 2013-2087).

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.

The focus of this report is NT residents who gave birth in the NT. Mothers who reside interstate or overseas but birthed in the NT are excluded. NT mothers who birthed interstate are not captured in the NT Midwives' Collection.

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 public hospital admissions. 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 public hospital admissions including induced abortions, gestational and pre-existing diabetes, and hypertension complicating pregnancy are also reported separately. This is done primarily to highlight that the data 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 number of babies, both liveborn and fetal deaths, born to NT mothers. 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 and, in most cases, 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.

This is followed by a discussion of the trends over time with statistically significant changes ($p < 0.05$) noted where relevant. The text is presented in dot point format.

For most perinatal outcomes the statistics are disaggregated by Indigenous status and, where relevant and numbers permit, by mother's age group or geographic location. For some outcomes the data were further disaggregated by clinical factors.

Regional comparisons are provided by health district and by urban/rural-remote area. Urban/rural-remote areas are 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 in the NT: 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 hospitals and those who do not.

Statistical methodology

Time-trend analyses were performed using generalised linear models from STATA version 13.1,¹ 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 the 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 Infant Mortality Registry and the NT public hospital morbidity dataset to supplement statistics not being consistently collected in the NT Midwives' Collection.

Northern Territory Midwives' Collection

The NT Midwives' Collection is an electronic dataset collated from information collected 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 throughout the NT including births in public or private birth facilities, planned homebirths and

unplanned births in the community. The dataset include stillbirths (birthweight is at least 400 grams or the gestational age is 20 weeks or more) and liveborn babies. 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 to 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 or invalid records and to amend 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, postpartum haemorrhage and manual removal of placenta. In recent years, validation was also introduced to important pregnancy complications such as gestational diabetes. Other pregnancy-related complications, 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 National Perinatal Epidemiology and Statistics Unit (NPESU). The NPESU perform a series of further validation checks prior to incorporating the extract into the annual 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 DoH Health Gains Planning Branch whilst conducting specific analyses for the annual report; *Northern Territory Midwives' Collection: Mothers and Babies*.

Infant Mortality Register

Neonatal deaths data were obtained from the Infant Mortality Register. Key sources of deaths data for the Register include the Department of Births, Deaths and Marriage (BDM) and the Australian Bureau of Statistics (ABS). The information on deaths that occurred within the NT but outside of a hospital facility is 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 noted in patient medical records which include the main reason for each admission (the principal diagnosis) and other co-morbidities associated with the admission are 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 (ICD-9) was used to code patient diagnoses. After 1998/99 the tenth revision (ICD-10) was adopted. The public hospital morbidity dataset is constructed from the ICD-coded diagnoses.

The ICD-coded principal diagnosis and up to nine 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 invalid or multiple counting. Details of the rules used to count episodes are outlined in the Appendices section (Table 57).

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 (Figure 46 and Figure 47).

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 25-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 postpartum 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.

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. In the mid-1990s when the items were being collected, 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 late 2000s both data items (smoking and alcohol status) were 75-80% 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 in 1996–1998 from 32% to 43%. 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. The primary reason for this was the delayed commencement in providing data to the collection for two years after the opening of Darwin Private Hospital (DPH) in 1988. This caused the number of births, predominately to non-Indigenous mothers, being undercounted markedly during these years (Figure 1). Therefore, the data for 1988 and 1989 are not included in the fertility analyses for non-Indigenous women 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, multiple births are few in number, and overall the impact of this data limitation was minimal.

Pregnancy-related hospital admissions

Another limitation was the absence of private hospital data in the pregnancy-related hospital admissions tables. Hospital admissions with one of the diagnoses coded as gestational or pre-existing diabetes, hypertension, and major infections of the puerperium) or induced abortions were extracted from the public hospital morbidity dataset. 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 in earlier years. Furthermore induced abortions and major infections of the puerperium are not captured in the NT Midwives' Collection, nor are all instances of pre-existing diabetes or 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 by two, three or five-year time periods before disaggregating the data 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 that have occurred in the NT Midwives' Collection 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.

Minor differences between certain indicators reported previously and those reported in this report may have occurred. This report is comparable with the last trends report, 1986–2005 but to a lesser extent with the earlier trends report, 1986–1995. This was due to final internal corrections implemented for the 1986–1995 report being unavailable for the two later reports.

Australian Bureau of Statistics births data

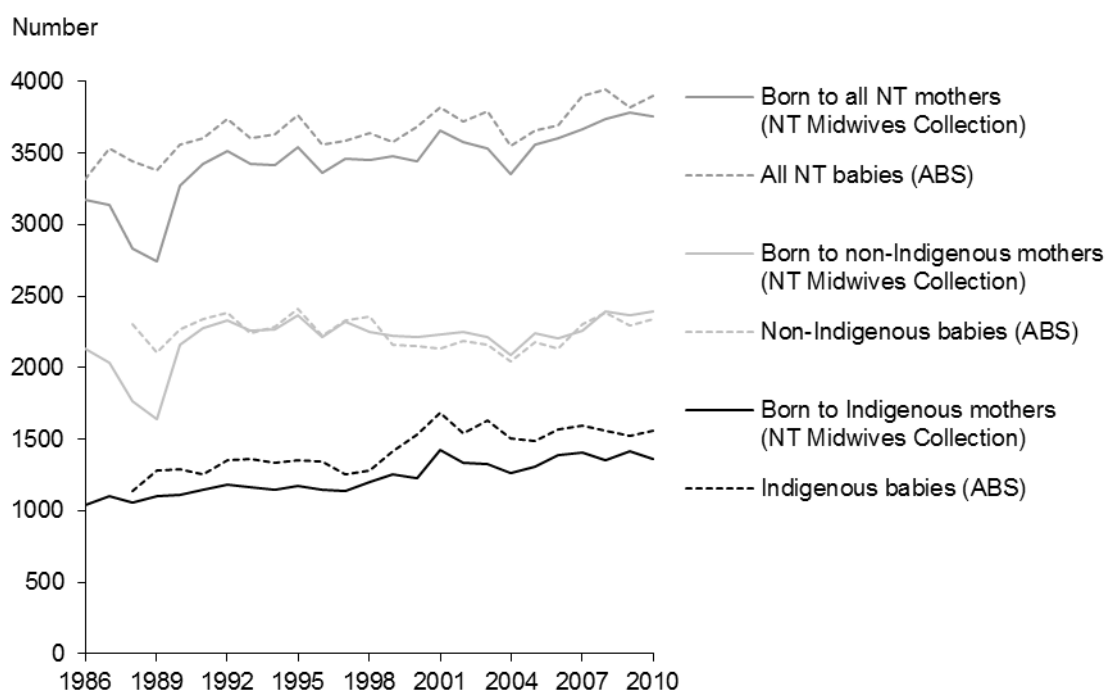
The NT Midwives' Collection count of liveborn babies born in NT in a specified calendar year to NT resident mothers was compared with the ABS count of liveborn babies born in Australia registered in a specified calendar year to NT resident mothers, and in every year the ABS count was higher than that 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 in the NT Midwives' Collection. According to the annual publication, *Australia's mothers and babies*², the number of NT mothers who birth interstate each year ranged between 53 to 85 during the period from 2005 to 2012, except in 2004 when 138 NT mothers birthed at an interstate facility.

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 reported as non-Indigenous in the NT Midwives' Collection. Over time these babies have doubled in magnitude. In 1995 there were 68 according to *Births Australia, 1996* but by 2009 there were 133.^{3,4} This may account for upsurge in the NT Midwives' Collection count of non-Indigenous births since the late 1990s (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, 1986–2010



Note: ABS refers to Australian Bureau of Statistics.

Data source of ABS: *Births, Australia* (cat. no. 3301.0) (annual reports of 1993–2013)

The following sections provide information only on NT resident mothers who birthed in the NT. Details regarding babies born interstate are not included.

Mothers

All mothers

Total fertility rate

Figure 2: Total fertility rate by Indigenous status, 1986–2010

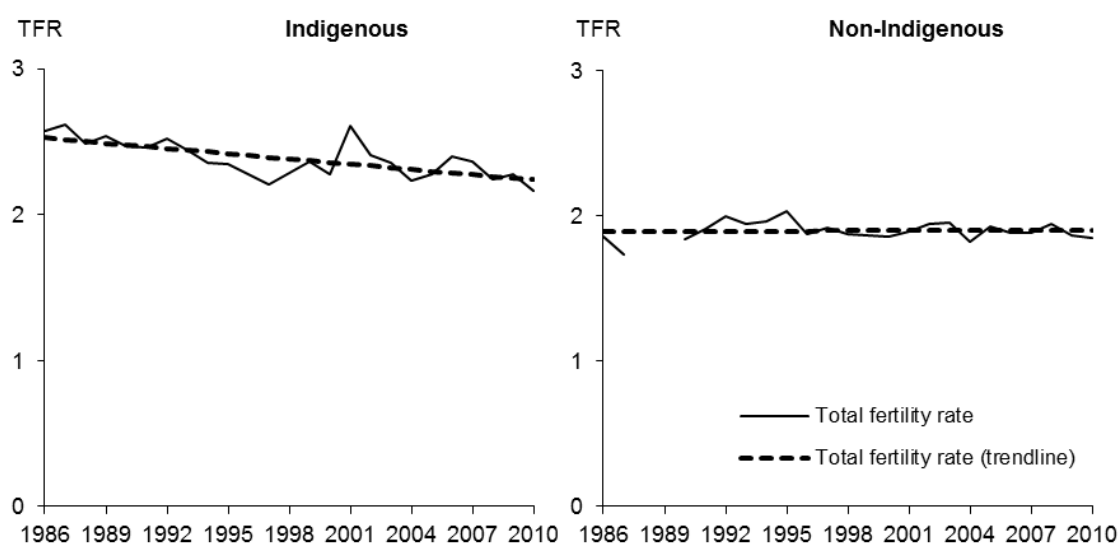


Table 1: Total fertility rate by Indigenous status, 1986–2010

	Average TFR					Change in TFR	
	1986-1990 ^(a)	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous	2.54	2.42	2.28	2.38	2.29	-0.29	-0.01 [-0.02, -0.01]
Non-Indigenous	1.81	1.97	1.88	1.91	1.89	0.01	0.00 [0.00, 0.00]

(a) The total fertility rate of non-Indigenous women during the period 1986–1990 is based on 1986–1987 and 1990 data only

- 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 declined over time, from 2.5 in the late 1980s to 2.3 between 2006 and 2010.
- The TFR of non-Indigenous mothers remained relatively stable since 1990s at between 1.9 and 2.0, which is below replacement level.

Age-specific fertility rate

Figure 3: Age-specific fertility rate by Indigenous status, 1986–2010

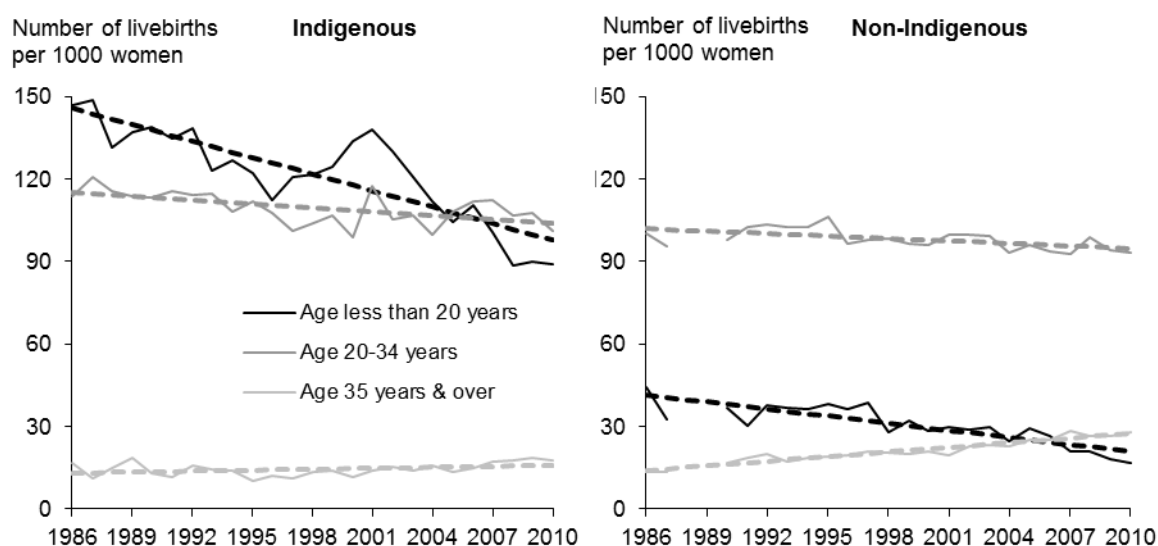


Table 2: Age-specific fertility rate by Indigenous status, 1986–2010

	Average fertility rate ^(a)					Change in fertility rate	
	1986-1990 ^(b)	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Age less than 20	140.5	129.0	122.4	120.9	95.7	-48.0	-2.0 [-2.5, -1.5]
Age 20-34 years	115.3	112.9	103.6	107.4	107.8	-11.0	-0.5 [-0.7, -0.2]
Age 35 years & over	14.8	13.2	12.5	14.5	17.2	2.9	0.1 [0.0, 0.2]
Non-Indigenous							
Age less than 20	37.7	35.8	32.6	28.5	20.6	-20.6	-0.9 [-1.1, -0.6]
Age 20-34 years	97.7	103.4	97.1	97.5	94.5	-7.2	-0.3 [-0.5, -0.1]
Age 35 years & over	14.4	18.7	20.5	22.8	26.9	13.4	0.6 [0.5, 0.6]

(a) Age-specific fertility rates are expressed as the number of liveborn babies per 1000 female population

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

- Indigenous women generally had higher fertility rates than non-Indigenous NT women except in the 35 and over age group.
- 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 over time, as did the fertility rate of Indigenous and non-Indigenous women aged from 20 to 34 years.
- The fertility rate of Indigenous women aged 35 years and over remained relatively stable, although there was a slight increase in more recent periods.
- By contrast, the fertility rate of non-Indigenous women aged 35 years and over rose considerably, from less than 15 liveborn babies per 1000 women in the later 1980s to 27 liveborn babies per 1000 women by 2006–2010.

Parity

Figure 4: All mothers, percentage distribution of parity by Indigenous status, 1986–2010

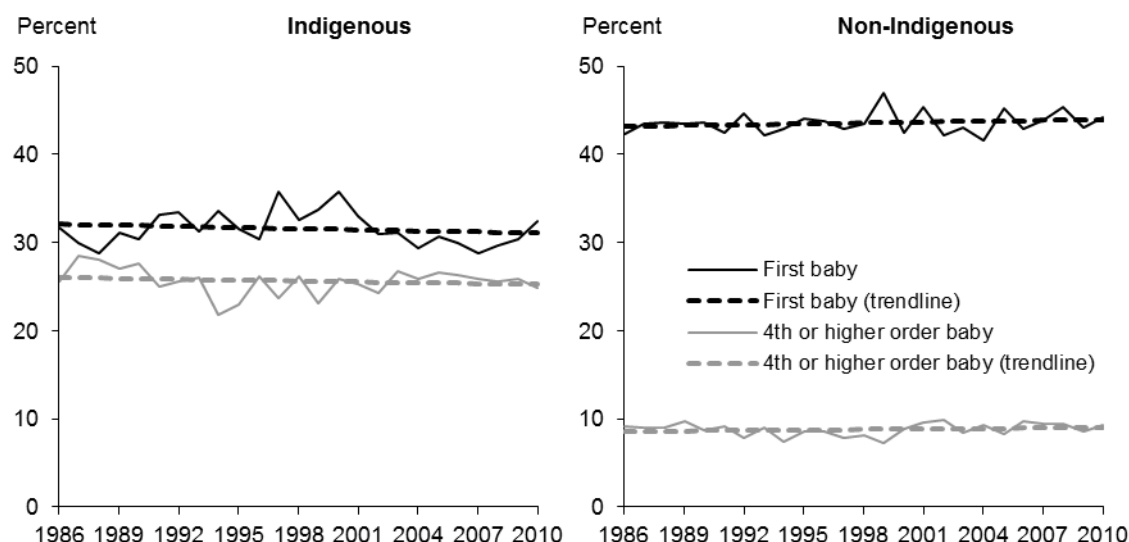


Table 3: All mothers, number and percentage distribution of parity by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
First baby	335 (30.4)	383 (32.6)	399 (33.6)	416 (31.1)	420 (30.2)	-4.7	-0.2 [-0.5, 0.1]
4 th or higher order baby	301 (27.3)	285 (24.3)	296 (24.9)	344 (25.7)	357 (25.7)	-4.0	-0.2 [-0.5, 0.2]
Total stated	1,102	1,174	1,187	1,337	1,390		
Total	1,102	1,175	1,200	1,337	1,390		
Non-Indigenous							
First baby	841 (43.3)	989 (43.3)	963 (43.9)	951 (43.5)	1,011 (43.9)	3.4	0.1 [-0.1, 0.4]
4 th or higher order baby	177 (9.1)	191 (8.4)	178 (8.1)	199 (9.1)	214 (9.3)	5.8	0.2 [-0.2, 0.6]
Total stated	1,943	2,286	2,194	2,186	2,304		
Total	1,943	2,286	2,230	2,187	2,304		

(a) Percentage change in odds

- Birth of the 4th or over baby to a mother is regarded as a high order birth.
- Indigenous births were more likely to be a first-time birth (30%) than a high order birth (26%).
- By contrast non-Indigenous births were almost five times more likely to be a first-time birth than a high order birth (44% compared to 9%).
- The proportion of Indigenous births that were high order births was consistently around three times that of non-Indigenous births.
- There was little change in the proportion of first-time births or high order births in either Indigenous or non-Indigenous mothers over the 25-year period from 1986 to 2010.

Average parity

Table 4: All mothers, average parity by Indigenous status, 1986–2010

	Average parity					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous	2.7	2.6	2.6	2.6	2.6	-3.91	-0.17 [-0.29, -0.05]
Non-Indigenous	2.0	1.9	1.9	2.0	1.9	-0.98	-0.04 [-0.16, 0.08]

(a) Percentage change in average parity

- The average parity of Indigenous women consistently exceeded that of non-Indigenous women, and for the 2006 to 2010 period was 2.6 compared with 1.9.
- There was little change in the average parity of either population group over the 25-year period.

Parity by locality

Table 5: First-time mothers, percentage distribution by Indigenous status and locality, 1986–2010

	Percent of total stated ^(a)				
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010
Indigenous					
Health district					
Darwin Urban	30.8	30.9	33.6	29.3	28.4
Darwin Rural	29.8	29.6	32.3	31.0	30.2
Katherine	28.6	31.9	30.6	28.2	29.3
East Arnhem	31.0	38.0	32.2	31.3	29.4
Barkly	34.2	30.0	30.2	31.1	30.5
Alice Springs Urban	28.8	32.0	32.5	31.1	32.1
Alice Springs Rural	31.1	34.6	41.8	36.0	33.1
Urban/rural-remote area					
Urban	29.3	32.3	31.3	30.1	29.6
Rural/remote	30.8	32.7	34.8	31.5	30.4
Non-Indigenous					
Health district					
Darwin Urban	42.1	43.5	44.8	44.4	44.1
Darwin Rural	47.8	45.8	40.8	40.3	46.8
Katherine	47.6	44.5	40.4	40.2	40.7
East Arnhem	36.7	40.6	37.4	40.5	38.5
Barkly	42.1	41.2	48.5	40.1	47.1
Alice Springs Urban	44.0	42.0	43.2	43.1	44.9
Alice Springs Rural	40.6	44.6	51.3	38.8	46.4
Health district					
Urban	42.7	42.7	44.1	43.8	44.2
Rural/remote	44.3	45.9	42.0	39.9	41.9

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

- The proportion of first-time mothers living in an urban locality 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.
- There were noticeable fluctuations in the proportion of first-time mothers in some regions over time. Non-Indigenous first-time mothers living in the Alice Springs Rural health district varied between 39% and 51%. This variability is likely due to small numbers.

Average age

Figure 5: All mothers, average age by Indigenous status, 1986–2010

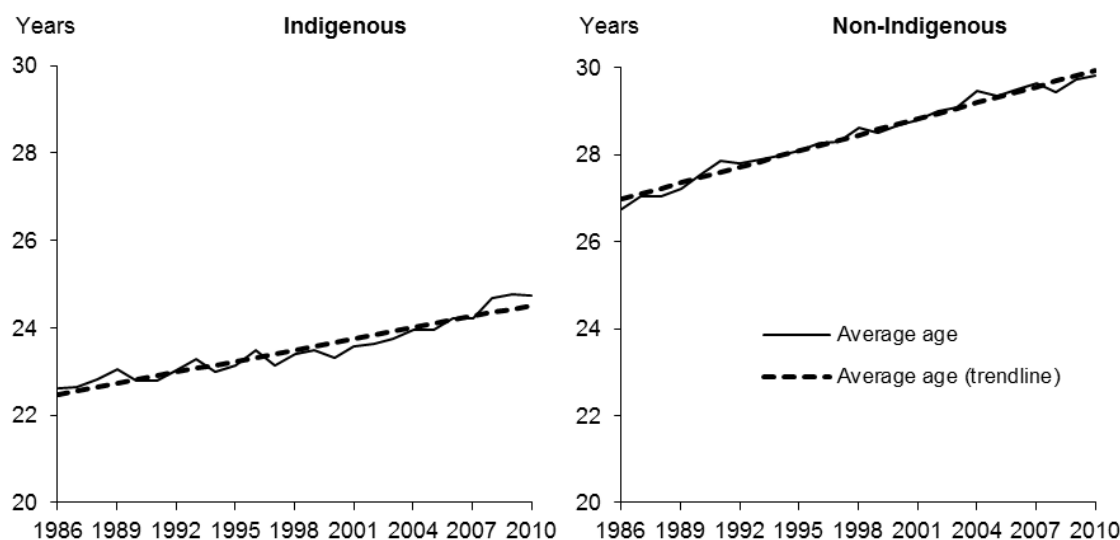


Table 6: All mothers, average age by Indigenous status, 1986–2010

	Average age (years)					Change in age (years)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous	22.8	23.0	23.4	23.8	24.5	2.05	0.09 [0.08, 0.09]
Non-Indigenous	27.1	27.9	28.5	29.1	29.6	2.95	0.12 [0.12, 0.13]

- 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 considerably over the 25-year period.
- The average age of Indigenous mothers increased by 1.7 years, while there was an increase of around 2.5 years for non-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, and by 2006–2010 the gap had increased to 5.1 years.

Age group

Figure 6: All mothers, percentage distribution of age groups by Indigenous status, 1986–2010

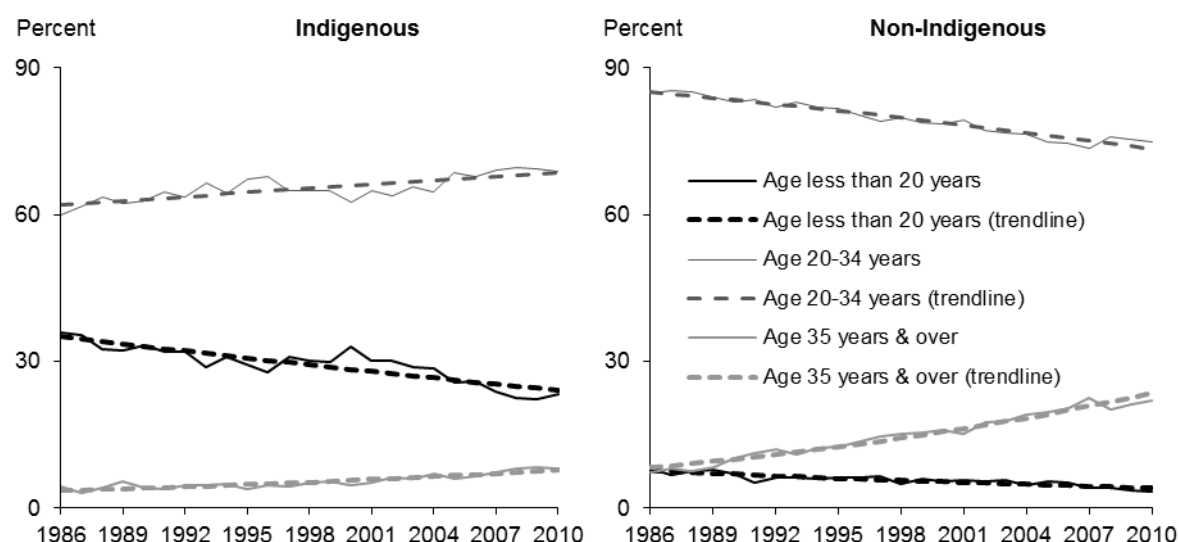


Table 7: All mothers, number and percentage distribution of age groups by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Age less than 20	372 (33.8)	358 (30.5)	363 (30.3)	382 (28.6)	326 (23.5)	-41.4	-2.2 [-2.5, -1.9]
Age 20-34 years	684 (62.1)	767 (65.3)	779 (64.9)	876 (65.5)	958 (68.9)	34.9	1.3 [0.9, 1.6]
Age 35 years & over	46 (4.2)	50 (4.3)	58 (4.8)	79 (5.9)	106 (7.6)	133.1	3.6 [2.9, 4.3]
Total	1,102	1,175	1,200	1,337	1,390		
Non-Indigenous							
Age less than 20	142 (7.3)	133 (5.8)	127 (5.7)	116 (5.3)	90 (3.9)	-48.6	-2.7 [-3.2, -2.2]
Age 20-34 years	1,641 (84.5)	1,885 (82.5)	1,770 (79.4)	1,683 (77.0)	1,726 (74.9)	-51.5	-3.0 [-3.3, -2.7]
Age 35 years & over	159 (8.2)	268 (11.7)	333 (14.9)	388 (17.7)	488 (21.2)	240.5	5.2 [4.9, 5.6]
Total stated	1,943	2,286	2,229	2,187	2,304		
Total	1,943	2,286	2,230	2,187	2,304		

(a) Percentage change in odds

- Overall, 29% of Indigenous mothers and 6% 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 23% among Indigenous mothers and from 7% to 4% among non-Indigenous.
- Conversely both population groups experienced a significant increase in the proportion of mothers aged 35 years and over, particularly among non-Indigenous mothers. By the late 2000s almost one quarter of non-Indigenous mothers were aged 35 years and over at the time of birth.
- These trends in Indigenous and non-Indigenous mothers' age group profiles are consistent with national trends in the average age of mothers and age-specific fertility rates.

Age group by locality

Table 8: All mothers, percentage distribution of teenagers by Indigenous status and locality, 1986–2010

	Percent of total stated ^(a)				
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010
Indigenous					
<i>Health district</i>					
Darwin Urban	28.3	22.9	21.9	18.7	17.4
Darwin Rural	32.0	29.1	29.5	29.3	23.0
Katherine	36.7	31.0	32.3	31.5	26.0
East Arnhem	33.9	34.1	32.6	28.9	22.8
Barkly	36.1	30.2	33.4	34.0	29.8
Alice Springs Urban	29.6	27.5	21.6	21.9	20.8
Alice Springs Rural	35.5	37.0	37.5	35.5	28.3
<i>Urban/rural-remote area</i>					
Urban	29.6	26.0	22.3	21.9	18.5
Rural/remote	35.2	33.0	34.3	31.5	25.4
Non-Indigenous					
<i>Health district</i>					
Darwin Urban	6.1	6.5	5.4	4.8	3.8
Darwin Rural	6.9	3.5	5.8	11.0	6.8
Katherine	8.9	7.5	7.0	9.3	4.2
East Arnhem	2.4	2.9	3.8	3.4	3.3
Barkly	9.6	6.8	11.8	7.4	10.1
Alice Springs Urban	7.7	4.5	5.7	5.2	3.6
Alice Springs Rural	7.1	3.6	5.6	2.5	2.1
<i>Urban/rural-remote area</i>					
Urban	7.0	5.9	5.6	5.0	3.8
Rural/remote	7.9	5.3	6.6	9.2	4.7

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

- Teenage 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 considerably 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 4% over the past 25 years.
- This trend was not apparent among rural or remote-based non-Indigenous young mothers. The proportion of these mothers fluctuated over time.

Country of birth

Figure 7: Non-Indigenous mothers, percentage distribution of countries of birth, 1986–2010

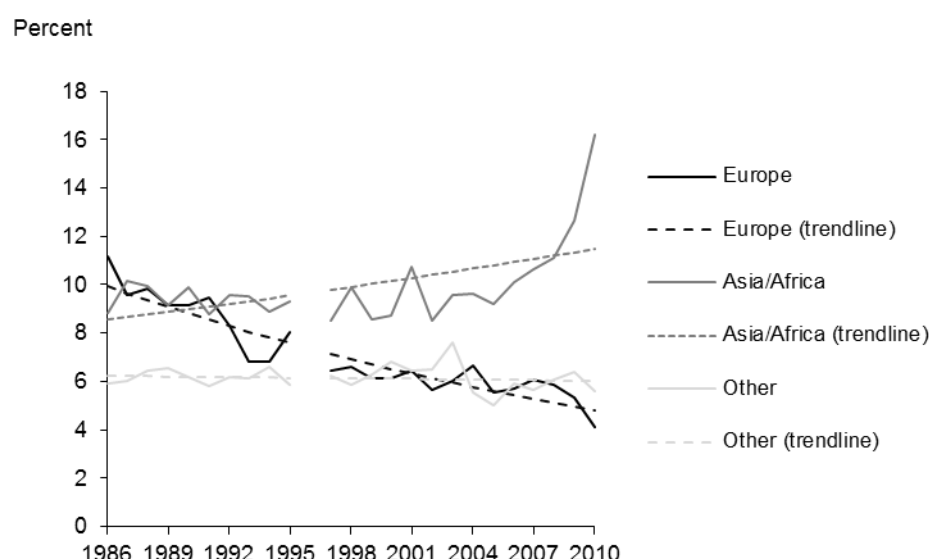


Table 9: Non-Indigenous mothers, number and percentage distribution of countries of birth, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1997-2000 ^(b)	2001-2005	2006-2010	Overall	Annual [95% CI]
Europe	190 (9.8)	178 (7.8)	163 (7.3)	131 (6.0)	124 (5.4)	-54.3	-3.2 [-3.7, -2.8]
Asia & Africa	187 (9.6)	212 (9.3)	195 (8.7)	210 (9.6)	281 (12.2)	38.6	1.4 [1.0, 1.8]
Other	120 (6.2)	140 (6.1)	132 (5.9)	135 (6.2)	137 (5.9)	-3.3	-0.1 [-0.6, 0.3]
Total	1,943	2,286	2,238	2,187	2,304		

(a) Percentage change in odds

(b) Data for 1996 are not available

- Few Indigenous mothers were born outside Australia.
- On average 23% of non-Indigenous mothers were born overseas. The proportion of overseas born mothers was stable during the 25 years from 1986 to 2010.
- Despite of the constancy in the proportion of overseas born mothers, there was a shift between the geographical locations.
- Since early 1990s Asian and African born mothers comprised the largest proportion of overseas born mothers. Its proportion peaked in the late 2000s.
- In contrast, the proportion of mothers born in European countries declined during 1986–2010.

Inadequate antenatal visits

Figure 8: All mothers, percentage distribution of inadequate antenatal visits by Indigenous status, 1989–2010

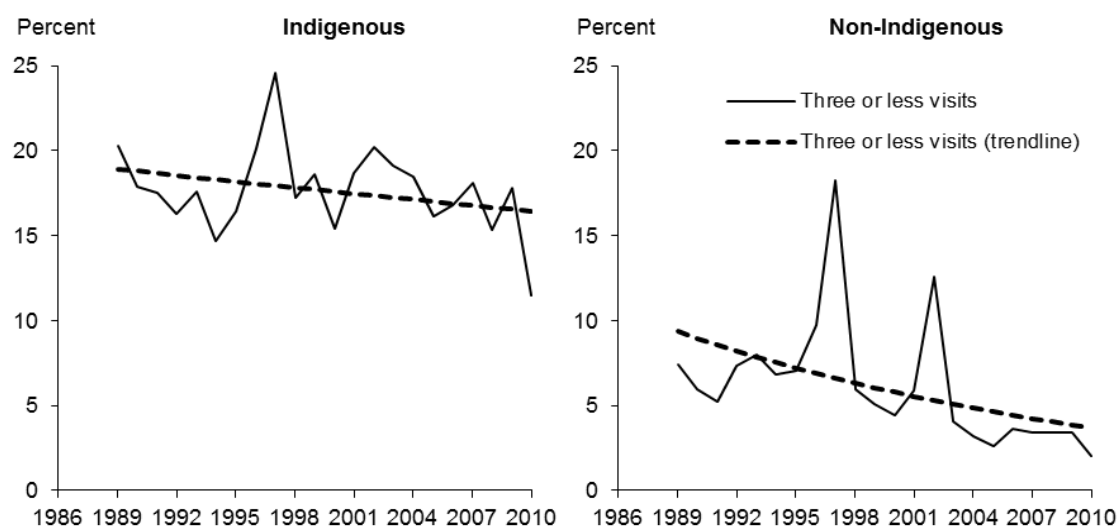


Table 10: All mothers, number and percentage distribution of inadequate antenatal visits by Indigenous status, 1989–2010

	Average annual number (percent)					% change ^(a)	
	1989-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
0 - 3 visits	206 (19.1)	178 (16.5)	200 (19.1)	240 (18.5)	218 (16.0)	-15.7	-0.8 [-1.3, -0.3]
Total stated	1,077	1,079	1,048	1,294	1,366		
Total	1,124	1,175	1,200	1,337	1,390		
Non-Indigenous							
0 - 3 visits	118 (6.6)	135 (6.9)	163 (8.8)	123 (5.7)	73 (3.2)	-62.8	-4.6 [-5.2, -4.0]
Total stated	1,784	1,963	1,851	2,163	2,295		
Total	1,901	2,286	2,230	2,187	2,304		

(a) Percentage changes in odds

Note: Data for 1986–1988 are not available. The overall change covers the 22-year period 1989–2010

- Having an adequate number of antenatal visits is important for maternal and fetal health. The World Health Organisation (WHO) regards less than four antenatal visits as inadequate.⁵
- Indigenous mothers were more likely to have attended less than four antenatal visits than non-Indigenous mothers.
- The proportion of Indigenous mothers attending less than four antenatal visits fluctuated over time. This proportion had declined to 16% by the late 2000s.
- There was a decline in the proportion of non-Indigenous mothers attending less than four antenatal visits, from 7% in the late 1980s to 3% by 2006–2010.
- The decline in both population groups was statistically significant.

Inadequate antenatal visits by locality

Table 11: All mothers, percentage distribution of inadequate antenatal visits by Indigenous status and locality, 1989–2010

	Percent of total stated ^(a)				
	1989-1990	1991-1995	1996-2000	2001-2005	2006-2010
Indigenous					
Health district					
Darwin Urban	23.3	21.3	24.4	24.5	21.0
Darwin Rural	7.6	7.5	19.1	15.5	10.2
Katherine	11.9	10.0	13.7	11.4	14.1
East Arnhem	20.7	17.3	18.7	19.1	10.8
Barkly	27.8	27.1	26.0	25.8	19.2
Alice Springs Urban	21.6	19.0	19.0	13.3	16.3
Alice Springs Rural	28.9	21.5	18.4	23.4	22.4
Urban/rural-remote area					
Urban	23.4	20.7	21.2	20.1	19.4
Rural/remote	17.2	14.2	18.0	17.8	14.6
Non-Indigenous					
Health district					
Darwin Urban	9.2	9.8	10.1	6.2	3.2
Darwin Rural	9.0	8.7	13.0	10.8	5.3
Katherine	5.7	5.3	8.5	7.2	4.8
East Arnhem	5.4	3.6	4.7	3.7	1.6
Barkly	8.5	6.9	6.3	10.1	2.6
Alice Springs Urban	2.3	1.7	4.3	1.6	2.3
Alice Springs Rural	8.3	6.7	3.3	5.8	5.2
Urban/rural-remote area					
Urban	5.5	6.6	8.6	5.5	3.0
Rural/remote	9.1	7.9	10.6	7.5	3.9

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

Note: Data for 1986–1988 are not available

- Urban-based Indigenous mothers were more likely to have attended inequitable number (less than four) of antenatal visits than their rural or remote-based counterparts.
- The proportion of urban-based Indigenous mothers attending inadequate antenatal visits declined marginally over time, while the attendance pattern of rural or remote-based Indigenous mothers fluctuated.
- The opposite pattern was observed among non-Indigenous mothers, with those living in a rural-remote area more likely to have attended less than four antenatal visits.
- Inadequate antenatal attendance among non-Indigenous mothers also decreased in recent years in both rural-remote and urban areas.

Duration of pregnancy at first antenatal visit

Figure 9: All mothers, percentage distribution of duration of pregnancy at first antenatal visit by Indigenous status, 1986–2010

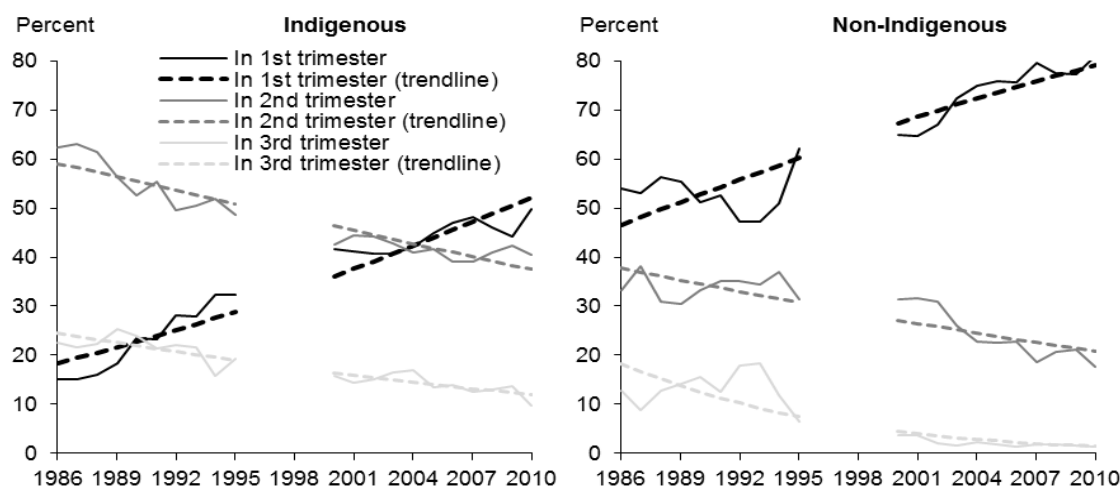


Table 12: All mothers, number and percentage of distribution of duration of pregnancy at first antenatal visit by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	2000 ^(b)	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
First trimester	175 (17.7)	287 (28.6)	202 (20.5)	526 (41.9)	635 (47.0)	381.5	6.8 [6.4, 7.2]
Second trimester	583 (59.0)	513 (51.1)	545 (55.2)	539 (42.9)	546 (40.4)	-58.5	-3.6 [-3.9, -3.3]
Third trimester	229 (23.2)	203 (20.2)	240 (24.3)	191 (15.2)	170 (12.6)	-58.0	-3.6 [-4.0, -3.1]
Total stated	987	1,003	987	1,256	1,351		
Total	1,102	1,175	1,200	1,337	1,390		
Non-Indigenous							
First trimester	986 (53.7)	977 (52.0)	682 (38.3)	1,487 (71.0)	1,786 (78.2)	331.3	6.3 [6.0, 6.6]
Second trimester	614 (33.5)	650 (34.6)	1,042 (58.4)	559 (26.7)	461 (20.2)	-56.6	-3.4 [-3.7, -3.2]
Third trimester	235 (12.8)	253 (13.5)	59 (3.3)	48 (2.3)	36 (1.6)	-93.4	-10.7 [-11.2, -10.2]
Total stated	1,835	1,880	1,783	2,093	2,284		
Total	1,943	2,286	2,230	2,187	2,304		

(a) Percentage change in odds

(b) Data for 1996–1999 are not available

- Antenatal visit in the first trimester of pregnancy covers the period between 3 weeks and 13 weeks gestation (inclusive).
- Indigenous mothers were less likely than non-Indigenous mothers to attend their first antenatal visit within the first trimester.
- In 2006–2010 less than half (47%) of Indigenous mothers attended their first antenatal visit within the first trimester compared with more than three quarters (78%) 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 18% in the late 1980s to 47% by 2006–2010.
- The proportion of non-Indigenous mothers attending their first antenatal visit during the first trimester also increased over time, from 54% in the late 1980s to 78% by 2006–2010.

Duration of pregnancy at first antenatal visit by locality

Table 13: All mothers, percentage distribution of attending antenatal visit in the first trimester by Indigenous status and locality, 1986–2010

	1986-1990	1991-1995	2000 ^(a)	2001-2005	2006-2010
	Percent of total stated ^(b)				
Indigenous					
Darwin Urban	20.0	29.5	51.1	46.1	49.6
Darwin Rural	22.3	32.9	44.3	42.1	46.9
Katherine	23.2	33.3	39.3	45.1	49.2
East Arnhem	9.6	19.7	31.5	35.7	41.5
Barkly	17.1	24.7	37.5	32.9	38.8
Alice Springs Urban	28.2	38.0	62.4	55.9	61.5
Alice Springs Rural	9.4	22.3	37.5	36.5	40.9
Urban	24.5	33.3	53.9	48.9	53.6
Rural/remote	15.4	26.3	36.5	38.8	44.4
Non-Indigenous					
Darwin Urban	43.7	39.1	63.7	70.0	76.6
Darwin Rural	46.2	43.3	63.2	58.6	71.2
Katherine	64.0	66.9	59.2	66.0	80.8
East Arnhem	56.2	56.1	70.0	69.1	77.6
Barkly	48.2	46.4	65.6	58.6	83.3
Alice Springs Urban	66.2	72.3	72.5	81.2	85.5
Alice Springs Rural	45.1	47.5	66.7	70.8	89.5
Urban	57.6	53.7	65.4	71.7	78.0
Rural/remote	47.1	45.4	59.3	64.5	79.2

(a) Data for 1996–1999 are not available

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

- Irrespective of residential location, Indigenous mothers were less likely to attend their first antenatal visit within first trimester of pregnancy than non-Indigenous mothers.
- On average, urban-based mothers were more likely to have received antenatal care at the appropriate stage of pregnancy than rural or remote-based 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 evident among Indigenous mothers in all districts.
- The trend for early antenatal attendance also improved over time among non-Indigenous mothers.

Smoking status during pregnancy

Figure 10: All mothers, percentage distribution of smoking during pregnancy by Indigenous status, 1996–2010

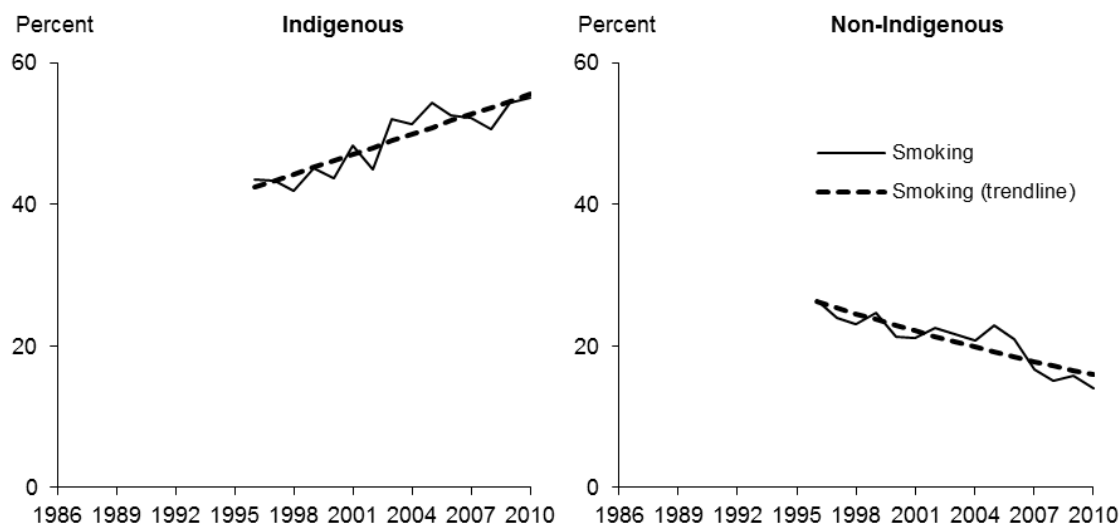


Table 14: All mothers, number and percentage distribution of smoking during pregnancy by Indigenous status, 1996–2010

	Average annual number (percent)					% change ^(a)	
	1996-1998	1999-2001	2002-2004	2005-2007	2008-2010	Overall	Annual [95% CI]
Indigenous							
Smoking	361 (42.9)	479 (45.8)	542 (49.5)	629 (53.0)	549 (52.5)	69.5	3.8 [3.1, 4.6]
Total stated	841	1,045	1,094	1,187	1,045		
Total	1,168	1,309	1,312	1,377	1,379		
Non-Indigenous							
Smoking	432 (24.5)	436 (22.3)	446 (21.6)	432 (20.2)	292 (14.8)	-46.9	-4.4 [-5.1, -3.8]
Total stated	1,763	1,958	2,061	2,142	1,976		
Total	2,245	2,209	2,165	2,219	2,363		

(a) Percentage change in odds

Note: The overall percentage change covers the 15-year period 1996–2010 as data for 1986–1995 are not available

- Information about smoking during pregnancy was collected at first antenatal visit and again at 36 weeks. In this report smoking during pregnancy refers to reporting smoking at either collecting point.
- During 2008–2010 smoking during pregnancy was reported by more than half (53%) of Indigenous mothers and 15% of non-Indigenous mothers.
- Smoking during pregnancy rose among Indigenous mothers but declined over time among non-Indigenous mothers.
- The smoking rate of Indigenous mothers rose from 43% to 53%, but stabilised in the late 2000s.
- Conversely, the smoking rate of non-Indigenous mothers dropped from 25% to 15% in the 15 year period.

Smoking status during pregnancy by age group

Figure 11: All mothers, percentage distribution of smoking during pregnancy by Indigenous status and age group, 1996–2010

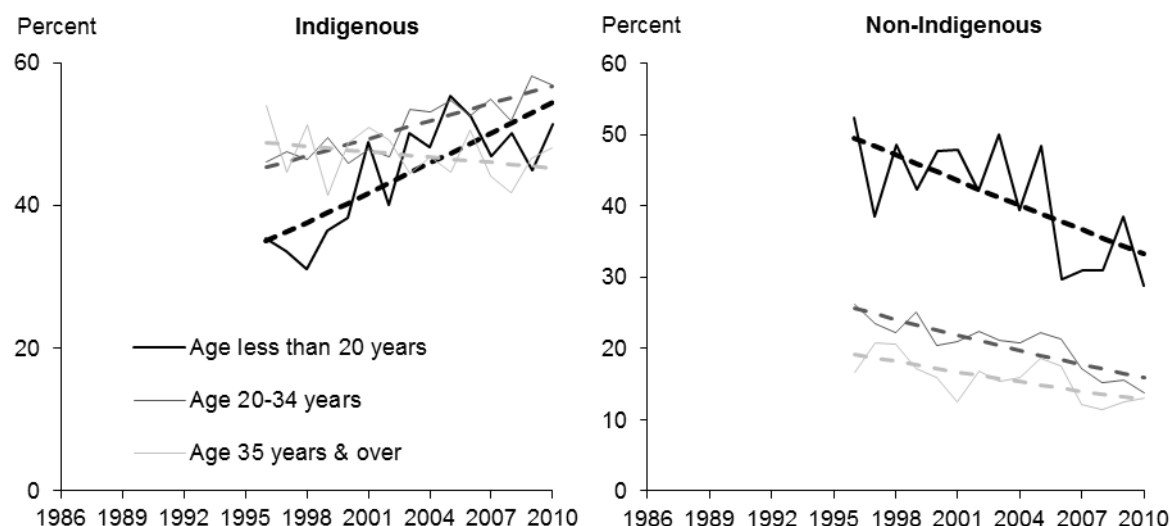


Table 15: All mothers, number and percentage distribution of smoking during pregnancy by Indigenous status and age group, 1996–2010

	Average annual number (percent)					% change ^(a)	
	1996-1998	1999-2001	2002-2004	2005-2007	2008-2010	Overall	Annual [95% CI]
Indigenous							
Age less than 20	82 (33.2)	132 (41.5)	144 (46.2)	151 (51.7)	114 (48.3)	122.8	5.9 [4.3, 7.5]
Age 20-34 years	260 (46.8)	323 (47.7)	365 (51.3)	441 (54.1)	398 (54.8)	58.7	3.4 [2.4, 4.3]
Age 35 years & over	19 (50.0)	24 (48.0)	33 (47.1)	37 (46.3)	37 (44.6)	-13.3	-1.0 [-4.1, 2.1]
Non-Indigenous							
Age less than 20	45 (45.5)	49 (46.2)	48 (44.0)	38 (37.6)	24 (32.0)	-49.1	-4.7 [-7.1, -2.3]
Age 20-34 years	337 (23.9)	341 (22.0)	339 (21.4)	323 (20.2)	218 (14.6)	-45.2	-4.2 [-4.9, -3.5]
Age 35 years & over	49 (19.3)	45 (15.0)	59 (16.0)	71 (16.0)	50 (12.3)	-38.2	-3.4 [-5.1, -1.6]

(a) Percentage change in odds

Note: The overall percentage change covers the 15-year period 1996–2010 as data for 1986–1995 are not available

- The smoking rate of younger (age less than 20 years) Indigenous mothers rose from 1996–1998 to 2005–2007 but was on the decline towards the end of the 2000s.
- The smoking rate of Indigenous mothers aged 20–34 years also increased during that time period.
- By the end of 2000s smoking rates of Indigenous mothers were similar (around 50%) in all age groups.
- The younger group of age less than 20 had the highest smoking rate among non-Indigenous mothers.
- Smoking rate of non-Indigenous mothers decreased markedly in every age group.
- Smoking rate of Indigenous mothers was constantly higher than non-Indigenous over time in every age group.

Smoking status during pregnancy by locality

Table 16: All mothers, percentage distribution of smoking during pregnancy by Indigenous status and locality, 1996–2010

	Percent of total stated ^(a)				
	1996-1998	1999-2001	2002-2004	2005-2007	2008-2010
Indigenous					
Health district					
Darwin Urban	50.5	48.4	53.3	56.1	49.6
Darwin Rural	49.4	51.5	55.8	58.3	64.7
Katherine	40.4	46.8	51.5	57.5	58.0
East Arnhem	58.8	54.8	59.7	64.5	63.3
Barkly	38.5	35.3	42.6	48.3	46.9
Alice Springs Urban	49.6	46.7	50.2	48.9	49.1
Alice Springs Rural	17.4	29.0	24.9	29.8	30.8
Region					
Top End ^(b)	49.3	50.3	55.0	58.8	58.6
Central Australia ^(c)	31.6	35.4	36.3	39.7	40.3
Non-Indigenous					
Health district					
Darwin Urban	21.8	19.8	20.1	19.9	14.2
Darwin Rural	32.5	26.9	28.5	24.5	17.5
Katherine	31.6	34.1	31.0	24.5	15.0
East Arnhem	23.7	17.2	20.8	16.2	15.4
Barkly	39.4	33.8	37.5	23.5	33.9
Alice Springs Urban	26.5	26.0	21.7	19.9	17.3
Alice Springs Rural	20.0	16.9	24.6	12.7	9.5
Region					
Top End ^(b)	23.8	21.5	21.4	20.2	14.4
Central Australia ^(c)	27.2	25.9	23.1	19.8	18.0

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

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

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

- The smoking rate of Indigenous mothers was much higher than non-Indigenous mothers in all districts in the NT.
- The smoking rate 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.
- Over the 15-year period between 1996–2010 the smoking rate among Indigenous mothers rose, however it stayed consistent in the late 2000s in most health districts except for Darwin Rural.
- By contrast to Indigenous mothers there was little difference in the smoking status between non-Indigenous mothers who lived in Central Australia and those who resided in the Top End, except in the Barkly district where there are small numbers of non-Indigenous mothers.
- The smoking rate declined over time among non-Indigenous mothers in each district and region.

Onset of labour

Figure 12: All mothers, percentage distribution of labour onset by Indigenous status, 1986–2010

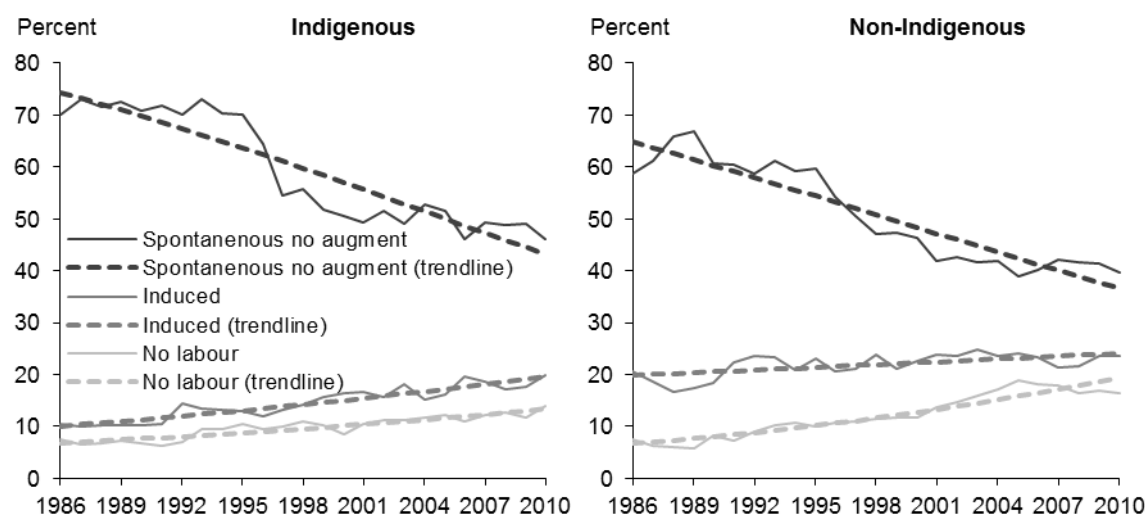


Table 17: All mothers, number and percentage distribution of labour onset by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Spontaneous no augment	790 (71.7)	833 (71.1)	655 (55.3)	680 (50.9)	666 (47.9)	-73.9	-5.4 [-5.7, -5.1]
Spontaneous with augment	122 (11.1)	88 (7.5)	244 (20.6)	286 (21.4)	295 (21.2)	217.9	4.9 [4.5, 5.4]
Induced	113 (10.3)	151 (12.9)	169 (14.3)	219 (16.4)	259 (18.6)	118.1	3.3 [2.8, 3.8]
No labour	77 (7.0)	100 (8.5)	116 (9.8)	152 (11.4)	171 (12.3)	110.5	3.1 [2.6, 3.7]
Total stated	1,102	1,172	1,184	1,337	1,390		
Total	1,102	1,175	1,200	1,337	1,390		
Non-Indigenous							
Spontaneous no augment	1,211 (62.3)	1,367 (59.9)	1,091 (49.1)	906 (41.4)	945 (41.0)	-68.6	-4.7 [-4.9, -4.5]
Spontaneous with augment	240 (12.4)	184 (8.1)	395 (17.8)	406 (18.6)	441 (19.1)	144.3	3.8 [3.4, 4.1]
Induced	359 (18.5)	518 (22.7)	485 (21.8)	524 (24.0)	523 (22.7)	28.3	1.0 [0.8, 1.3]
No labour	133 (6.8)	215 (9.4)	251 (11.3)	351 (16.0)	394 (17.1)	240.5	5.2 [4.8, 5.6]
Total stated	1,943	2,284	2,222	2,187	2,304		
Total	1,943	2,286	2,230	2,187	2,304		

(a) Percentage change in odds

- Indigenous mothers were more likely to have a spontaneous labour without augmentation than non-Indigenous mothers. There was a significant downward trend in both population groups.
- Although the proportion of augmented, induced and no labour births rose significantly over time this trend appears to be plateauing in most recent 5-year period.
- Induced labour was more common in non-Indigenous mothers, but the proportion among Indigenous mothers increased more rapidly over time.
- There was also an upward trend among mothers who did not experience labour among both Indigenous and non-Indigenous mothers. This is likely associated with the large rise in the proportion of mothers having elective caesarean sections (Figure 15).

Onset of labour by hospital

Table 18: All mothers, percentage distribution of induced labour and no labour by Indigenous status and hospital, 1986–2010

	Induced onset of labour (percent of total stated ^(a))				
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010
Indigenous					
Royal Darwin	10.9	12.2	15.3	16.2	16.6
Gove District	10.9	9.3	7.4	10.0	13.4
Katherine	10.8	9.7	13.4	18.0	17.1
Alice Springs	12.7	19.1	18.9	21.3	27.2
Non-Indigenous					
Royal Darwin	19.7	17.4	19.6	22.2	20.7
Gove District	11.3	15.5	13.7	18.9	18.2
Katherine	17.5	17.7	17.2	16.8	18.7
Alice Springs	14.2	19.6	19.3	21.7	24.3
Darwin Private ^(b)	27.4	34.5	30.0	31.0	29.6
	No labour at onset (percent of total stated ^(a))				
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010
Indigenous					
Royal Darwin	8.9	9.4	11.0	13.7	16.7
Gove District	5.2	6.7	7.9	8.9	7.6
Katherine	7.8	8.0	5.9	8.9	6.6
Alice Springs	8.0	10.7	13.0	11.7	11.8
Non-Indigenous					
Royal Darwin	6.7	8.5	9.0	12.6	15.4
Gove District	6.9	5.8	6.3	10.8	9.3
Katherine	6.0	9.5	9.8	12.6	14.7
Tennant Creek	0.0	0.0	0.0	0.0	0.0
Alice Springs	7.1	7.8	9.3	11.1	11.8
Darwin Private ^(b)	9.6	12.5	17.7	26.0	26.0

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

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

Note: This table omits the data of Tennant Creek Hospital and, for Indigenous mothers, Darwin Private Hospital due to small number of events.

- Darwin Private Hospital (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. This trend appears to be decelerating during most recent 5-year period with the exception of Royal Darwin Hospital.
- At DPH the incidence of induced onset of labour remained fairly constant and the incidence of no labour rose significantly among non-Indigenous mothers prior to 2005. This trend is consistent with other private hospitals in Australia.

Birth method

Figure 13: All mothers, percentage distribution of birth methods by Indigenous status, 1986–2010

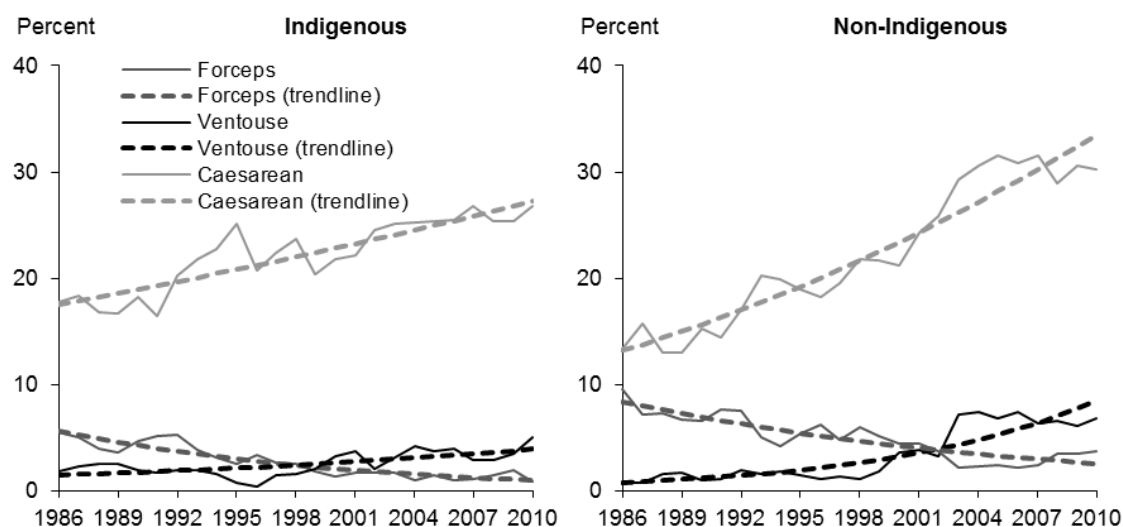


Table 19: All mothers, number and percentage distribution of birth methods by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Normal vaginal ^(b)	833 (75.6)	858 (73.1)	879 (74.1)	946 (70.3)	960 (69.1)	-31.0	-1.5 [-1.9, -1.2]
Forceps	50 (4.5)	47 (4.0)	28 (2.4)	20 (1.5)	18 (1.3)	-83.2	-7.2 [-8.1, -6.2]
Ventouse	24 (2.2)	18 (1.5)	21 (1.8)	45 (3.4)	51 (3.7)	170.9	4.2 [3.2, 5.3]
Caesarean	193 (17.5)	250 (21.3)	258 (21.8)	327 (24.5)	361 (26.0)	75.9	2.4 [2.0, 2.8]
Total stated	1,102	1,174	1,186	1,337	1,390		
Total	1,102	1,175	1,200	1,337	1,390		
Non-Indigenous							
Normal vaginal ^(b)	1,500 (77.2)	1,700 (74.4)	1,612 (72.4)	1,377 (63.0)	1,380 (59.9)	-64.9	-4.3 [-4.5, -4.0]
Forceps	145 (7.5)	136 (5.9)	118 (5.3)	66 (3.0)	71 (3.1)	-71.4	-5.1 [-5.6, -4.5]
Ventouse	21 (1.1)	36 (1.6)	39 (1.8)	124 (5.7)	153 (6.6)	1,094.8	10.9 [10.1, 11.7]
Caesarean	275 (14.2)	413 (18.1)	456 (20.5)	619 (28.3)	701 (30.4)	231.5	5.1 [4.8, 5.4]
Total stated	1,942	2,286	2,225	2,187	2,304		
Total	1,943	2,286	2,230	2,187	2,304		

(a) Percentage change in odds

(b) includes spontaneous vaginal delivery and vaginal breech delivery.

- Indigenous mothers were more likely than non-Indigenous mothers to have a normal vaginal birth and less likely to have an instrumental vaginal birth.
- Normal vaginal delivery including breech birth declined significantly over time, particularly among non-Indigenous mothers.
- The proportion of instrumental vaginal deliveries remained stable while Ventouse overtook forceps as the preferred method of delivery.
- The proportion of caesarean deliveries in the NT was around 15% in 1986–1990 but rose to exceed 25% in 2006–2010.
- Caesarean deliveries increased by 75% among Indigenous mothers and more than doubled amongst non-Indigenous mothers over the 25 years.
- Since the early 2000s non-Indigenous mothers were more likely to have a caesarean delivery than Indigenous mothers.

Caesarean section deliveries by age group

Figure 14: All mothers, percentage distribution of caesarean section deliveries by Indigenous status and age group, 1986–2010

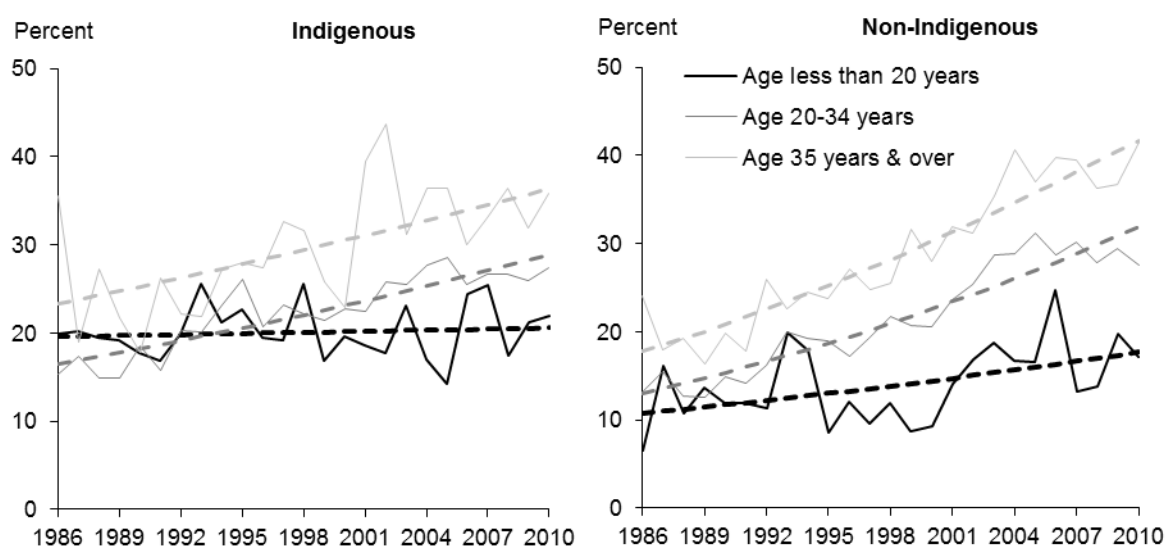


Table 20: All mothers, number and percentage distribution of caesarean section deliveries by Indigenous status and age group, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Age less than 20	72 (19.4)	76 (21.2)	72 (19.8)	70 (18.3)	72 (22.1)	6.5	0.3 [-0.5, 1.0]
Age 20-34 years	111 (16.2)	162 (21.1)	170 (21.8)	228 (26.0)	253 (26.4)	104.6	3.0 [2.5, 3.5]
Age 35 years & over	11 (23.9)	12 (24.0)	16 (27.6)	29 (36.7)	35 (33.0)	87.5	2.7 [1.2, 4.2]
Non-Indigenous							
Age less than 20	16 (11.3)	18 (13.5)	13 (10.2)	19 (16.4)	16 (17.8)	77.9	2.4 [0.9, 4.0]
Age 20-34 years	227 (13.8)	333 (17.7)	352 (19.9)	462 (27.5)	495 (28.7)	211.4	4.8 [4.5, 5.2]
Age 35 years & over	31 (19.5)	62 (23.1)	91 (27.2)	138 (35.6)	189 (38.7)	231.6	5.1 [4.4, 5.9]

(a) Percentage change in odds

- Mothers aged 35 and over were more likely to have a caesarean delivery than mothers of younger ages. At least one third of births to older mothers were caesarean section.
- Compared to teenage non-Indigenous mothers, teenage Indigenous mothers were more likely to have a caesarean delivery.
- The proportion of caesarean deliveries increased in the two older age groups (aged 20-34 and aged 35 and over) among both Indigenous and non-Indigenous mothers during the period of 1986–2010.
- The increase in caesarean deliveries most pronounced in non-Indigenous mothers aged 20-34 years and aged 35 and over.

Type of caesarean section deliveries

Figure 15: All mothers, percentage distribution of elective and emergency caesarean section deliveries by Indigenous status, 2000–2010

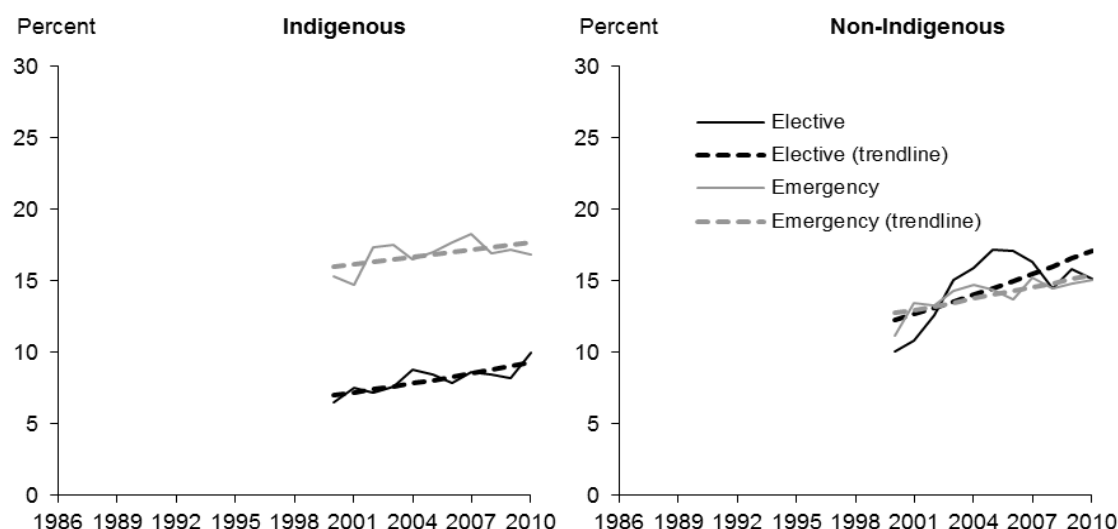


Table 21: All mothers, number and percentage distribution of elective and emergency caesarean section deliveries by Indigenous status, 2000–2010

	Average annual number (percent)				% change ^(a)	
	2000-2002	2003-2005	2006-2008	2009-2010	Overall	Annual [95% CI]
Indigenous						
Elective caesarean	94 (7.1)	108 (8.3)	115 (8.3)	126 (9.1)	36.1	3.1 [1.2, 5.1]
Emergency caesarean	210 (15.8)	222 (17.0)	245 (17.6)	237 (17.1)	13.3	3.0 [-0.1, 2.6]
Total	1,333	1,308	1,389	1,390		
Non-Indigenous						
Elective caesarean	248 (11.2)	347 (16.0)	361 (15.9)	366 (15.5)	48.2	4.0 [2.9, 5.2]
Emergency caesarean	279 (12.6)	313 (14.5)	328 (14.5)	352 (14.9)	24.7	2.2 [1.1, 3.4]
Total stated	2,213	2,163	2,268	2,359		
Total	2,214	2,163	2,268	2,359		

(a) Percentage change in odds

Note: Percentage overall change covers the eleven-year period 2000–2010 as data prior to 2000 are not available

- Indigenous mothers were much more likely to have an emergency caesarean section delivery than an elective caesarean section delivery.
- The proportions of elective and emergency caesarean section deliveries were very similar among non-Indigenous mothers.
- During the 11 years of available data, there was a slight increase in the proportion of Indigenous mothers having an elective or emergency caesarean delivery.
- The likelihood of non-Indigenous mothers having an elective or, to a lesser extent, emergency caesarean delivery rose in the early 2000s, but appears to be stabilising in the late 2000s.

Type of caesarean section deliveries by hospital

Table 22: All mothers, percentage distribution of elective and emergency caesarean section deliveries by Indigenous status and hospital, 2000–2010

	Elective caesarean sections			Emergency caesarean sections		
	2000-2003	2004-2007	2008-2010	2000-2003	2004-2007	2008-2010
	Percent of total stated ^(a)					
Indigenous						
Royal Darwin	8.5	11.1	11.1	18.3	20.2	21.4
Gove District	5.6	4.9	8.3	16.8	12.9	11.6
Katherine	5.5	6.0	4.4	14.7	18.2	17.2
Alice Springs	7.4	8.1	9.0	17.6	18.1	15.4
Non-Indigenous						
Royal Darwin	8.9	11.8	11.9	13.2	16.8	18.7
Gove District	7.3	11.5	8.5	12.5	11.1	10.9
Katherine	11.5	11.7	11.9	12.0	12.8	16.0
Alice Springs	9.3	10.2	10.3	11.0	14.6	13.4
Darwin Private	20.1	29.6	26.3	15.0	12.5	13.4

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

Notes:

(1) Data prior to 2000 are not available

(2) This table omits the data of Tennant Creek Hospital and, for Indigenous mothers, Darwin Private Hospital due to small number of events.

- Mothers who attended Darwin Private Hospital were much 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 the major public hospitals.
- This pattern was the same for both Indigenous and non-Indigenous mothers.

Outcomes following a previous caesarean section delivery

Figure 16: Selected mothers, percentage distribution of vaginal birth after previous caesarean and caesarean birth due to previous caesarean by Indigenous status, 2000–2010

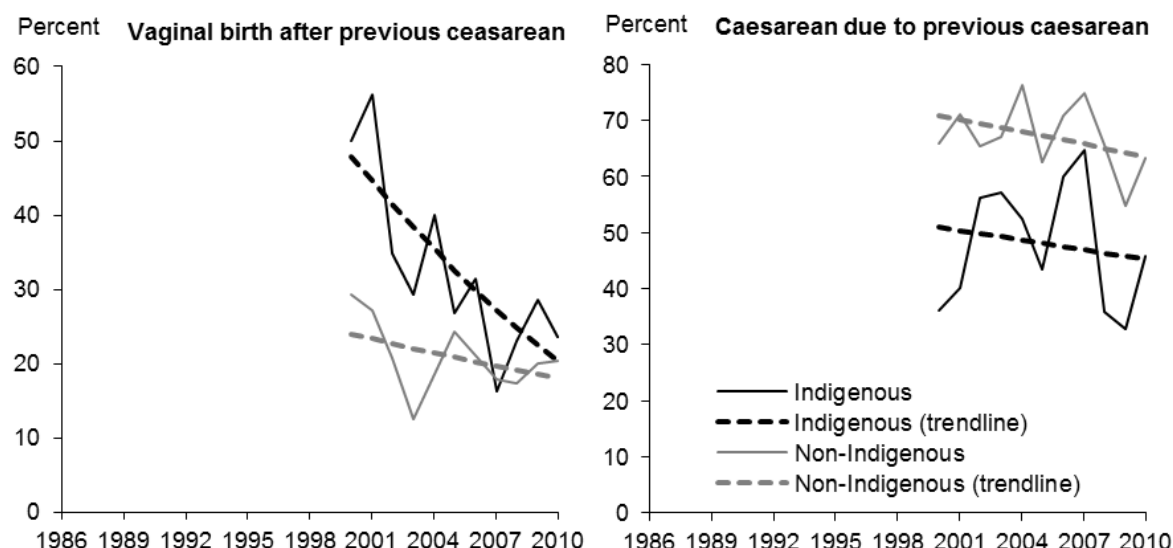


Table 23: Selected mothers, number and percentage distribution of vaginal birth after previous caesarean and caesarean birth due to previous caesarean by Indigenous status, 2000–2010

	Average annual number (percent)				% change ^(a)	
	2000-2002	2003-2005	2006-2008	2009-2010	Overall	Annual [95% CI]
Vaginal birth after previous caesarean						
Indigenous	20 (47.6)	14 (33.3)	11 (25.0)	15 (26.8)	-72.1	-12.0 [-17.2, -6.5]
Non-Indigenous	23 (25.3)	20 (19.2)	22 (18.5)	26 (20.2)	-30.0	-3.5 [-7.7, 0.9]
Total mothers who had a previous caesarean						
Indigenous	42	42	44	56		
Non-Indigenous	91	104	119	129		
Caesarean birth due to previous caesarean						
Indigenous	16 (45.7)	23 (50.0)	27 (52.9)	23 (40.4)	-20.6	-2.3 [-7.7, 3.4]
Non-Indigenous	65 (67.7)	85 (68.0)	91 (70.5)	81 (58.7)	-28.1	-3.3 [-6.8, 0.5]
Total mothers who had a caesarean birth this time						
Indigenous	35	46	51	57		
Non-Indigenous	96	125	129	138		

(a) Percentage change in odds

Notes:

(1) The inclusion criteria of mothers aged 20-34 and singleton cephalic birth at term (37-41 weeks gestation) is because these pregnancies are regarded as 'normal' and, therefore, relatively more practical and safer for vaginal birth after caesarean (VBAC). Limiting to the second birth only is to ensure this birth was immediately following the previous caesarean.

(2) Percentage overall change covers the eleven-year period 2000–2010 as data prior to 2000 are not available.

- The proportion of Indigenous mothers having vaginal birth after previous caesarean (VBAC) was around 50% in the early 2000s.
- The proportion of Indigenous mothers having VBAC declined over time but rose slightly in the last 2-year period. By 2009–2010 the proportion among Indigenous mothers was only slightly higher than non-Indigenous mothers.
- In contrast, the proportion of subsequent caesarean delivery due to previous caesarean was much higher in non-Indigenous than Indigenous mothers. The proportions remained relatively stable during 2000–2008 and appears to have declined in last 2 years.

Labour or childbirth complications

Figure 17: All mothers, percentage distribution of labour/childbirth complications by Indigenous status, 1986–2010

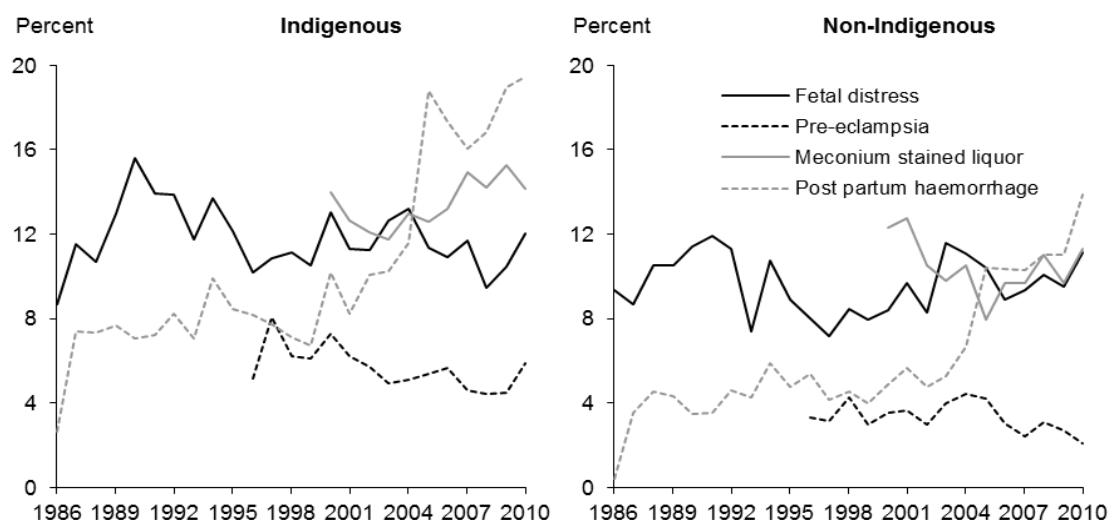


Table 24: All mothers, number and percentage distribution of labour/childbirth complications by Indigenous status, 1986–2010

	Average annual number (percent)				
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010
Indigenous					
Fetal distress	131 (11.9)	154 (13.1)	134 (11.2)	160 (12.0)	152 (10.9)
Pre-eclampsia ^(a)	-	-	79 (6.6)	73 (5.5)	70 (5.0)
Meconium stained liquor ^(b)	-	-	-	166 (12.4)	200 (14.4)
Post-partum haemorrhage	71 (6.4)	96 (8.2)	96 (8.0)	157 (11.7)	246 (17.7)
Total	1,102	1,175	1,200	1,337	1,390
Non-Indigenous					
Fetal distress	196 (10.1)	230 (10.1)	178 (8.0)	223 (10.2)	226 (9.8)
Pre-eclampsia ^(a)	-	-	77 (3.5)	84 (3.8)	62 (2.7)
Meconium stained liquor ^(b)	-	-	-	225 (10.3)	237 (10.3)
Post-partum haemorrhage	62 (3.2)	106 (4.6)	102 (4.6)	143 (6.5)	261 (11.3)
Total	1,943	2,286	2,230	2,187	2,304

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

(b) Meconium stained liquor data are only available from 2001

Note: Changes over time were not analysed for labour and childbirth complications due to modifications in coding and recording methods over the 25-year period

- Indigenous mothers were more likely to experience labour and/or childbirth complications than non-Indigenous mothers.
- The proportion of mothers experiencing fetal distress was relatively stable over time and similar among Indigenous and non-Indigenous mothers.
- The rise in the proportion of post-partum haemorrhage (PPH) since the mid-2000s is likely due to a change in recording methodology.
- By the late 2000s PPH became the most commonly recorded labour/childbirth complication.

Perineal status following vaginal birth

Figure 18: Mothers who had a vaginal birth, percentage distribution of perineal status by birth method, 1997–2010

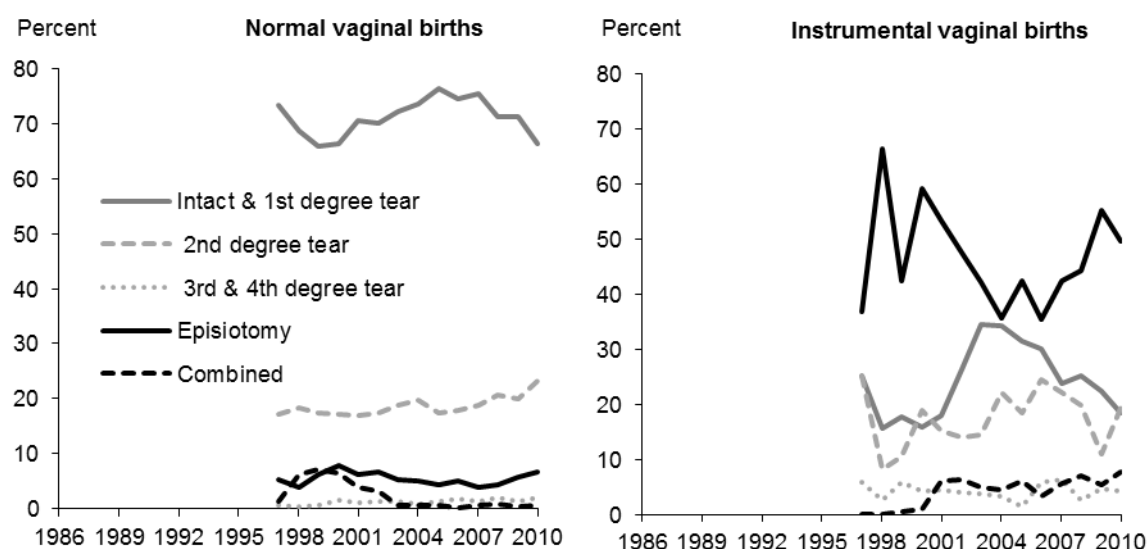


Table 25: Mothers who had a vaginal birth, number and percentage distribution of perineal status by birth method, 1997–2010

	Average annual number (percent)					% change ^(a)	
	1997-1998	1999-2001	2002-2004	2005-2007	2008-2010	Overall	Annual [95% CI]
Normal vaginal births^(b)							
Intact & 1st degree tear ^(c)	1,628 (67.2)	1,702 (68.9)	1,631 (67.9)	1,717 (73.7)	1,080 (68.8)	24.7	1.7 [1.1, 2.3]
2nd degree tear	433 (17.9)	425 (17.2)	412 (17.1)	447 (19.2)	340 (21.7)	34.5	2.3 [1.6, 3.0]
3rd & 4th degree tear	14 (0.6)	33 (1.3)	27 (1.1)	41 (1.8)	26 (1.7)	167.4	7.9 [5.3, 10.5]
Episiotomy	123 (5.1)	173 (7.0)	109 (4.5)	102 (4.4)	98 (6.2)	-10.2	-0.8 [-2.0, 0.3]
Combined ^(d)	166 (6.9)	112 (4.5)	14 (0.6)	13 (0.6)	10 (0.6)	-92.9	-18.4 [-20.1, -16.7]
Total stated^(e)	2,422	2,470	2,403	2,330	1,569		
Total	2,476	2,482	2,421	2,331	1,570		
Instrumental vaginal births^(b)							
Intact & 1st degree tear ^(c)	30 (17.0)	45 (19.6)	90 (37.2)	73 (26.4)	42 (20.1)	37.2	2.5 [0.5, 4.4]
2nd degree tear	17 (9.7)	37 (16.1)	50 (20.7)	61 (22.1)	32 (15.3)	54.0	3.4 [1.1, 5.7]
3rd & 4th degree tear	8 (4.5)	10 (4.3)	8 (3.3)	13 (4.7)	9 (4.3)	12.6	0.9 [-3.2, 5.2]
Episiotomy	94 (53.4)	123 (53.5)	109 (45.0)	112 (40.6)	109 (52.2)	20.3	1.4 [-0.2, 3.1]
Combined ^(d)	1 (0.6)	10 (4.3)	14 (5.8)	15 (5.4)	14 (6.7)	444.8	13.9 [9.0, 19.1]
Total stated^(e)	176	230	242	276	209		
Total	203	233	246	276	209		

(a) Percentage change in odds

(b) Instrumental vaginal birth includes deliveries by the use of Forceps or Ventouse. Normal vaginal birth includes spontaneous vaginal delivery and vaginal breech delivery.

(c) First degree tears include perineal grazes.

(d) Combined episiotomy and tear mainly includes episiotomy with 2nd & higher degree tear, posterior vaginal wall or other vulva tear.

(e) Includes "other" perineal status which include labial and posterior vaginal wall tears.

Note: Overall percentage change covers the 14-year period 1997–2010 since data prior to 1997 are not available.

- The rise in 2nd or higher degree perineal tears following a normal vaginal birth was accompanied by small decline in episiotomy with or without a tear.
- More than half of mothers having an instrumental vaginal birth had an episiotomy with or without a perineal tear.

Out of hospital births

Figure 19: All mothers, percentage distribution of birthing outside hospital by Indigenous status, 1986–2010

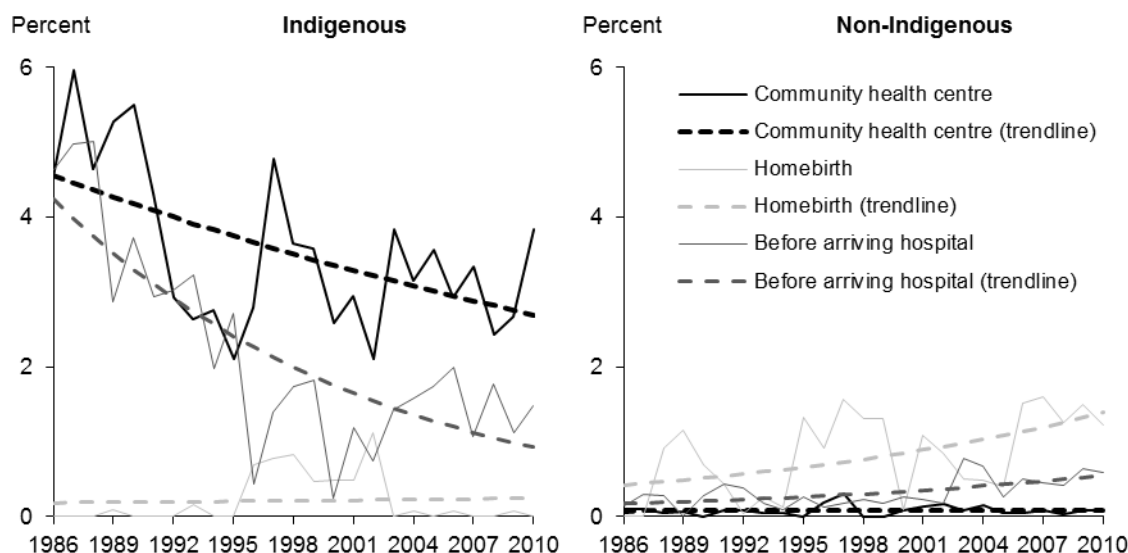


Table 26: All mothers, number and percentage distribution of birthing outside hospital by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Planned home birth	0 (0.0)	0 (0.0)	8 (0.7)	5 (0.4)	0 (0.0)	32.3	1.2 [-2.2, 4.6]
Community health centre	57 (5.2)	35 (3.0)	42 (3.5)	42 (3.1)	42 (3.0)	-41.9	-2.2 [-3.1, -1.4]
Other ^(b)	47 (4.3)	33 (2.8)	14 (1.2)	18 (1.3)	21 (1.5)	-78.7	-6.2 [-7.3, -5.2]
Total	1,102	1,175	1,200	1,337	1,390		
Non-Indigenous							
Planned home birth	10 (0.5)	10 (0.4)	23 (1.0)	15 (0.7)	33 (1.4)	230.6	5.1 [3.7, 6.5]
Community health centre	1 (0.1)	1 (0.0)	3 (0.1)	3 (0.1)	2 (0.1)	20.1	0.8 [-3.2, 4.9]
Other ^(b)	4 (0.2)	6 (0.3)	4 (0.2)	9 (0.4)	12 (0.5)	221.1	5.0 [2.8, 7.2]
Total	1,943	2,286	2,230	2,187	2,304		

(a) Percentage change in odds.

(b) Other includes unplanned births at home, in transit (ambulance or plane), in confinement accommodation and place not stated.

- The proportion of Indigenous mothers who birthed in a non-hospital setting, including community health centre or ambulance before arriving hospital, declined considerably over time.
- By 2006–2010 94% of Indigenous mothers and 99% of non-Indigenous mothers birthed in hospital.
- A large proportion of the births that occurred in community health centres were less than 37 weeks of gestation; almost 50% in 2006–2010.
- The proportion of non-Indigenous mothers who birthed in a non-hospital setting increased slightly during the 25-year period, mainly due to a rise in planned home births.
- There was also a small rise in unplanned births out of hospital among non-Indigenous mothers.

Length of postnatal stay

Figure 20: Mothers who birthed in a hospital, average length of postnatal stay and percentage distribution of postnatal stay exceeding four days by Indigenous status, 1986–2010

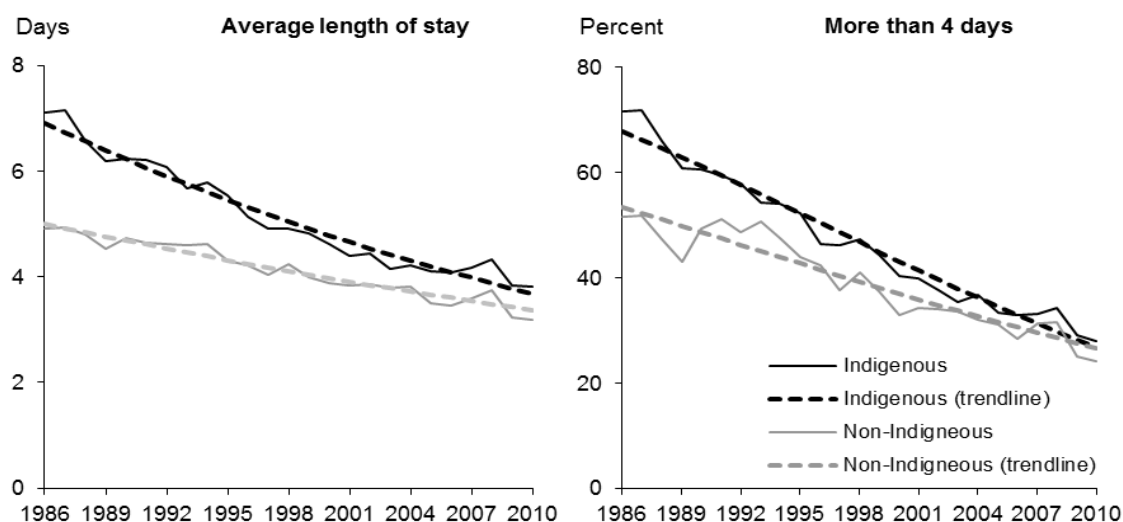


Table 27: Mothers who birthed in a hospital, average length of postnatal stay, number and percentage distribution of postnatal stay exceeding four days by Indigenous status, 1986–2010

	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Average length of stay (days)						% change^(a)	
Indigenous	6.7	5.9	4.9	4.3	4.0	-46.8	-2.6 [-2.7, -2.5]
Non-Indigenous	4.8	4.6	4.1	3.8	3.4	-32.6	-1.6 [-1.7, -1.6]
Average annual number (per cent)						% change^(b)	
Indigenous							
More than 4 days	660 (66.1)	615 (55.6)	510 (44.9)	466 (36.6)	417 (31.4)	-82.7	-7.0 [-7.4, -6.7]
Total^(c)	998	1,107	1,137	1,273	1,326		
Non-Indigenous							
More than 4 days	942 (48.9)	1,097 (48.3)	841 (38.2)	713 (33.0)	635 (28.1)	-68.4	-4.7 [-4.9, -4.4]
Total^(c)	1,928	2,269	2,200	2,160	2,258		

(a) Percentage change in length of postnatal stay

(b) Percentage change in odds

(c) Total number of mothers who birthed in hospital

- In 2006–2010 the average length of postnatal stay of all mothers was just over 3.5 days, with more than two thirds discharged before the fifth day.
- Indigenous mothers were more likely to stay longer in hospital following birth during the whole period of 1986–2010.
- The average length of postnatal stay and the proportion of mothers whose postnatal stay exceeded four days of all mothers declined markedly over time.
- The decline was steeper among Indigenous than non-Indigenous mothers. As a result, by the late 2000s the average length of postnatal stay was comparable between Indigenous and non-Indigenous mothers.

Length of postnatal stay by birth method

Figure 21: Mothers who birthed in a hospital, average length of postnatal stay by Indigenous status and birth method, 1986–2010

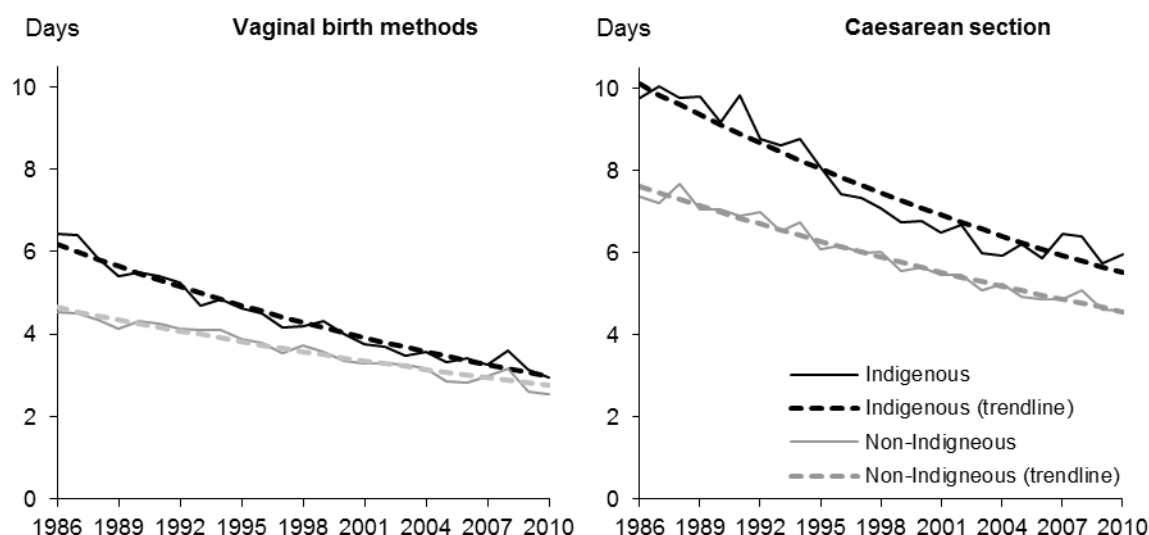


Table 28: Mothers who birthed in a hospital, average length of postnatal stay by Indigenous status and delivery method, 1986–2010

	Average length of stay (days)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Vaginal birth	5.9	5.0	4.2	3.6	3.3	-51.9	-3.0 [-3.1, -2.9]
Caesarean section	9.7	8.8	7.1	6.3	6.1	-45.4	-2.5 [-2.6, -2.4]
Non-Indigenous							
Vaginal birth	4.4	4.1	3.6	3.2	2.8	-40.6	-2.1 [-2.2, -2.1]
Caesarean section	7.3	6.6	5.9	5.2	4.8	-40.0	-2.1 [-2.2, -2.0]

(a) Percentage change in length of postnatal stay

- The average length of postnatal stay in 2006–2010 was around 3 days for all mothers who had a vaginal birth and 5 to 6 days for caesarean deliveries.
- In general, the length of stay of Indigenous mothers who had a vaginal birth was slightly longer than non-Indigenous mothers. However, by the late 2000s the average length of stay was much more comparable between the two groups.
- Similarly, for mothers who had a caesarean section, the average length of stay was longer in Indigenous than in non-Indigenous mothers. This gap has narrowed over time.
- By 2006–2010 Indigenous mothers who had a caesarean section, on average, stayed in hospital just over one day longer than non-Indigenous mothers.

Postnatal length of stay by hospital

Table 29: Mothers who birthed in a hospital, average length of postnatal stay by Indigenous status and hospital, 1986–2010

	Average length of stay (days)				
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010
Indigenous					
Royal Darwin	7.2	5.9	4.9	4.3	4.1
Gove District	6.6	6.0	4.7	5.0	5.5
Katherine	6.5	6.0	5.1	4.7	3.4
Alice Springs	6.3	5.9	5.0	3.8	3.8
Non-Indigenous					
Royal Darwin	4.7	4.0	3.3	3.0	2.9
Gove District	4.9	4.3	4.0	3.4	3.5
Katherine	4.4	4.5	4.1	3.8	3.3
Alice Springs	4.4	4.1	3.7	3.1	2.9
Darwin Private ^(a)	6.0	5.7	5.5	5.2	4.7

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

Note: This table omits the data of Tennant Creek Hospital and, for Indigenous mothers, Darwin Private Hospital due to small number of events.

- The average length of postnatal stay for Indigenous mothers at public hospitals in the NT was around 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 mostly similar.
- Non-Indigenous mothers attending the private hospital tended to stay between one to two days longer than those attending a public hospital.
- Over the 25-year period 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 22: First-time mothers, average age by Indigenous status, 1986–2010

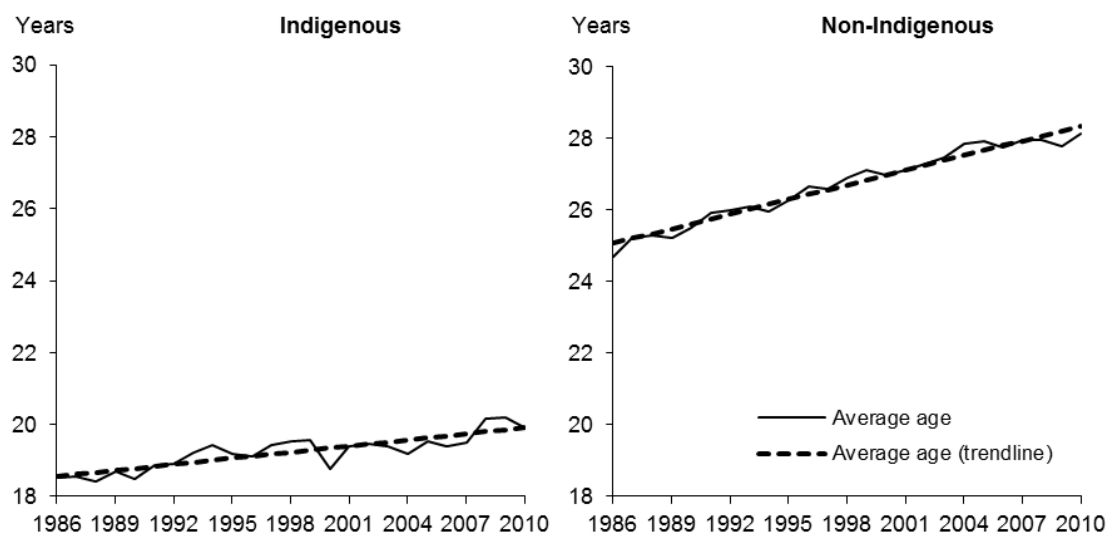


Table 30: First-time mothers, average age by Indigenous status, 1986–2010

	Average age (years)					Change in age (years)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous	18.5	19.1	19.3	19.4	19.8	1.35	0.06 [0.04, 0.07]
Non-Indigenous	25.2	26.1	26.8	27.5	27.9	3.70	0.14 [0.13, 0.15]

- 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 25-year period between 1986 to 2010, from 18.5 to 19.8 years among Indigenous mothers, and from 25.2 to 27.9 years among non-Indigenous mothers
- The rise in the average age of first-time mothers was more rapid for non-Indigenous mothers resulting in a widening of the age gap between Indigenous and non-Indigenous first-time mothers.

Age group

Figure 23: First-time mothers, percentage distribution of age groups by Indigenous status, 1986–2010

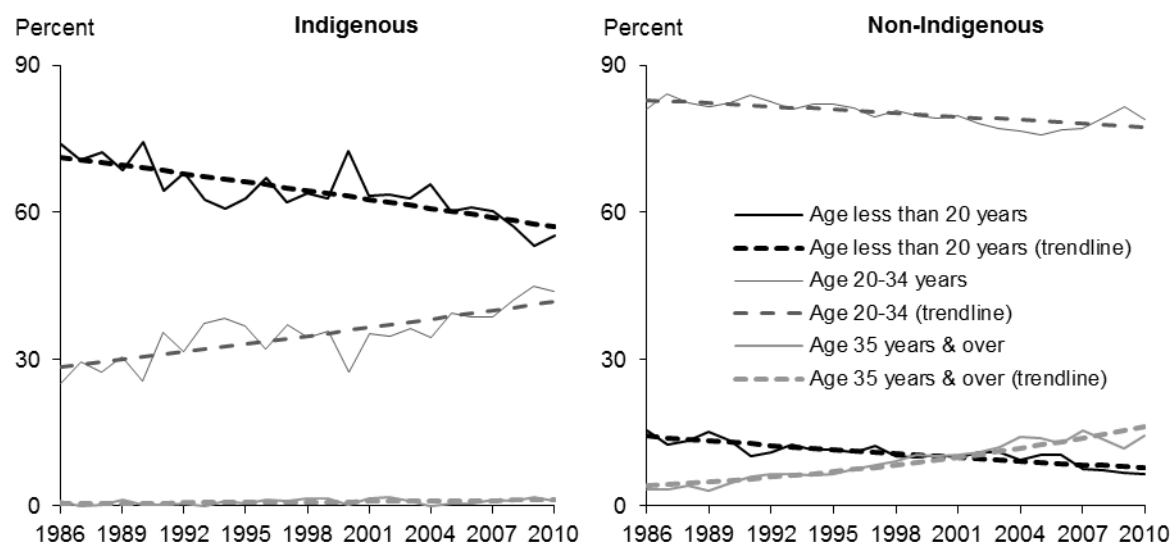


Table 31: First-time mothers, number and percentage distribution of age groups by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Age less than 20	241 (71.9)	244 (63.7)	262 (65.7)	262 (63.0)	240 (57.1)	-46.2	-2.6 [-3.1, -2.0]
Age 20-34 years	92 (27.5)	137 (35.8)	133 (33.3)	149 (35.8)	175 (41.7)	81.1	2.5 [1.9, 3.1]
Age 35 years & over	2 (0.6)	2 (0.5)	4 (1.0)	4 (1.0)	5 (1.2)	147.0	3.8 [0.6, 7.1]
Total	335	383	399	416	420		
Non-Indigenous							
Age less than 20	117 (13.9)	112 (11.3)	104 (10.8)	99 (10.4)	77 (7.6)	-49.2	-2.8 [-3.3, -2.2]
Age 20-34 years	692 (82.3)	814 (82.3)	769 (79.9)	735 (77.3)	796 (78.7)	-30.0	-1.5 [-1.9, -1.0]
Age 35 years & over	32 (3.8)	63 (6.4)	89 (9.3)	117 (12.3)	138 (13.6)	352.4	6.5 [5.8, 7.2]
Total stated	841	989	962	951	1,011		
Total	841	989	963	951	1,011		

(a) Percentage change in odds

- Indigenous first-time mothers were consistently much more likely than non-Indigenous first-time mothers to be aged less than 20 years (57% compared with 8% in the period 2006–2010).
- The opposite pattern was observed among older first-time mothers aged 35 years and over. In 2006–2010 just over 1% of Indigenous first-time mothers were in this age group compared with 14% of non-Indigenous first-time mothers.
- There was a significant decline in the proportion of first-time mothers aged less than 20 years, for both Indigenous and non-Indigenous mothers.
- By contrast, the proportion of non-Indigenous mothers aged 35 years and over tripled, increasing from 4% to 14%.

Inadequate antenatal visits

Figure 24: First-time mothers, percentage distribution of inadequate antenatal visits by Indigenous status, 1989–2010

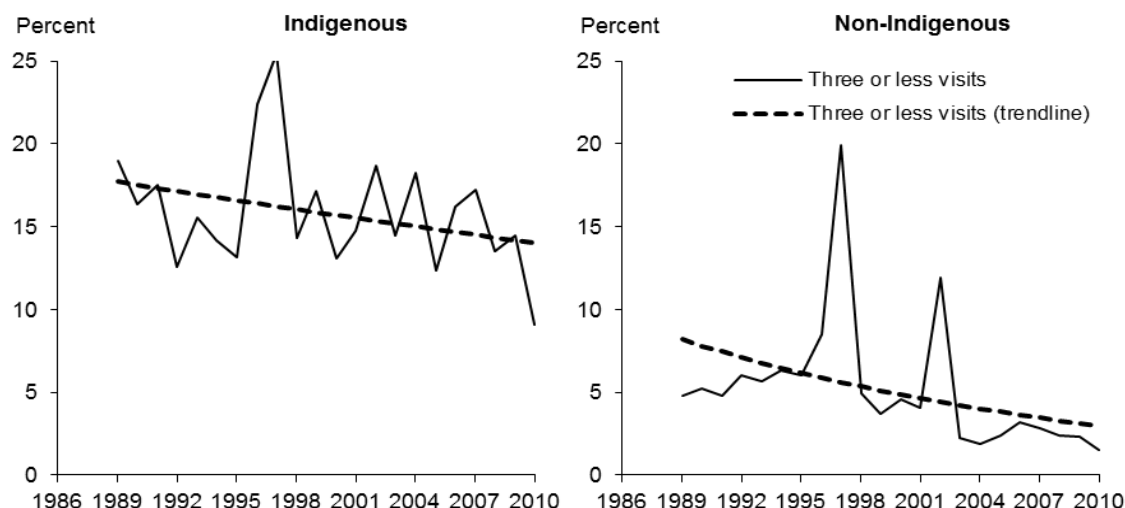


Table 32: First-time mothers, number and percentage distribution of inadequate antenatal visits by Indigenous status, 1989–2010

	Average annual number (percent)					% change ^(a)	
	1989-1990 ^(b)	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
0 - 3 visits	59 (17.7)	51 (14.5)	64 (18.3)	64 (15.7)	58 (14.0)	-24.2	-1.3 [-2.2, -0.4]
Total stated	334	352	349	407	415		
Total	346	383	399	416	420		
Non-Indigenous							
0 - 3 visits	39 (5.0)	49 (5.7)	68 (8.5)	42 (4.5)	25 (2.5)	-65.4	-4.9 [-5.9, -4.0]
Total stated	778	858	802	940	1,009		
Total	829	989	963	951	1,011		

(a) Percentage change in odds

(b) Data for 1986–1988 are not available

Note: The overall percentage change covers the 22-year period 1989–2010

- Having an adequate number of antenatal visits is important for maternal and fetal health. The World Health Organisation (WHO) regards three or less antenatal visits as inadequate.⁵
- During the period 2006–2010 14% of Indigenous first-time mothers and 2.5% 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 mothers. The decline was more 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 10).

First antenatal visit

Figure 25: First-time mothers, percentage distribution of first antenatal visit in first trimester by Indigenous status, 1986–2010

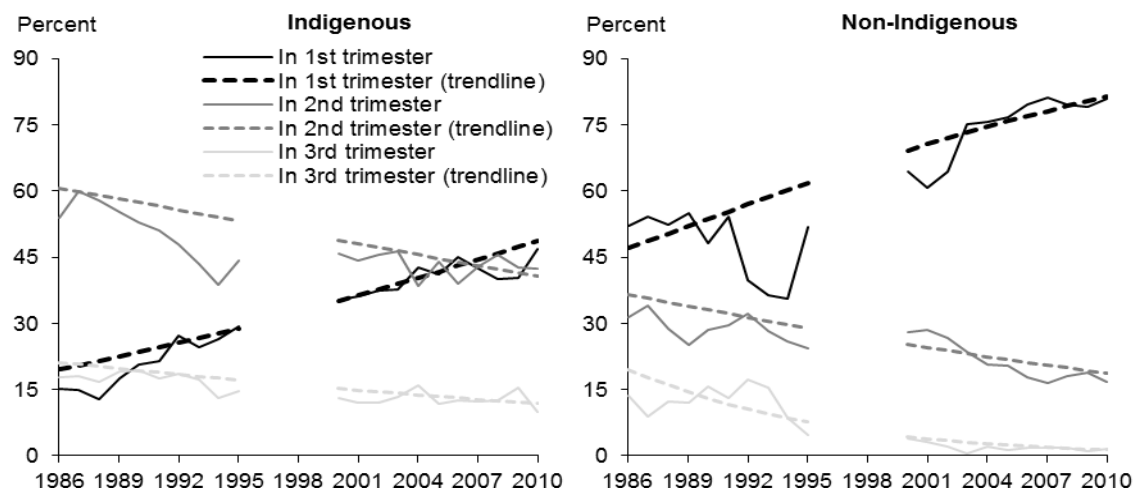


Table 33: First-time mothers, number and percentage distribution of first antenatal visit in first trimester by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	2000 ^(b)	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
First trimester	55 (18.2)	99 (29.7)	67 (16.1)	161 (40.6)	181 (43.9)	289.7	5.8 [5.2, 6.5]
Second trimester	187 (61.7)	172 (51.7)	187 (45.0)	182 (45.8)	178 (43.2)	-55.7	-3.3 [-3.9, -2.8]
Third trimester	61 (20.1)	62 (18.6)	79 (19.0)	54 (13.6)	53 (12.9)	-50.0	-2.8 [-3.6, -2.1]
Total stated	303	333	416	397	412		
Total	335	383	441	416	420		
Non-Indigenous							
First trimester	438 (55.2)	431 (52.2)	301 (33.6)	669 (73.2)	810 (80.8)	390.6	6.9 [6.4, 7.3]
Second trimester	250 (31.5)	277 (33.6)	452 (50.4)	228 (24.9)	178 (17.7)	-59.9	-3.7 [-4.1, -3.3]
Third trimester	105 (13.2)	117 (14.2)	24 (2.7)	17 (1.9)	15 (1.5)	-94.5	-11.4 [-12.1, -10.6]
Total stated	794	825	897	914	1,003		
Total	841	989	931	951	1,011		

(a) Percentage change in odds

(b) Data for 1996–1999 are not available

Note: The overall percentage change covers the 25-year period 1986–2010

- Indigenous first-time mothers were much 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 18% of Indigenous first-time mothers and 55% of non-Indigenous first-time mothers attended their first antenatal visits during the first trimester.
- Over the ensuing 25-year period (1986–2010) there was considerable improvement in early antenatal attendance by all first-time mothers.
- By 2006–2010 44% of Indigenous first-time mothers and 81% of non-Indigenous first-time mothers attended their first antenatal visit during the first trimester.

Onset of labour

Figure 26: First-time mothers, percentage distribution of induced labour and no labour by Indigenous status, 1986–2010

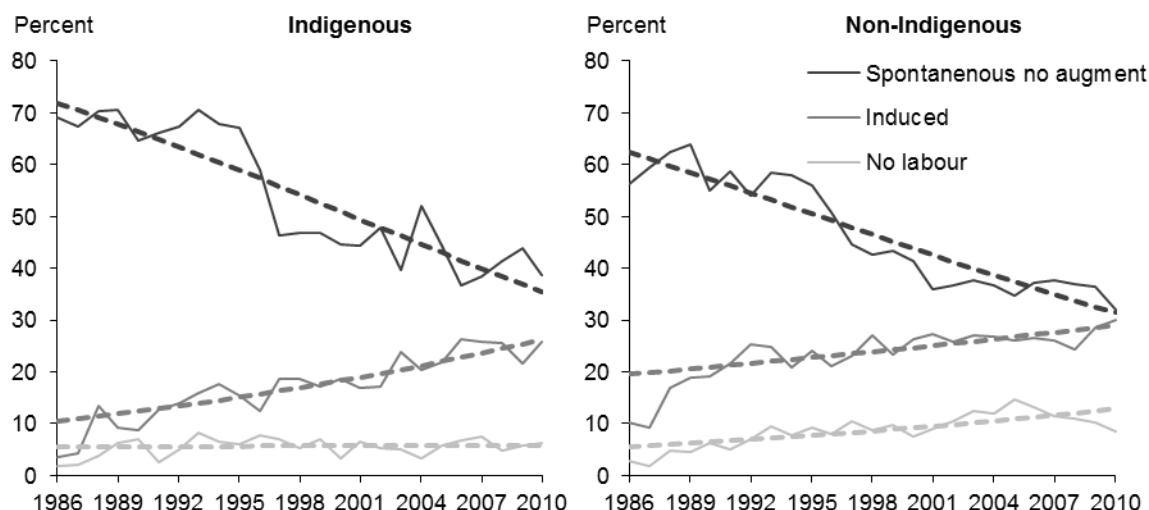


Table 34: First-time mothers, number and percentage distribution of induced labour and no labour by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Spontaneous no augment	229 (68.4)	259 (67.8)	186 (48.3)	189 (45.4)	167 (39.8)	-78.5	-6.2 [-6.8, -5.6]
Spontaneous with augment	51 (15.2)	44 (11.5)	110 (28.6)	122 (29.3)	122 (29.0)	238.2	5.2 [4.5, 5.9]
Induced	36 (10.7)	58 (15.2)	66 (17.1)	83 (20.0)	105 (25.0)	203.2	4.7 [3.9, 5.5]
No labour	19 (5.7)	21 (5.5)	23 (6.0)	22 (5.3)	26 (6.2)	5.3	0.2 [-1.0, 1.4]
Total stated	335	382	385	416	420		
Total	335	383	399	416	420		
Non-Indigenous							
Spontaneous no augment	496 (59.0)	563 (57.0)	425 (44.5)	345 (36.3)	365 (36.1)	-72.4	-5.2 [-5.6, -4.9]
Spontaneous with augment	146 (17.4)	118 (11.9)	214 (22.4)	240 (25.2)	263 (26.0)	147.4	3.8 [3.4, 4.3]
Induced	157 (18.7)	231 (23.4)	232 (24.3)	253 (26.6)	274 (27.1)	67.7	2.2 [1.8, 2.6]
No labour	42 (5.0)	76 (7.7)	85 (8.9)	112 (11.8)	109 (10.8)	149.7	3.9 [3.2, 4.6]
Total stated	841	988	956	951	1,011		
Total	841	989	963	951	1,011		

(a) Percentage change in odds

- Spontaneous labour without augmentation in first-time mothers was slightly more common among Indigenous than non-Indigenous. The proportion declined significantly in both groups over time.
- The proportion of first-time mothers who had a spontaneous labour with augmentation was similar in both groups and rose significantly but appears to have stabilised more recently.
- The proportion of induced labour rose significantly among Indigenous first-time mothers and, to a lesser extent, among non-Indigenous first-time mothers.
- By contrast, the proportion of no labour changed little over time among Indigenous first-time mothers, but doubled among non-Indigenous first-time mothers.

Labour interventions

Figure 27: Selected first-time mothers, percentage distribution of labour intervention methods and normal vaginal births without intervention by Indigenous status, 1997–2010

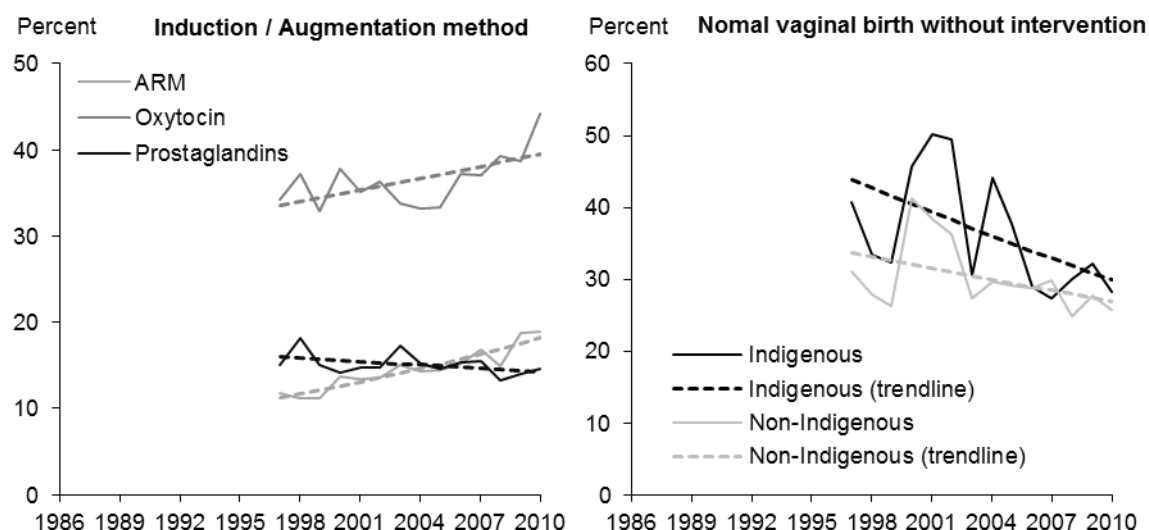


Table 35: Selected first-time mothers, number and percentage distribution of labour intervention methods and normal vaginal births without intervention by Indigenous status, 1997–2010

	Average annual number (percent)					% change ^(a)	
	1997-1999	2000-2002	2003-2005	2006-2008	2009-2010	Overall Annual	[95% CI]
Induction/Augmentation method							
ARM ^(b)	296 (26.7)	403 (34.5)	402 (35.9)	434 (36.1)	472 (37.9)	60.6	3.7 [2.9, 4.6]
Oxytocin	385 (34.7)	425 (36.4)	375 (33.5)	455 (37.9)	517 (41.6)	29.5	2.0 [1.2, 2.8]
Prostaglandins	178 (16.1)	170 (14.6)	176 (15.7)	176 (14.7)	178 (14.3)	-12.2	-1.0 [-2.0, 0.1]
Total^(c)	1,108	1,167	1,121	1,201	1,244		
Normal vaginal births without intervention							
Indigenous	105 (35.5)	174 (48.5)	118 (37.2)	97 (28.8)	109 (32.3)	-45.6	-4.6 [-6.0, -3.1]
Non-Indigenous	230 (28.3)	312 (38.6)	230 (28.6)	239 (27.7)	236 (26.7)	-27.3	-2.4 [-3.4, -1.5]

(a) Percentage change in odds

(b) ARM stands for artificial rupture of membranes. The use of ARM as augmentation was not counted due to its often lack of clinical meaning.

(c) First-time mothers who gave birth at term to a live born singleton with cephalic presentation were selected for this analysis.

Note: Percentage overall change covers the fourteen-year period 1997–2010 as data prior to 1997 are not available

- The proportion of selected first-time mothers having a normal vaginal birth without intervention was higher among Indigenous than non-Indigenous mothers.
- The proportion of selected first-time mothers having a normal vaginal birth without intervention trended downwards during 1997–2010, for both Indigenous and non-Indigenous mothers.
- Oxytocin was the most common method of induction or augmentation. Its popularity as birth intervention rose even further in the late 2000s.
- The use of artificial rupture of membranes (ARM) to induce labour among first-time mothers also increased significantly during the 14-year period.
- In contrast, the application of prostaglandins during labour remained stable over time.

Birth method

Figure 28: First-time mothers, percentage distribution of birth methods by Indigenous status, 1986–2010

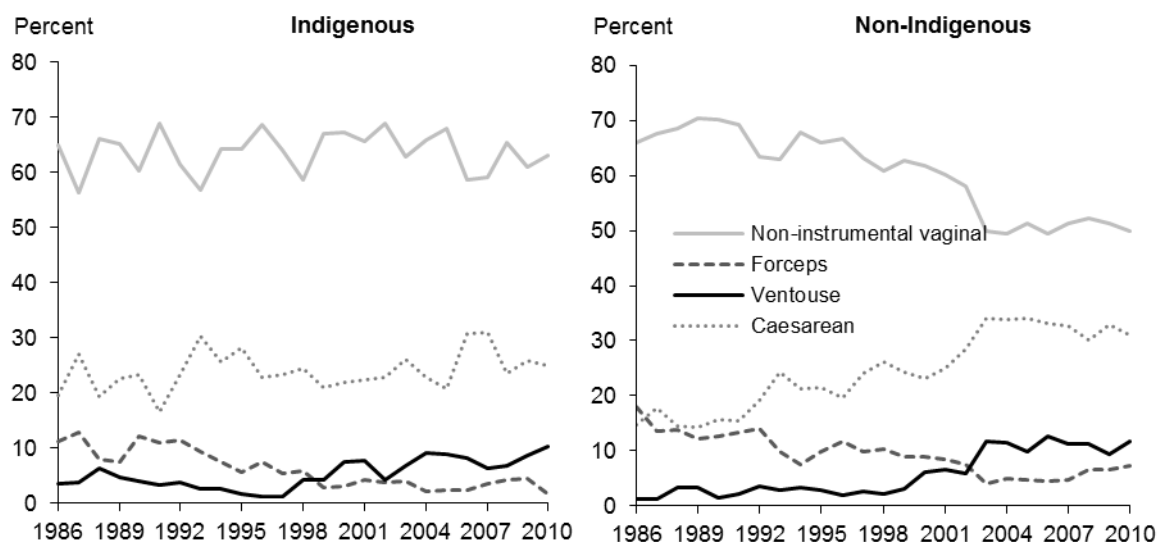


Table 36: First-time mothers, number and percentage distribution of birth methods by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Normal vaginal ^(b)	210 (62.7)	242 (63.4)	260 (67.5)	275 (66.1)	258 (61.4)	1.5	0.1 [-0.5, 0.6]
Forceps	35 (10.4)	34 (8.9)	19 (4.9)	14 (3.4)	13 (3.1)	-83.6	-7.3 [-8.4, -6.1]
Ventouse	15 (4.5)	11 (2.9)	15 (3.9)	30 (7.2)	34 (8.1)	247.3	5.3 [4.0, 6.7]
Caesarean	75 (22.4)	95 (24.9)	91 (23.6)	96 (23.1)	114 (27.1)	22.9	0.9 [0.2, 1.5]
Total stated	335	382	385	416	420		
Total	335	383	399	416	420		
Non-Indigenous							
Normal vaginal ^(b)	575 (68.4)	651 (65.8)	606 (63.2)	513 (53.9)	514 (50.8)	-61.0	-3.9 [-4.2, -3.5]
Forceps	119 (14.1)	108 (10.9)	96 (10.0)	57 (6.0)	60 (5.9)	-71.4	-5.1 [-5.7, -4.5]
Ventouse	16 (1.9)	29 (2.9)	31 (3.2)	86 (9.0)	114 (11.3)	1,011.3	10.6 [9.6, 11.5]
Caesarean	130 (15.5)	201 (20.3)	226 (23.6)	295 (31.0)	323 (31.9)	211.6	4.8 [4.4, 5.3]
Total stated	841	989	959	951	1,011		
Total	841	989	963	951	1,011		

(a) Percentage change in odds

(b) includes spontaneous vaginal delivery and vaginal breech delivery.

- The proportion of Indigenous first-time mothers having a normal vaginal delivery remained fairly constant over the period 1986–2010.
- The proportion of non-Indigenous first-time mothers having a normal vaginal delivery declined from 68% in 1986–1990 to 51% in 2006–2010.
- The proportion of Indigenous first-time mothers having a caesarean section delivery increased slightly over time.
- By contrast, the proportion of non-Indigenous first-time mothers having a caesarean section delivery doubled during the first 20 years with minimal change in the last 5-year period.

Type of caesarean section deliveries

Figure 29: First-time mothers, percentage distribution of elective and emergency caesarean section deliveries by Indigenous status, 2000–2010

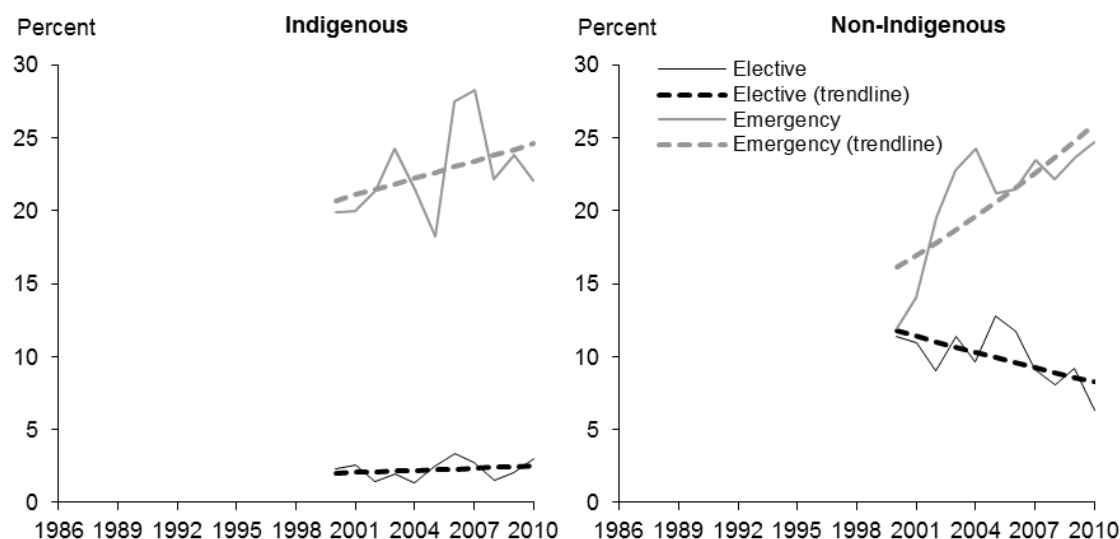


Table 37: First-time mothers, number and percentage distribution of elective and emergency caesarean section deliveries by Indigenous status, 2000–2010

	Average annual number (percent)				% change ^(a)	
	2000-2002	2003-2005	2006-2008	2009-2010	Overall	Annual [95% CI]
Indigenous						
Elective Caesarean	9 (2.0)	8 (2.0)	10 (2.4)	11 (2.5)	23.1	2.1 [-3.9, 8.5]
Emergency Caesarean	90 (20.4)	85 (21.4)	106 (25.9)	100 (22.9)	25.6	2.3 [0.1, 4.5]
Total	442	398	409	436		
Non-Indigenous						
Elective Caesarean	100 (10.4)	106 (11.3)	96 (9.6)	80 (7.8)	-32.1	-3.8 [-5.7, -1.9]
Emergency Caesarean	145 (15.1)	212 (22.6)	223 (22.3)	249 (24.2)	82.8	6.2 [4.7, 7.8]
Total	958	937	1,000	1,029		

(a) Percentage change in odds

Note: Percentage overall change covers the eleven-year period 2000–2010 as data prior to 2000 are not available

- Indigenous first-time mothers were consistently much less likely to have an elective caesarean section delivery than non-Indigenous first-time mothers.
- 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 fairly constant.
- Since 2003–2005 the proportion of Indigenous and non-Indigenous first-time mothers having an emergency caesarean section delivery has been similar.
- For non-Indigenous first-time mothers, the proportion having an elective caesarean section decreased but the proportion having an emergency caesarean section increased.

Pregnancy-related public hospital admissions

Induced abortion

Figure 30: NT females, rate of induced abortion in NT public hospitals by Indigenous status, 1992–2011

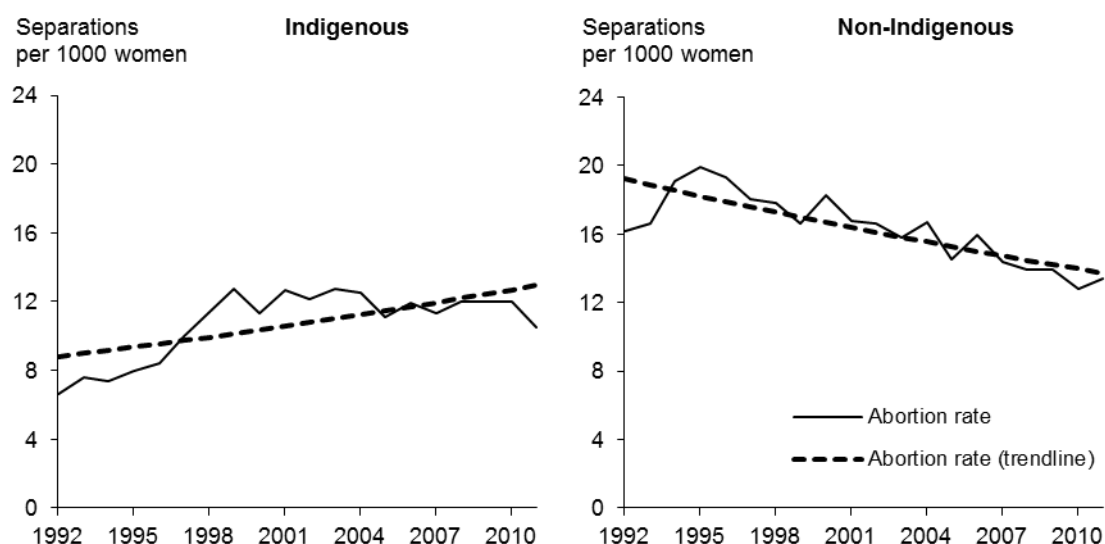


Table 38: NT females, number and rate of induced abortion in NT public hospitals by Indigenous status, 1992–2011

	Average annual number (rate)					% change ^(a)	
	1992-1995	1996-1999	2000-2003	2004-2007	2008-2011	Overall	Annual [95% CI]
Indigenous	99 (7.4)	160 (10.7)	201 (12.2)	208 (11.7)	217 (11.6)	47.2	2.1 [2.0, 2.1]
Non-Indigenous	664 (18.0)	702 (17.9)	666 (16.9)	597 (15.4)	566 (13.5)	-28.6	-1.8 [-1.8, -1.7]

Source: NT public hospital morbidity dataset

(a) Percentage change in rates

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

- Induced abortion is the termination of pregnancy through medical or surgical intervention.⁶
- Between 1992–2003 the annual rate of induced abortions among Indigenous women increased from 7 to 12 per 1000 women. This rate remained unchanged in the subsequent time period.
- By contrast, non-Indigenous women experienced a steady 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 similar in recent years.

Diabetes in pregnancy

Figure 31: Mothers admitted to public hospital, percentage distribution of diabetes in pregnancy by Indigenous status, 1992–2011

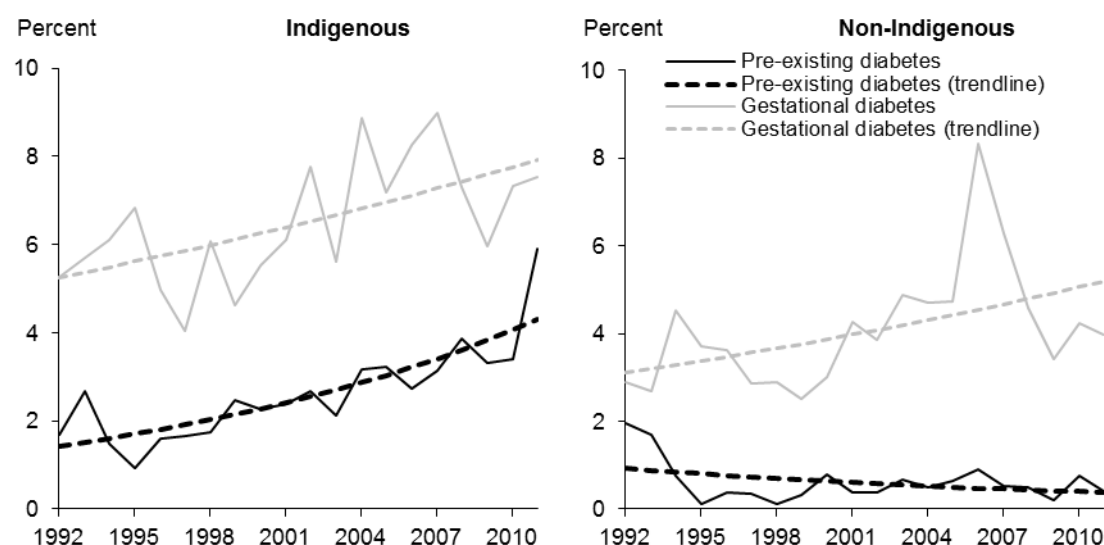


Table 39: Mothers admitted to public hospital, number and percentage distribution of diabetes in pregnancy by Indigenous status, 1992–2011

	Average annual number (percent ^(a))					% change ^(b)	
	1992-1995	1996-1999	2000-2003	2004-2007	2008-2011	Overall	Annual [95% CI]
Indigenous							
Pre-existing diabetes	20 (1.7)	22 (1.9)	32 (2.4)	42 (3.1)	56 (4.1)	200.4	6.0 [5.8, 6.1]
Gestational diabetes	70 (6.0)	59 (5.0)	83 (6.3)	112 (8.3)	96 (7.0)	51.0	2.2 [2.1, 2.3]
Non-Indigenous							
Pre-existing diabetes	18 (1.1)	5 (0.3)	9 (0.6)	10 (0.6)	8 (0.5)	-58.9	-4.6 [-4.8, -4.3]
Gestational diabetes	56 (3.5)	48 (3.0)	63 (4.0)	93 (6.0)	68 (4.1)	67.1	2.7 [2.6, 2.8]

Source: NT public hospital morbidity dataset

(a) Percentage of NT mothers who gave birth in the NT excluding Darwin Private Hospital.

(b) Percentage change in proportions

- During the period 1992–2011 the proportion of Indigenous and non-Indigenous mothers admitted with gestational diabetes increased considerably.
- The proportion of Indigenous mothers with gestational diabetes was much higher than that of non-Indigenous mothers.
- The proportion of mothers with pre-existing diabetes was slightly higher among Indigenous than non-Indigenous mothers in the early 1990s. The proportion rose markedly over time among Indigenous mothers but declined among non-Indigenous mothers.
- By the late 2000s the proportion of Indigenous mothers with pre-existing diabetes was eight times greater than non-Indigenous mothers.

Table 40: NT Midwives Collection: All mothers, number and percentage distribution of diabetes in pregnancy by Indigenous status, 2004–2011

	Average annual number (percent)			
	Indigenous		Non-Indigenous	
	2004-2007	2008-2011	2004-2007	2008-2011
Pre-existing diabetes	27 (2.0)	42 (3.1)	7 (0.3)	9 (0.4)
Gestational diabetes	125 (9.3)	119 (8.7)	130 (5.9)	147 (6.2)

- The hospital morbidity dataset was a more reliable source of information on diabetes in pregnancy than the Midwives' Collection prior to the mid-2000s when efforts to validate cases of diabetes in pregnancy recorded on the Midwives Collection were instigated and then formalised during 2008–2011.
- Since the period 2004–2007, the Midwives' Collection has been most reliable source of data on diabetes in pregnancy for all NT mothers.
- The rate of gestational diabetes in Indigenous mothers who birthed during 2004–2011 (9%) was higher than that of non-Indigenous mothers (6%).
- During the same period the rate of pre-existing diabetes was also higher in Indigenous mothers (2.5%) than non-Indigenous mothers (0.4%).

Hypertension complicating pregnancy

Figure 32: Mothers admitted to public hospital, percentage distribution of hypertension complicating pregnancy by Indigenous status, 1992–2011

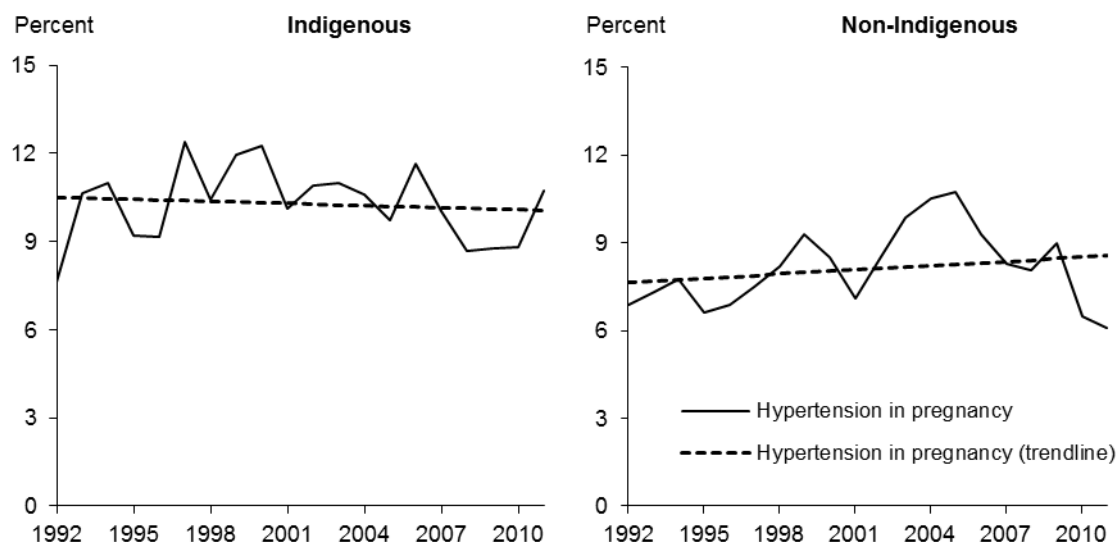


Table 41: Mothers admitted to public hospital, number and percentage distribution of hypertension complicating pregnancy by Indigenous status, 1992–2011

	Average annual number (percent ^(a))					% change ^(b)	
	1992-1995	1996-1999	2000-2003	2004-2007	2008-2011	Overall	Annual [95% CI]
Indigenous	112 (9.6)	130 (11.0)	146 (11.0)	141 (10.5)	126 (9.3)	-4.1	-0.2 [-0.3, -0.2]
Non-Indigenous	116 (7.1)	128 (8.0)	134 (8.5)	149 (9.7)	123 (7.4)	11.7	0.6 [0.5, 0.7]

Source: NT public hospital morbidity dataset

(a) Percentage of NT mothers who gave birth in the NT excluding Darwin Private Hospital.

(b) Percentage change in proportions

- Hypertension complicating pregnancy includes pre-eclampsia, eclampsia, pre-existing and pregnancy-induced hypertension.⁷
- Around 9% of all mothers attending a public hospital were diagnosed with hypertension complicating pregnancy.
- During the 20 years for which data are available there was little change in the proportion of Indigenous mothers diagnosed with hypertension complicating pregnancy.
- The proportion of non-Indigenous mothers diagnosed with this condition increased, but only to a small extent.
- The proportion of hypertension complicating pregnancy during 1992–2011 was consistently higher in Indigenous mothers (on average 10%) than in non-Indigenous mothers (on average 8%).

Puerperal sepsis

Figure 33: Mothers admitted to public hospital, percentage distribution of puerperal sepsis by Indigenous status, 1992–2011

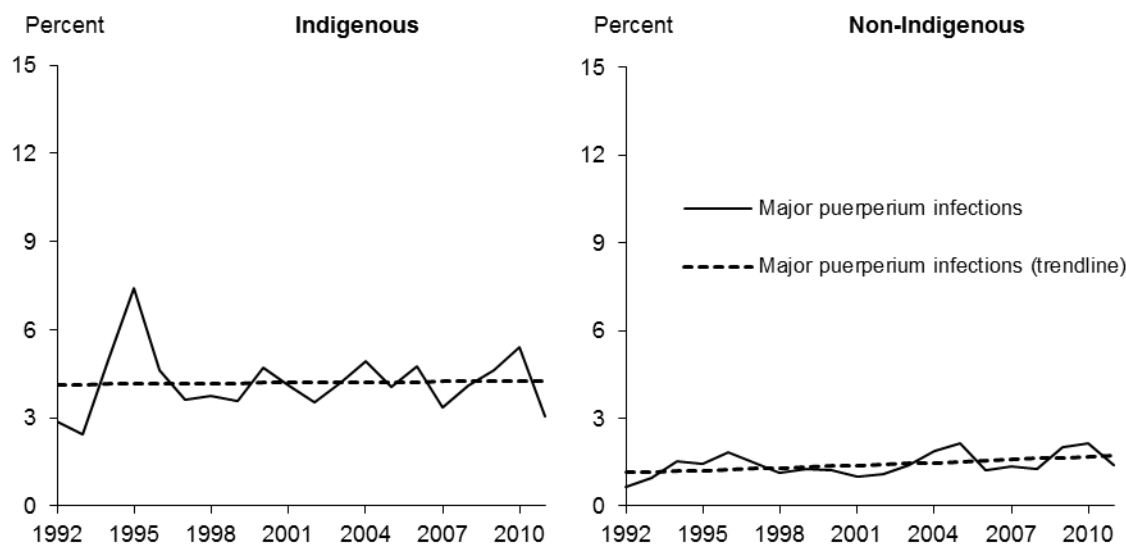


Table 42: Mothers admitted to public hospital, number and percentage distribution of puerperal sepsis by Indigenous status, 1992–2011

	Average annual number (percent ^(a))					% change ^(b)	
	1992-1995	1996-1999	2000-2003	2004-2007	2008-2011	Overall	Annual [95% CI]
Indigenous	52 (4.4)	46 (3.9)	54 (4.1)	57 (4.2)	59 (4.3)	3.0	0.2 [0.0, 0.3]
Non-Indigenous	19 (1.1)	23 (1.4)	19 (1.2)	25 (1.6)	28 (1.7)	52.4	2.2 [2.1, 2.4]

Source: NT public hospital morbidity dataset

(a) Percentage of NT mothers who gave birth in the NT excluding Darwin Private Hospital.

(b) Percentage change in proportions

- Puerperal sepsis includes all major infections of the puerperium such as endometritis, fever, peritonitis and septicaemia.⁷
- During the period 2008–2011 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 (68%) 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 from 1% to nearly 2%.
- During 2008–2011 the proportion of puerperal sepsis in Indigenous mothers (4.3%) was 2.5 times of that in non-Indigenous mothers (1.7%).

Babies

Total babies

Figure 34: All babies, number and percentage distribution by Indigenous status, 1986–2010

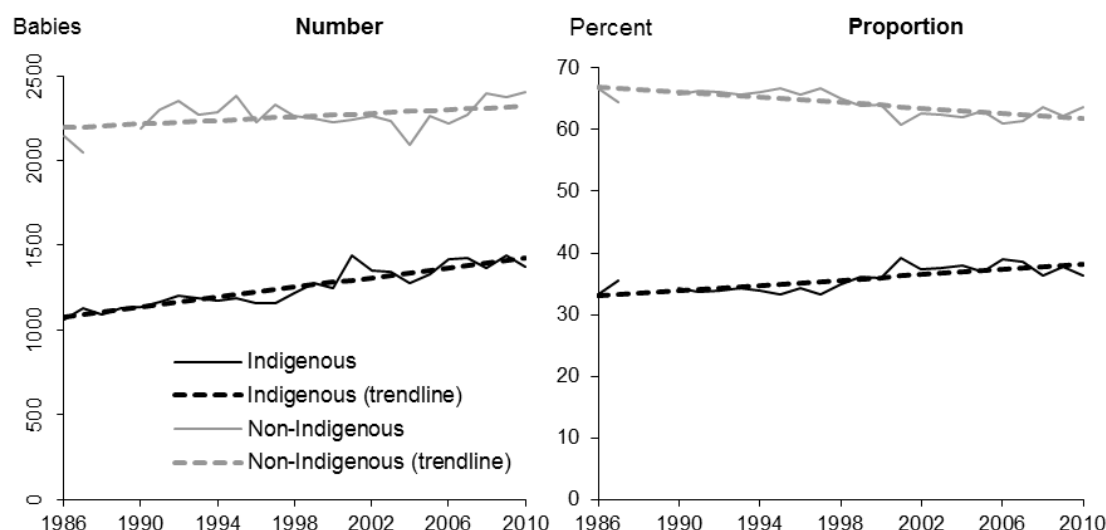


Table 43: All babies, number and percentage distribution by Indigenous status, 1986–2010

	Average annual number (percent)					Change in number	
	1986-1990 ^(a)	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous	1,112 (34.3)	1,184 (33.8)	1,212 (34.9)	1,348 (37.8)	1,406 (37.6)	349.3	14.6 [11.9, 17.2]
Non-Indigenous	2,128 (65.7)	2,318 (66.2)	2,259 (65.1)	2,218 (62.2)	2,335 (62.4)	126.3	5.3 [0.3, 10.2]
Total	3,241	3,503	3,471	3,566	3,741		

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

Note:

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

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

- The majority of babies born in the NT to resident mothers were non-Indigenous. Since the early 2000s, almost 38% babies born in the NT were Indigenous and 62% were non-Indigenous.
- Over the 25 years of available data the average number of babies born in the NT each year increased from 3241 in 1986–1990 to 3741 in 2006–2010.
- The number of Indigenous babies born each year increased by 32% whereas the average number of non-Indigenous babies increased by less than 6%.
- As a consequence of the differential growth, the gap in the proportional distribution of NT babies by Indigenous status has narrowed.

Liveborn babies

Preterm

Figure 35: Liveborn babies, percentage distribution of preterm categories by Indigenous status, 1986–2010

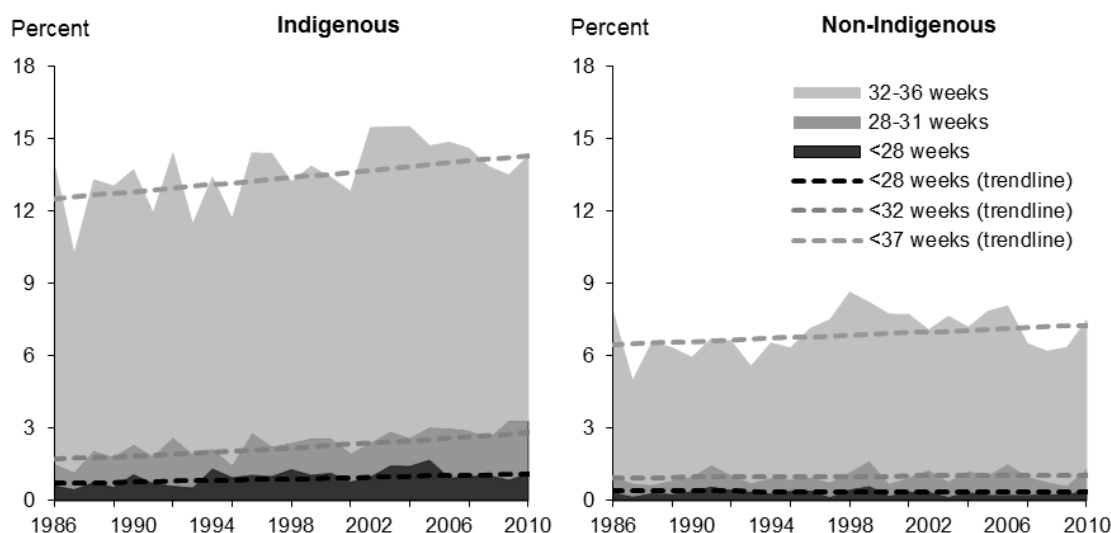


Table 44: Liveborn babies, number and percentage distribution of preterm categories by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Less than 28 weeks	7 (0.7)	9 (0.8)	13 (1.1)	17 (1.3)	14 (1.0)	75.5	2.4 [0.7, 4.0]
28-31 weeks	12 (1.1)	14 (1.2)	17 (1.4)	18 (1.4)	28 (2.0)	90.0	2.7 [1.7, 3.8]
32-36 weeks	118 (11.0)	120 (10.3)	133 (11.1)	162 (12.2)	155 (11.2)	21.5	0.8 [0.4, 1.3]
Total stated	1,071	1,136	1,174	1,332	1,384		
Total	1,085	1,162	1,194	1,332	1,385		
Non-Indigenous							
Less than 28 weeks	6 (0.3)	10 (0.4)	9 (0.4)	7 (0.3)	7 (0.3)	-20.0	-0.9 [-2.9, 1.0]
28-31 weeks	10 (0.5)	13 (0.6)	15 (0.7)	17 (0.8)	17 (0.7)	16.8	0.6 [-0.5, 1.8]
32-36 weeks	99 (5.4)	121 (5.3)	152 (6.8)	141 (6.4)	136 (5.9)	17.4	0.7 [0.2, 1.1]
Total stated	1,834	2,274	2,238	2,203	2,322		
Total	1,947	2,300	2,245	2,203	2,322		

(a) Percentage change in odds

- Babies are preterm if they are born before 37 weeks gestation, very preterm before 32 weeks and extremely preterm before 28 weeks.⁸
- Up to 15% of Indigenous liveborn babies were preterm, more than double the proportion of non-Indigenous preterm liveborn babies.
- The number of preterm liveborn babies increased over time, by 44% for Indigenous and 40% 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 45: Liveborn babies, percentage distribution of preterm (less than 37 weeks) by Indigenous status and locality, 1986–2010

	Percent of total stated ^(a)				
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010
Indigenous					
<i>Health district</i>					
Darwin Urban	12.7	13.7	12.6	13.3	11.6
Darwin Rural	13.1	15.4	16.7	17.1	17.8
Katherine	10.9	9.5	12.0	13.3	14.8
East Arnhem	13.7	13.7	15.2	17.6	14.9
Barkly	18.0	12.1	15.7	14.5	15.2
Alice Springs Urban	13.4	9.4	10.2	9.3	11.7
Alice Springs Rural	11.4	13.3	14.3	14.8	12.9
<i>Urban/rural-remote area</i>					
Urban	13.2	11.4	12.3	12.2	11.6
Rural/remote	12.7	13.2	14.6	15.9	15.2
Non-Indigenous					
<i>Health district</i>					
Darwin Urban	6.1	6.8	8.2	7.8	6.9
Darwin Rural	8.2	6.5	9.4	5.3	9.9
Katherine	6.6	6.5	6.5	8.8	6.7
East Arnhem	5.6	6.6	8.7	5.3	5.4
Barkly	7.4	5.9	11.2	8.8	10.1
Alice Springs Urban	5.3	5.7	5.9	6.8	6.6
Alice Springs Rural	6.2	4.5	8.6	2.5	5.1
<i>Urban/rural-remote area</i>					
Urban	5.9	6.3	7.7	7.6	6.9
Rural/remote	6.9	6.5	8.9	6.9	7.0

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

- Indigenous liveborn babies born to rural or remote-based mothers were 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 with the exception of preterm Indigenous babies born to Darwin rural-based mothers, for whom there was an apparent increase over time.
- Indigenous liveborn babies were much more likely to be preterm than non-Indigenous liveborn babies regardless of usual place of residence.

Average birthweight

Figure 36: Liveborn babies, average birthweight by Indigenous status, 1986–2010

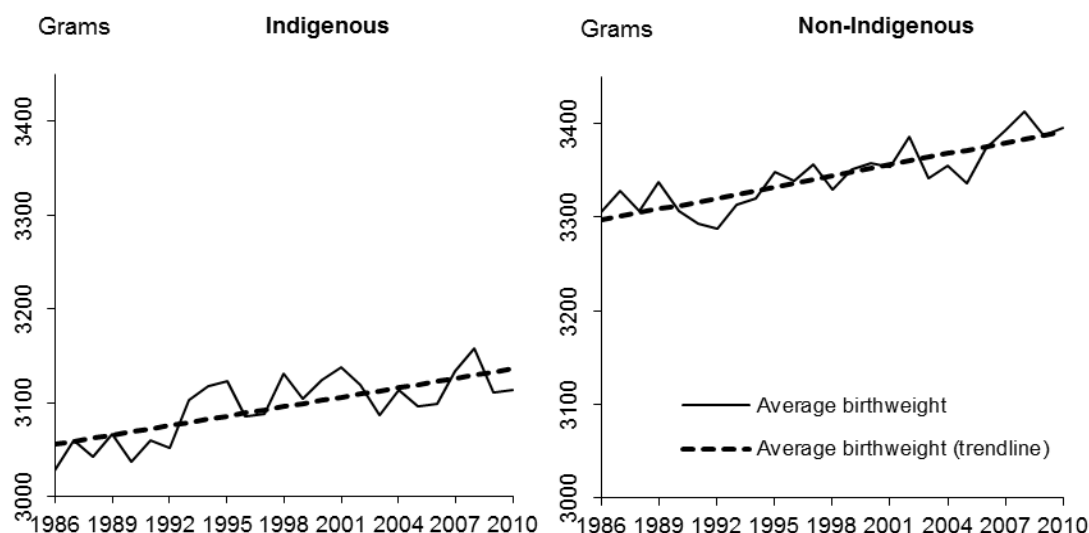


Table 46: Liveborn babies, average birthweight by Indigenous status, 1986–2010

	Average weight (grams)					Change in weight (grams)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous	3,047	3,091	3,107	3,111	3,123	80.9	3.4 [2.4, 4.4]
Non-Indigenous	3,317	3,313	3,347	3,355	3,392	94.7	3.9 [3.3, 4.6]

- During the period 2006–2010 the average birthweight of liveborn babies born to Indigenous mothers was 269 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 81 grams and for non-Indigenous babies 95 grams.
- The gap between the average birthweight of Indigenous and non-Indigenous babies has not changed over the 25-year period 1986–2010.

Low birthweight

Figure 37: Liveborn babies, percentage distribution of low birthweight categories by Indigenous status, 1986–2010

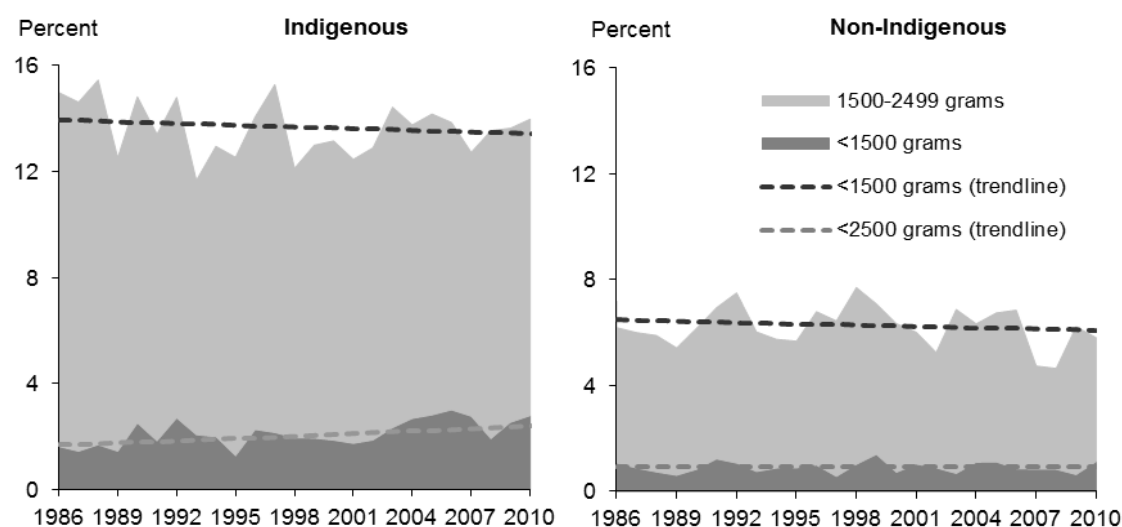


Table 47: Liveborn babies, number and percentage distribution of low birthweight categories by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Less than 1500g	19 (1.8)	23 (2.0)	24 (2.0)	30 (2.3)	36 (2.6)	59.1	2.0 [0.9, 3.1]
1500-2499g	138 (12.7)	129 (11.1)	135 (11.3)	150 (11.3)	151 (10.9)	-5.3	-0.2 [-0.7, 0.2]
Total stated	1,084	1,160	1,178	1,332	1,385		
Total	1,085	1,162	1,194	1,332	1,385		
Non-Indigenous							
Less than 1500g	16 (0.8)	22 (1.0)	21 (0.9)	21 (1.0)	20 (0.9)	-0.7	0.0 [-1.2, 1.2]
1500-2499g	100 (5.1)	124 (5.4)	133 (5.9)	116 (5.3)	111 (4.8)	-8.0	-0.3 [-0.8, 0.1]
Total stated	1,947	2,298	2,236	2,202	2,322		
Total	1,947	2,300	2,245	2,203	2,322		

(a) Percentage change in odds

- Babies weighing less than 2500 grams at birth are classified as being low birthweight. Those weighing less than 1500 grams are classified as being very low birthweight.⁸
- 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 2006–2010).
- The proportion of Indigenous liveborn babies born with a birthweight of 1500–2499 grams changed little over time, but the proportion of babies less than 1500 grams increased from 1.8% to 2.6%.
- The pattern for non-Indigenous liveborn babies born with a low birthweight changed little over time.

Low birthweight by locality

Table 48: Liveborn babies, percentage distribution of low birthweight of less than 2500 grams by Indigenous status and locality, 1986–2010

	Percent of total stated ^(a)				
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010
Indigenous					
Health district					
Darwin Urban	14.1	15.3	12.4	12.2	10.5
Darwin Rural	14.7	15.0	15.8	15.9	17.1
Katherine	14.0	11.6	14.2	13.3	14.9
East Arnhem	18.7	18.0	14.6	15.3	15.2
Barkly	16.6	11.5	12.4	13.3	15.9
Alice Springs Urban	12.1	6.8	9.6	10.3	9.3
Alice Springs Rural	11.7	11.3	13.1	12.1	11.5
Urban/rural-remote area					
Urban	13.8	11.7	11.9	11.5	10.1
Rural/remote	14.7	13.8	14.4	14.4	14.9
Non-Indigenous					
Health district					
Darwin Urban	6.0	6.8	7.2	6.6	6.0
Darwin Rural	6.0	7.5	8.4	5.3	7.7
Katherine	6.6	5.9	6.7	7.7	5.1
East Arnhem	6.5	5.9	6.7	3.9	3.3
Barkly	7.4	6.7	8.8	5.4	5.0
Alice Springs Urban	4.4	5.5	5.0	4.8	4.3
Alice Springs Rural	6.5	5.2	4.9	5.8	4.1
Urban/rural-remote area					
Urban	5.6	6.3	6.8	6.2	5.8
Rural/remote	6.6	6.5	7.8	6.6	5.0

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

- Indigenous liveborn babies born to mothers residing in rural-remote areas were more likely to be born with a low birthweight than babies born to urban-based Indigenous mothers (15% compared with 10% in 2006–2010).
- The proportions of low birthweight non-Indigenous babies were similar for urban- and rural-based mothers, between 5 to 6% in 2006–2010, and consistent over time.
- Irrespective of mother's usual place of residence, Indigenous liveborn babies were more likely to be born with a low birthweight than non-Indigenous liveborn babies.
- Relative to Indigenous babies born to residents of other NT health districts, liveborn babies born to Darwin Rural Indigenous mothers were the most likely to be low birthweight, and liveborn babies born to Alice Springs Urban Indigenous mothers were the least likely.
- The risk of being born with a low birthweight was generally lowest among Alice Springs-based liveborn babies. This result may be artificially deflated, as women who are likely to deliver before 32 weeks gestational age may be transferred from Alice Springs Hospital to hospitals in South Australia.

High birthweight

Figure 38: Liveborn babies, percentage distribution of high birthweight by Indigenous status, 1986–2010

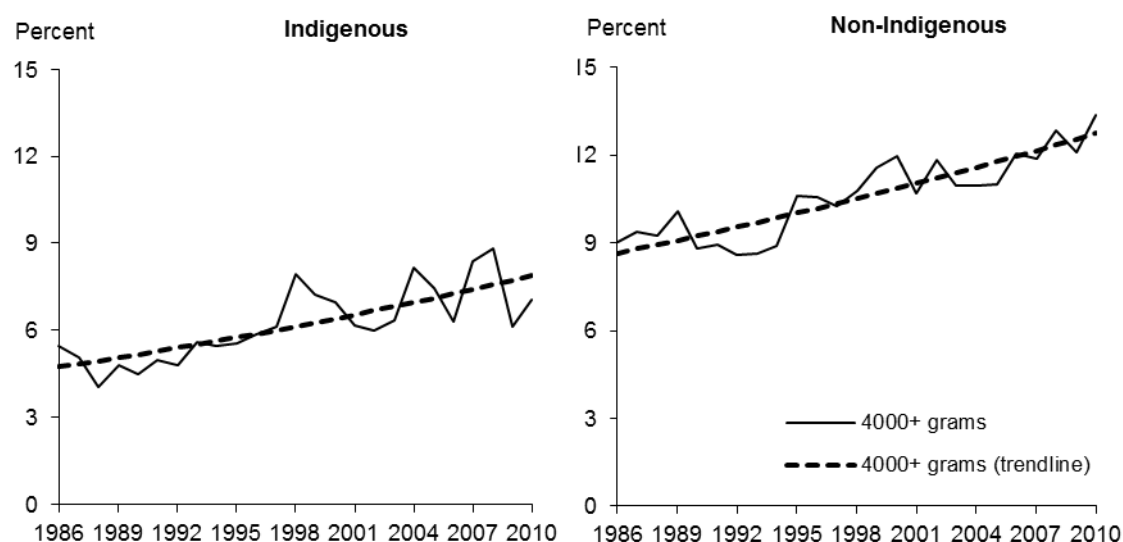


Table 49: Liveborn babies, number and percentage distribution of high birthweight by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
4000+ grams	52 (4.8)	61 (5.3)	81 (6.9)	91 (6.8)	102 (7.4)	72.1	2.3 [1.6, 3.0]
Total stated	1,084	1,160	1,178	1,332	1,385		
Total	1,085	1,162	1,194	1,332	1,385		
Non-Indigenous							
4000+ grams	180 (9.2)	210 (9.1)	246 (11.0)	244 (11.1)	289 (12.5)	54.3	1.8 [1.4, 2.2]
Total stated	1,947	2,298	2,236	2,202	2,317		
Total	1,947	2,300	2,245	2,203	2,317		

(a) Percentage change in odds

- 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 (12% compared with 7% during the period 2006–2010).
- Over time there was an increase in the proportion of high birthweight liveborn babies born to both Indigenous and non-Indigenous mothers.
- The number of Indigenous liveborn babies with high birthweight almost doubled between 1986 to 2010. The number of non-Indigenous high birthweight babies rose by 60%.

Small for gestational age

Figure 39: Liveborn singleton babies, percentage distribution of small for gestational age by gestation categories and Indigenous status, 1986–2010

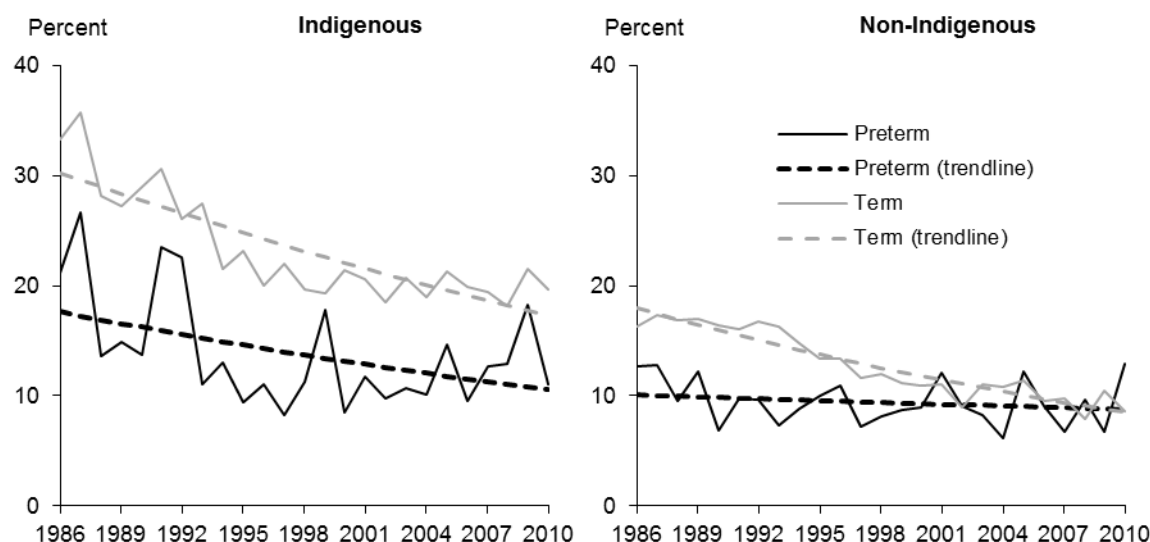


Table 50: Liveborn singleton babies, number and percentage distribution of small for gestational age by gestation categories and Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Preterm	22 (17.6)	22 (16.3)	17 (11.4)	21 (11.3)	23 (12.8)	-45.1	-2.5 [-3.7, -1.2]
Term	284 (30.7)	254 (25.8)	206 (20.5)	226 (20.0)	232 (19.7)	-51.9	-3.0 [-3.4, -2.6]
All gestations	306 (29.1)	276 (24.7)	223 (19.3)	247 (18.8)	255 (18.8)	-51.6	-3.0 [-3.4, -2.6]
Non-Indigenous							
Preterm	11 (10.8)	11 (9.1)	13 (8.7)	13 (9.6)	12 (9.0)	-14.4	-0.6 [-2.3, 1.1]
Term	284 (16.7)	323 (15.4)	240 (11.8)	214 (10.6)	197 (9.2)	-57.4	-3.5 [-3.9, -3.1]
All gestations	295 (16.4)	334 (15.1)	253 (11.6)	227 (10.6)	209 (9.2)	-56.1	-3.4 [-3.7, -3.0]

(a) Percentage change in odds

Note: The analysis is limited to liveborn singletons with known birthweight, gestational age and sex.

- Australian national birthweight percentiles by sex and gestational age of 1998–2007⁹ was used as the standard fetal growth chart. A singleton baby with birthweight falling into the lowest 10% of the standard chart for each sex and gestational age combination is regarded as being small for gestational age.
- Indigenous babies were much more likely to be small for gestational age than non-Indigenous babies, in both term and preterm categories.
- There were significant declines in the proportions of small for gestational age babies born at term among both Indigenous and non-Indigenous.
- The proportion of small Indigenous babies born preterm also decreased.
- These downward trends indicate a marked improvement in fetal growth over time especially among Indigenous babies.

Apgar score less than 7 at five minutes

Figure 40: Liveborn babies, percentage distribution of Apgar score of less than 7 at five minutes by gestational age categories and Indigenous status, 1986–2010

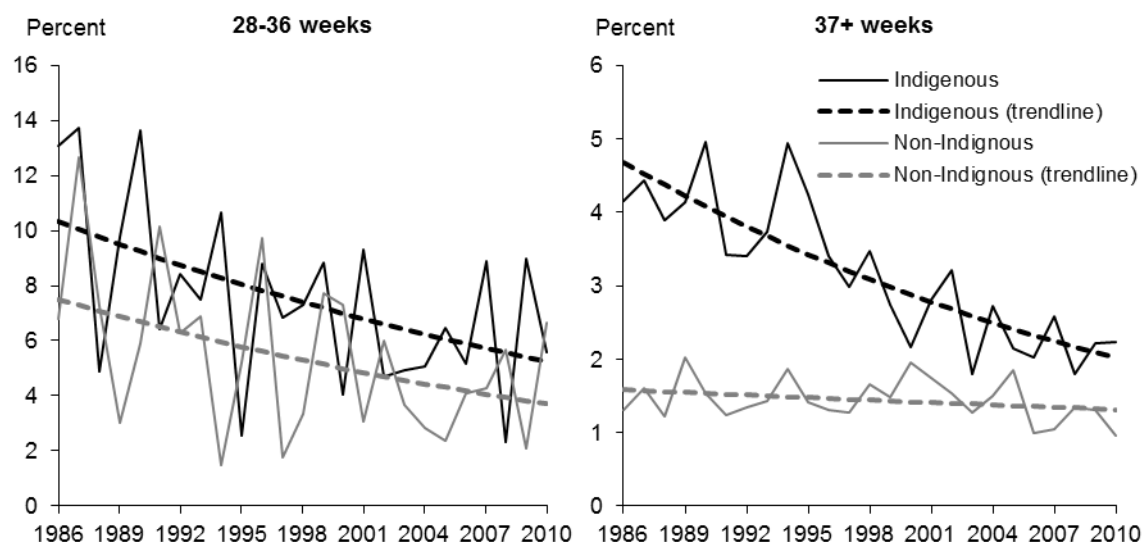


Table 51: Liveborn babies, number and percentage distribution of Apgar score of less than 7 at five minutes by gestational age categories and Indigenous status, 1986–2010

	Average annual number (percent)					% change*	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
28-36 weeks							
Indigenous	14 (11.0)	9 (7.2)	11 (7.2)	11 (6.0)	11 (6.2)	-51.8	-3.0 [-4.6, -1.3]
Non-Indigenous	8 (7.0)	8 (6.0)	10 (5.8)	6 (3.6)	7 (4.6)	-52.5	-3.1 [-5.1, -1.0]
37+ weeks							
Indigenous	40 (4.3)	39 (3.9)	30 (2.9)	29 (2.5)	26 (2.2)	-58.1	-3.6 [-4.5, -2.6]
Non-Indigenous	26 (1.5)	31 (1.5)	32 (1.5)	32 (1.6)	24 (1.1)	-17.3	-0.8 [-1.8, 0.2]

(a) Percentage change in odds

- An Apgar score is a clinical indicator of the condition of the baby at birth. A score of from 7 to 10 indicates lower risk.⁸
- The proportion of preterm liveborn babies with a low Apgar score was slightly higher in Indigenous than non-Indigenous and declined in both groups over time.
- The proportion of Indigenous preterm liveborn babies with a low Apgar score declined from 11% in 1986–1990 to 6% in 2006–2010, and non-Indigenous babies from 7% to less than 5%.
- The proportion of term liveborn babies with a low Apgar score was generally small, particularly among non-Indigenous babies.
- Over the 25 year-period 1986–2010 the proportion of Indigenous term liveborn babies with a low Apgar score fell from 4% to 2%.
- During the same period the proportion of non-Indigenous liveborn babies with a low Apgar score remained relatively constant, at less than 2%.

Liveborn babies born to first-time mothers

Preterm

Figure 41: Liveborn babies born to first-time mothers, percentage distribution of preterm categories by Indigenous status, 1986–2010

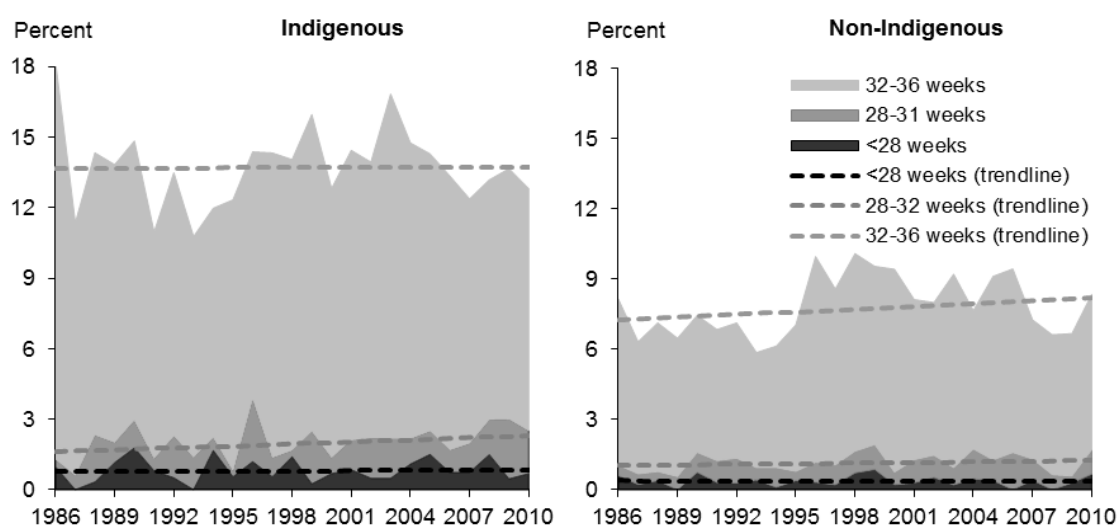


Table 52: Liveborn babies born to first-time mothers, number and percentage distribution of preterm categories by five-year periods, Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Less than 28 weeks	3 (0.9)	3 (0.8)	3 (0.8)	4 (1.0)	3 (0.7)	14.3	0.6 [-2.6, 3.8]
28-31 weeks	3 (0.9)	3 (0.8)	5 (1.3)	6 (1.5)	7 (1.7)	57.5	1.9 [-0.1, 4.0]
32-36 weeks	41 (12.7)	38 (10.1)	46 (11.7)	52 (12.7)	44 (10.6)	0.7	0.0 [-0.8, 0.9]
Total stated	324	371	378	411	417		
Total	328	378	394	411	417		
Non-Indigenous							
Less than 28 weeks	3 (0.4)	3 (0.3)	5 (0.5)	4 (0.4)	3 (0.3)	-12.1	-0.5 [-3.5, 2.5]
28-31 weeks	4 (0.5)	7 (0.7)	8 (0.8)	9 (0.9)	9 (0.9)	27.8	1.0 [-0.7, 2.7]
32-36 weeks	49 (6.2)	55 (5.5)	79 (8.1)	68 (7.1)	66 (6.5)	18.7	0.7 [0.0, 1.4]
Total stated	794	985	964	959	1,019		
Total	842	996	970	959	1,019		

(a) Percentage change in odds

- Babies are preterm if they are born before 37 weeks gestation, very preterm before 32 weeks and extremely preterm before 28 weeks.⁸
- Indigenous liveborn babies born to first-time mothers were almost twice as likely as non-Indigenous to be preterm.
- The proportion of non-Indigenous liveborn babies born preterm to first-time mothers peaked in the early 2000s but has been on the decline since then. The proportion among Indigenous liveborn babies has changed little over time.

Average birthweight

Figure 42: Liveborn babies born to first-time mothers, average birthweight by Indigenous status, 1986–2010

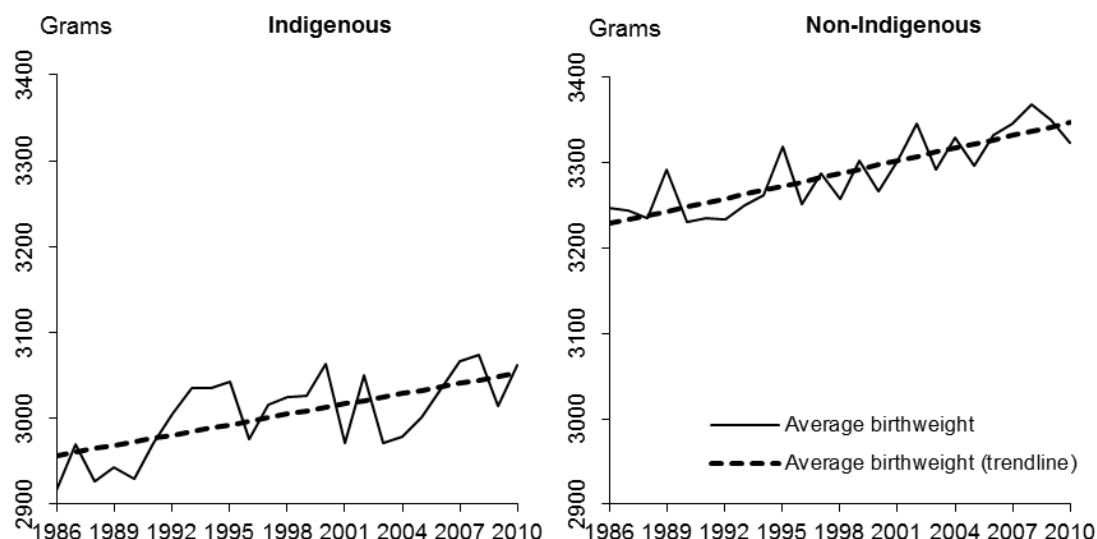


Table 53: Liveborn babies born to first-time mothers, average birthweight by Indigenous status, 1986–2010

	Average weight (grams)					Change in weight (grams)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous	2,937	3,018	3,021	2,994	3,051	96.1	4.0 [2.3, 5.7]
Non-Indigenous	3,249	3,259	3,273	3,313	3,344	118.2	4.9 [3.9, 5.9]

- During the 2006–2010 period the average birthweight of liveborn babies born to Indigenous first-time mothers was 293 grams (9%) lighter than liveborn babies born to non-Indigenous first-time mothers.
- The average birthweight of liveborn babies born to first-time mothers increased over time. For Indigenous babies the increase was estimated to be 96 grams and for non-Indigenous babies 118 grams.
- Despite the birthweight of Indigenous babies improving over time, the gap (9%) between the average birthweight of Indigenous and non-Indigenous babies did not change.
- 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 46).

Low birthweight

Figure 43: Liveborn babies born to first-time mothers, percentage distribution of low birthweight categories by Indigenous status, 1986–2010

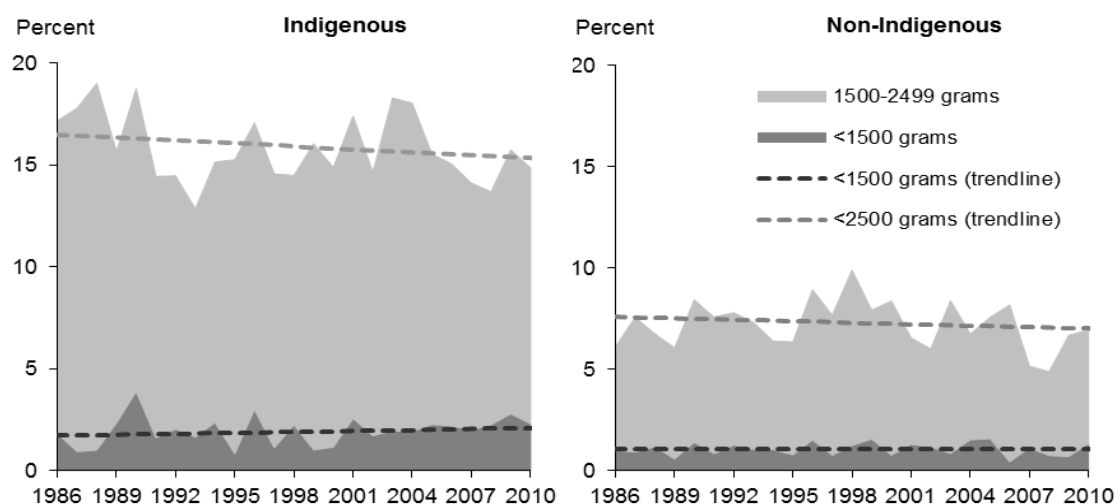


Table 54: Liveborn babies born to first-time mothers, number and percentage distribution of low birthweight categories by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Less than 1500g	7 (2.1)	6 (1.6)	6 (1.6)	9 (2.2)	10 (2.4)	30.1	1.1 [-0.9, 3.2]
1500-2499g	51 (15.5)	48 (12.7)	52 (13.2)	60 (14.6)	52 (12.5)	-10.3	-0.5 [-1.2, 0.3]
Total stated	328	377	379	411	417		
Total	328	378	394	411	417		
Non-Indigenous							
Less than 1500g	9 (1.1)	10 (1.0)	11 (1.1)	12 (1.3)	9 (0.9)	0.5	0.0 [-1.7, 1.8]
1500-2499g	51 (6.1)	61 (6.1)	71 (7.3)	55 (5.7)	56 (5.5)	-10.5	-0.5 [-1.1, 0.2]
Total stated	842	995	963	959	1,019		
Total	842	996	970	959	1,019		

(a) Percentage change in odds

- 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.⁸
- 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 2006–2010.
- 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 47).

High birthweight

Figure 44: Liveborn babies born to first-time mothers, percentage distribution of high birthweight by Indigenous status, 1986–2010

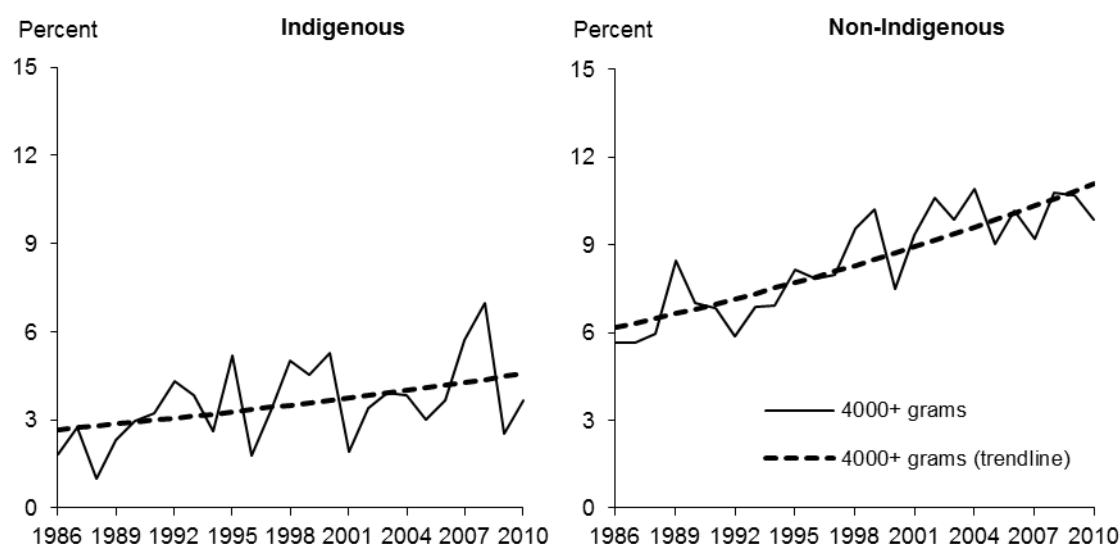


Table 55: Liveborn babies born to first-time mothers, number and percentage distribution of high birthweight by Indigenous status, 1986–2010

	Average annual number (percent)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
4000+ grams	7 (2.1)	14 (3.7)	15 (4.0)	13 (3.2)	19 (4.6)	75.2	2.4 [0.8, 3.9]
Total stated	328	377	379	411	417		
Total	328	378	394	411	417		
Non-Indigenous							
4000+ grams	55 (6.5)	69 (6.9)	83 (8.6)	95 (9.9)	103 (10.1)	90.2	2.7 [2.1, 3.4]
Total stated	842	995	963	959	1,019		
Total	842	996	970	959	1,019		

(a) Percentage change in odds

- Babies weighing 4000 grams or more are considered to be high birthweight.
- Non-Indigenous liveborn babies born to first-time mothers were more likely to be born with a high birthweight than Indigenous liveborn babies (10% compared with 5% during the period 2006–2010).
- Over time there was a significant increase in the proportion of high birthweight liveborn babies born to both Indigenous and non-Indigenous first-time mothers.
- The number of Indigenous liveborn babies with high birthweight almost tripled during the 25-year period between 1986 and 2010. The number of non-Indigenous nearly doubled.

Perinatal deaths

Figure 45: Fetal, neonatal and perinatal deaths, rate by Indigenous status, 1986–2010

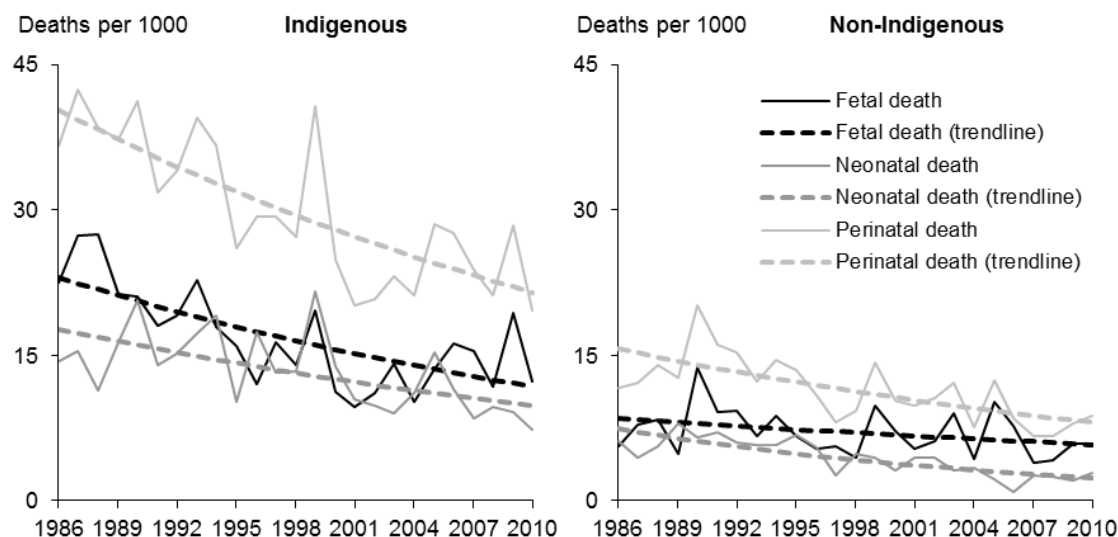


Table 56: Fetal, neonatal and perinatal deaths, number and rate by Indigenous status, 1986–2010

	Average annual number (rate)					% change ^(a)	
	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	Overall	Annual [95% CI]
Indigenous							
Fetal death ^(b)	27 (23.9)	22 (18.7)	18 (14.7)	16 (11.7)	21 (15.1)	-48.8	-2.8 [-2.8, -2.7]
Neonatal death ^(c)	17 (15.7)	18 (15.1)	19 (15.9)	15 (11.1)	13 (9.2)	-44.5	-2.4 [-2.5, -2.4]
Perinatal death ^(d)	44 (39.2)	40 (33.6)	37 (30.4)	31 (22.7)	34 (24.2)	-46.7	-2.6 [-2.6, -2.6]
Non-Indigenous							
Fetal death ^(b)	16 (8.3)	19 (8.1)	15 (6.5)	16 (7.0)	13 (5.5)	-31.5	-1.6 [-1.6, -1.5]
Neonatal death ^(c)	12 (6.1)	14 (6.3)	9 (4.1)	8 (3.5)	5 (2.2)	-67.6	-4.6 [-4.6, -4.5]
Perinatal death ^(d)	28 (14.3)	33 (14.3)	24 (10.5)	23 (10.5)	18 (7.7)	-48.3	-2.7 [-2.7, -2.7]

(a) Percentage change in rate

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

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

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

Note: Key data sources of neonatal deaths include the death registrations of the Department of Births, Deaths and Marriage (BDM), and the mortality data of Australian Bureau of Statistics (ABS).

- The perinatal death rate for Indigenous babies consistently exceeded the rate for non-Indigenous babies.
- During the period 2006–2010 the rate ratio for Indigenous to non-Indigenous neonatal deaths was 2.6 and the ratio for fetal deaths was 1.6.
- Indigenous fetal and neonatal death rates declined markedly during the 25-year period 1986–2010, and the trends were similar for both.
- The non-Indigenous neonatal death rate more than halved over time, while the non-Indigenous fetal death rate fell to a lesser extent.
- Over time there was a significant decline in the perinatal death rate of all NT babies; both Indigenous and non-Indigenous.

Appendices

Table 57: Methods used to select and analyse pregnancy-related admissions to NT public hospitals

Data item	Extracting data		Counting episodes	Denominator for rate or proportion
	Clinical description	ICD* codes		
Termination of pregnancy	Medical abortion, completed or unspecified	635	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
		635.2		
		O04.5-9		
Gestational diabetes	Diabetes mellitus arising during pregnancy	648.8	The last admission with a gap of more than 30 weeks from the previous admission	All mothers giving birth in NT public hospital for each admission year
		O24.4		
Hypertensions in pregnancy	All hypertensive disorders complicating pregnancy, childbirth, and the puerperium	642	The last admission with a gap of more than 30 weeks from the previous admission	All mothers giving birth in NT public hospital for each admission year
		O10 - O11		
		O13 - O16		
Major puerperal infections	Major puerperal infections	670	The earliest admission with a gap of more than 45 days from the next admission	All mothers giving birth in NT public hospital for each admission year
	Puerperal sepsis	O85 - O86		

* The International Statistical Classification of Diseases and Related Health Problems, Ninth or Tenth Revision, Australian Modification (ICD-9-AM or ICD-10-AM)

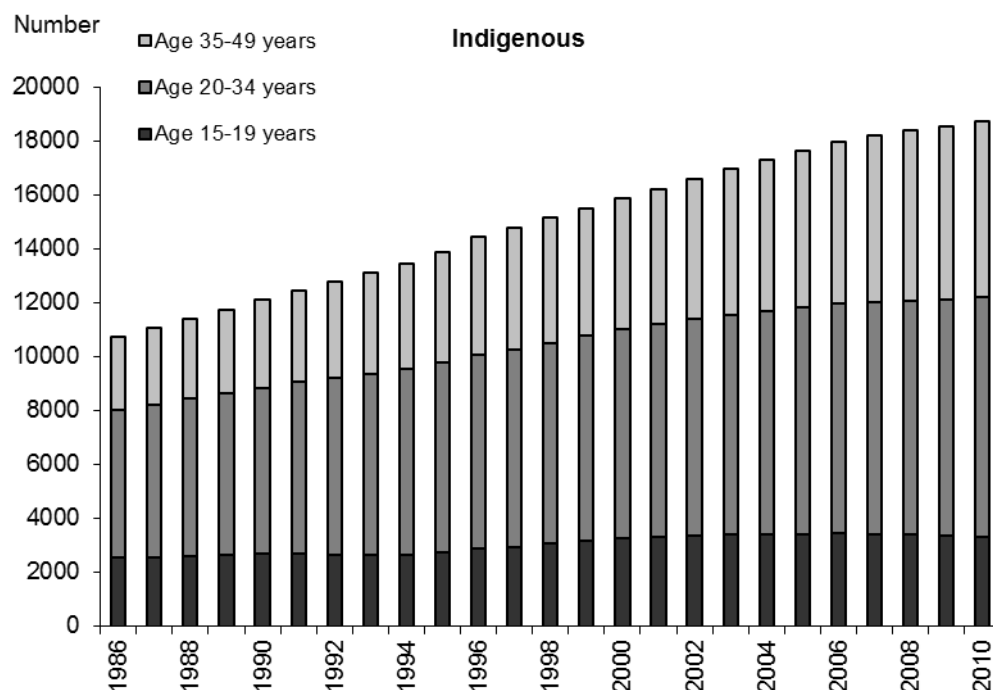
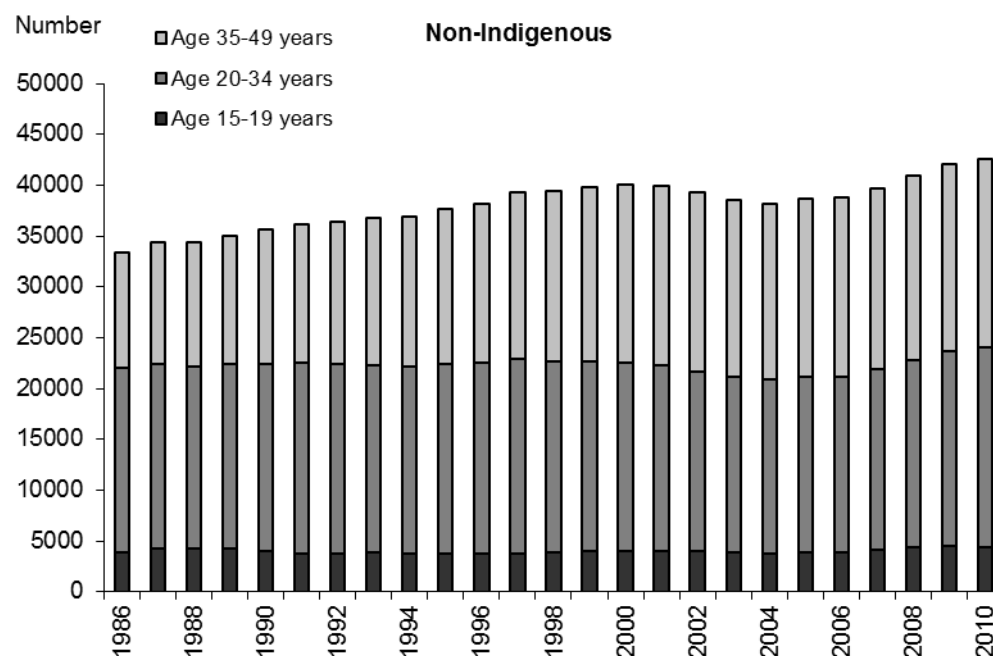
Table 58: Annual total fertility rate by Indigenous status, 1986–2010

	Indigenous	Non-Indigenous
Total fertility rate (TFR)		
1986	2.57	1.86
1987	2.62	1.74
1988	2.49	-
1989	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	1.86
2001	2.61	1.90
2002	2.40	1.94
2003	2.36	1.95
2004	2.23	1.83
2005	2.28	1.93
2006	2.40	1.88
2007	2.36	1.88
2008	2.24	1.95
2009	2.28	1.87
2010	2.17	1.85
Change in TFR		
Overall	-0.287	-0.411
Annual	-0.012	-0.017
(95%CI)	(-0.017, -0.007)	(-0.003, 0.004)

Notes:

(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

Figure 46: NT Indigenous females, Estimated Resident Population by age group, 1986–2010**Figure 47: NT non-Indigenous females, Estimated Resident Population by age group, 1986–2010**

Source: Northern Territory Resident Population Estimates by sex, age and Indigenous status (1971–2014) (unpublished data) prepared by the Health Gains Planning Branch, Department of Health, July 2015 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 2013*.²

Antenatal: period from conception to time of birth.

Apgar score: numerical score used to indicate the baby's condition at one minute and five minutes after birth. A score of 0, 1 or 2 is given for each of five characteristics; heart rate, breathing, colour, muscle tone and reflex irritability, and the total score is between 0 and 10.

Augmentation of labour: intervention after the onset of spontaneous labour to assist the progress of labour.

Birth status: status of the baby immediately after birth, as either livebirth or stillbirth.

Birthweight: the first weight of the baby (stillborn or liveborn) obtained after birth (usually measured to the nearest 5 grams and obtained within one hour of birth). Babies with atypical birthweight may be categorised as:

- **High birthweight baby:** 4000 grams or more
- **Low birthweight baby:** less than 2500 grams
- **Very low birthweight baby:** less than 1500 grams
- **Extremely low birthweight baby:** less than 1000 grams.

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 carried out as a planned procedure before the onset of labour or following the onset of spontaneous labour, when the decision was made before labour. It does not include caesarean section after failed trial of scar.
- **Emergency caesarean section:** a caesarean section required because of an emergency situation (e.g. obstructed labour, fetal distress). It is best described as 'when the caesarean section is performed having not been considered necessary previously'.

Deaths

- **Fetal death (stillbirth):** a child of at least 20 weeks' gestation or with a body mass of at least 400 grams at birth that exhibits no sign of respiration or heartbeat, or other sign of life, after birth.
- **Fetal death rate:** the number of fetal deaths (stillbirths) in a year per 1000 total births (stillbirths plus livebirths) in that same year.
- **Neonatal death:** death of a liveborn baby within 28 days of birth.
- **Neonatal death rate:** the number of neonatal deaths in a year per 1000 livebirths 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 vulvar orifice.

Fertility

- **Age-specific fertility rate:** a measure of the annual number of livebirths to women of a specified age group per 1,000 women in that age group of the same year.
- **Total fertility rate:** a hypothetical measure of the estimated number of livebirths 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) a woman who is giving birth for the first-time.

Forceps birth: assisted birth using a metallic obstetric instrument.

Gestational age: the duration of a pregnancy in completed weeks calculated from the date of the first day of a woman's last menstrual period, or assessed via ultrasound dating scan, or derived from clinical assessment of fundal height or from Dubowitz score of the baby after birth. According to gestational age babies are categorised 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 vaginal birth: includes vaginal birth by forceps or Ventouse.

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

Liveborn: the complete expulsion or extraction from its mother of a baby, irrespective of duration of pregnancy, which after separation shows signs of life.

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

Mother's length of postnatal stay: number of days between the date of her baby's birth and the separation date of the mother from the hospital where birth occurred.

Normal vaginal birth: vaginal delivery without using forceps or vacuum extraction. It can be divided into spontaneous vaginal delivery and vaginal breech delivery.

Parity: number of previous pregnancies resulting in livebirths or stillbirths, excluding the current pregnancy.

Perineal laceration (tear): a graze, laceration, rupture or tear of the perineal skin during delivery. Perineal lacerations can be classified as either

- **1st degree:** considered to be slight or that involves fourchette, labia, vagina or vulva;
- **2nd degree:** also involving pelvic floor, perineal muscles or vaginal muscles;
- **3rd degree:** also involving anal floor, rectovaginal septum or sphincter; or
- **4th degree:** also involving anal mucosa or rectal mucosa.

Perineal status: status of the perineum after vaginal birth. It may be intact, or with perineal laceration (tear) and/or episiotomy incision.

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

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

Small for gestational age: a baby with birthweight falling into the lowest 10% of the standard fetal growth chart for each sex and gestational age combination.

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

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

Vaginal birth: any birth in which the baby is born through the vagina, either with or without the use of forceps or vacuum extraction.

Vaginal birth after previous caesarean (VBAC): multipara mothers who had caesarean before having a vaginal birth for the current pregnancy.

References

- 1 Stata Statistical Software: Release 13.1 (StataCorp LP, College Station, TX, 2013).
- 2 Australian Institute of Health and Wellbeing. Australia's mothers and babies 2013. (AIHW, Canberra, 2015).
- 3 Australian Bureau of Statistics. Births, Australia, 1996. (ABS, Canberra, 1997).
- 4 Australian Bureau of Statistics. Births, Australia, 2009. (ABS, Canberra, 2010).
- 5 World Health Organisation. Report of a technical working group. (WHO, Geneva, 1996).
- 6 Grayson, N., Hargreaves, J. & Sullivan, E. Use of routinely collected national datasets for reporting on induced abortion in Australia. (AIHW National Perinatal Statistics Unit, Sydney, 2005).
- 7 World Health Organisation. International statistical classification of diseases and related health problems, tenth revision (ICD-10). (National Centre for Classification in Health, Sydney, 2004).
- 8 Bennet, V. & Brown, L. *Myles textbook for midwives. 13th Edition.* (Harcourt Brace and Company Limited 1999).
- 9 Dobbins, T., Sullivan, E., Roberts, C. & Simpson, J. Australian national birthweight percentiles by sex and gestational age, 1998–2007. *MJA* **197**, 291–294 (2012).

List of tables

Table 1: Total fertility rate by Indigenous status, 1986–2010.....	7
Table 2: Age-specific fertility rate by Indigenous status, 1986–2010	8
Table 3: All mothers, number and percentage distribution of parity by Indigenous status, 1986–2010.....	9
Table 4: All mothers, average parity by Indigenous status, 1986–2010.....	10
Table 5: First-time mothers, percentage distribution by Indigenous status and locality, 1986–2010	11
Table 6: All mothers, average age by Indigenous status, 1986–2010	12
Table 7: All mothers, number and percentage distribution of age groups by Indigenous status, 1986–2010	13
Table 8: All mothers, percentage distribution of teenagers by Indigenous status and locality, 1986–2010.....	14
Table 9: Non-Indigenous mothers, number and percentage distribution of countries of birth, 1986–2010.....	15
Table 10: All mothers, number and percentage distribution of inadequate antenatal visits by Indigenous status, 1989–2010	16
Table 11: All mothers, percentage distribution of inadequate antenatal visits by Indigenous status and locality, 1989–2010.....	17
Table 12: All mothers, number and percentage of distribution of duration of pregnancy at first antenatal visit by Indigenous status, 1986–2010.....	18
Table 13: All mothers, percentage distribution of attending antenatal visit in the first trimester by Indigenous status and locality, 1986–2010.....	19
Table 14: All mothers, number and percentage distribution of smoking during pregnancy by Indigenous status, 1996–2010	20
Table 15: All mothers, number and percentage distribution of smoking during pregnancy by Indigenous status and age group, 1996–2010	21
Table 16: All mothers, percentage distribution of smoking during pregnancy by Indigenous status and locality, 1996–2010.....	22
Table 17: All mothers, number and percentage distribution of labour onset by Indigenous status, 1986–2010	23
Table 18: All mothers, percentage distribution of induced labour and no labour by Indigenous status and hospital, 1986–2010	24
Table 19: All mothers, number and percentage distribution of birth methods by Indigenous status, 1986–2010	25
Table 20: All mothers, number and percentage distribution of caesarean section deliveries by Indigenous status and age group, 1986–2010	26
Table 21: All mothers, number and percentage distribution of elective and emergency caesarean section deliveries by Indigenous status, 2000–2010.....	27
Table 22: All mothers, percentage distribution of elective and emergency caesarean section deliveries by Indigenous status and hospital, 2000–2010	28
Table 23: Selected mothers, number and percentage distribution of vaginal birth after previous caesarean and caesarean birth due to previous caesarean by Indigenous status, 2000–2010.....	29
Table 24: All mothers, number and percentage distribution of labour/childbirth complications by Indigenous status, 1986–2010	30

Table 25: Mothers who had a vaginal birth, number and percentage distribution of perineal status by birth method, 1997–2010	31
Table 26: All mothers, number and percentage distribution of birthing outside hospital by Indigenous status, 1986–2010	32
Table 27: Mothers who birthed in a hospital, average length of postnatal stay, number and percentage distribution of postnatal stay exceeding four days by Indigenous status, 1986–2010.....	33
Table 28: Mothers who birthed in a hospital, average length of postnatal stay by Indigenous status and delivery method, 1986–2010.....	34
Table 29: Mothers who birthed in a hospital, average length of postnatal stay by Indigenous status and hospital, 1986–2010	35
Table 30: First-time mothers, average age by Indigenous status, 1986–2010.....	36
Table 31: First-time mothers, number and percentage distribution of age groups by Indigenous status, 1986–2010	37
Table 32: First-time mothers, number and percentage distribution of inadequate antenatal visits by Indigenous status, 1989–2010.....	38
Table 33: First-time mothers, number and percentage distribution of first antenatal visit in first trimester by Indigenous status, 1986–2010.....	39
Table 34: First-time mothers, number and percentage distribution of induced labour and no labour by Indigenous status, 1986–2010.....	40
Table 35: Selected first-time mothers, number and percentage distribution of labour intervention methods and normal vaginal births without intervention by Indigenous status, 1997–2010.....	41
Table 36: First-time mothers, number and percentage distribution of birth methods by Indigenous status, 1986–2010	42
Table 37: First-time mothers, number and percentage distribution of elective and emergency caesarean section deliveries by Indigenous status, 2000–2010	43
Table 38: NT females, number and rate of induced abortion in NT public hospitals by Indigenous status, 1992–2011	44
Table 39: Mothers admitted to public hospital, number and percentage distribution of diabetes in pregnancy by Indigenous status, 1992–2011	45
Table 40: NT Midwives Collection: All mothers, number and percentage distribution of diabetes in pregnancy by Indigenous status, 2004–2011	46
Table 41: Mothers admitted to public hospital, number and percentage distribution of hypertension complicating pregnancy by Indigenous status, 1992–2011	47
Table 42: Mothers admitted to public hospital, number and percentage distribution of puerperal sepsis by Indigenous status, 1992–2011.....	48
Table 43: All babies, number and percentage distribution by Indigenous status, 1986–2010.....	49
Table 44: Liveborn babies, number and percentage distribution of preterm categories by Indigenous status, 1986–2010	50
Table 45: Liveborn babies, percentage distribution of preterm (less than 37 weeks) by Indigenous status and locality, 1986–2010	51
Table 46: Liveborn babies, average birthweight by Indigenous status, 1986–2010	52
Table 47: Liveborn babies, number and percentage distribution of low birthweight categories by Indigenous status, 1986–2010	53
Table 48: Liveborn babies, percentage distribution of low birthweight of less than 2500 grams by Indigenous status and locality, 1986–2010.....	54
Table 49: Liveborn babies, number and percentage distribution of high birthweight by Indigenous status, 1986–2010	55

Table 50: Liveborn singleton babies, number and percentage distribution of small for gestational age by gestation categories and Indigenous status, 1986–2010	56
Table 51: Liveborn babies, number and percentage distribution of Apgar score of less than 7 at five minutes by gestational age categories and Indigenous status, 1986–2010.....	57
Table 52: Liveborn babies born to first-time mothers, number and percentage distribution of preterm categories by five-year periods, Indigenous status, 1986–2010	58
Table 53: Liveborn babies born to first-time mothers, average birthweight by Indigenous status, 1986–2010	59
Table 54: Liveborn babies born to first-time mothers, number and percentage distribution of low birthweight categories by Indigenous status, 1986–2010.....	60
Table 55: Liveborn babies born to first-time mothers, number and percentage distribution of high birthweight by Indigenous status, 1986–2010.....	61
Table 56: Fetal, neonatal and perinatal deaths, number and rate by Indigenous status, 1986–2010	62
Table 57: Methods used to select and analyse pregnancy-related admissions to NT public hospitals	63
Table 58: Annual total fertility rate by Indigenous status, 1986–2010.....	64

List of figures

Figure 1: Annual count of Northern Territory liveborn babies by Indigenous status, Northern Territory Midwives' Collection and Australian Bureau of Statistics registered births, 1986–2010.....	6
Figure 2: Total fertility rate by Indigenous status, 1986–2010	7
Figure 3: Age-specific fertility rate by Indigenous status, 1986–2010	8
Figure 4: All mothers, percentage distribution of parity by Indigenous status, 1986–2010.....	9
Figure 5: All mothers, average age by Indigenous status, 1986–2010	12
Figure 6: All mothers, percentage distribution of age groups by Indigenous status, 1986–2010.....	13
Figure 7: Non-Indigenous mothers, percentage distribution of countries of birth, 1986–2010	15
Figure 8: All mothers, percentage distribution of inadequate antenatal visits by Indigenous status, 1989–2010	16
Figure 9: All mothers, percentage distribution of duration of pregnancy at first antenatal visit by Indigenous status, 1986–2010	18
Figure 10: All mothers, percentage distribution of smoking during pregnancy by Indigenous status, 1996–2010	20
Figure 11: All mothers, percentage distribution of smoking during pregnancy by Indigenous status and age group, 1996–2010.....	21
Figure 12: All mothers, percentage distribution of labour onset by Indigenous status, 1986–2010.....	23
Figure 13: All mothers, percentage distribution of birth methods by Indigenous status, 1986–2010.....	25
Figure 14: All mothers, percentage distribution of caesarean section deliveries by Indigenous status and age group, 1986–2010.....	26
Figure 15: All mothers, percentage distribution of elective and emergency caesarean section deliveries by Indigenous status, 2000–2010.....	27
Figure 16: Selected mothers, percentage distribution of vaginal birth after previous caesarean and caesarean birth due to previous caesarean by Indigenous status, 2000–2010	29
Figure 17: All mothers, percentage distribution of labour/childbirth complications by Indigenous status, 1986–2010	30
Figure 18: Mothers who had a vaginal birth, percentage distribution of perineal status by birth method, 1997–2010	31
Figure 19: All mothers, percentage distribution of birthing outside hospital by Indigenous status, 1986–2010	32
Figure 20: Mothers who birthed in a hospital, average length of postnatal stay and percentage distribution of postnatal stay exceeding four days by Indigenous status, 1986–2010.....	33
Figure 21: Mothers who birthed in a hospital, average length of postnatal stay by Indigenous status and birth method, 1986–2010	34
Figure 22: First-time mothers, average age by Indigenous status, 1986–2010.....	36
Figure 23: First-time mothers, percentage distribution of age groups by Indigenous status, 1986–2010.....	37
Figure 24: First-time mothers, percentage distribution of inadequate antenatal visits by Indigenous status, 1989–2010	38

Figure 25: First-time mothers, percentage distribution of first antenatal visit in first trimester by Indigenous status, 1986–2010	39
Figure 26: First-time mothers, percentage distribution of induced labour and no labour by Indigenous status, 1986–2010	40
Figure 27: Selected first-time mothers, percentage distribution of labour intervention methods and normal vaginal births without intervention by Indigenous status, 1997–2010.....	41
Figure 28: First-time mothers, percentage distribution of birth methods by Indigenous status, 1986–2010.....	42
Figure 29: First-time mothers, percentage distribution of elective and emergency caesarean section deliveries by Indigenous status, 2000–2010	43
Figure 30: NT females, rate of induced abortion in NT public hospitals by Indigenous status, 1992–2011.....	44
Figure 31: Mothers admitted to public hospital, percentage distribution of diabetes in pregnancy by Indigenous status, 1992–2011	45
Figure 32: Mothers admitted to public hospital, percentage distribution of hypertension complicating pregnancy by Indigenous status, 1992–2011	47
Figure 33: Mothers admitted to public hospital, percentage distribution of puerperal sepsis by Indigenous status, 1992–2011	48
Figure 34: All babies, number and percentage distribution by Indigenous status, 1986–2010	49
Figure 35: Liveborn babies, percentage distribution of preterm categories by Indigenous status, 1986–2010	50
Figure 36: Liveborn babies, average birthweight by Indigenous status, 1986–2010.....	52
Figure 37: Liveborn babies, percentage distribution of low birthweight categories by Indigenous status, 1986–2010	53
Figure 38: Liveborn babies, percentage distribution of high birthweight by Indigenous status, 1986–2010.....	55
Figure 39: Liveborn singleton babies, percentage distribution of small for gestational age by gestation categories and Indigenous status, 1986–2010.....	56
Figure 40: Liveborn babies, percentage distribution of Apgar score of less than 7 at five minutes by gestational age categories and Indigenous status, 1986–2010.....	57
Figure 41: Liveborn babies born to first-time mothers, percentage distribution of preterm categories by Indigenous status, 1986–2010	58
Figure 42: Liveborn babies born to first-time mothers, average birthweight by Indigenous status, 1986–2010	59
Figure 43: Liveborn babies born to first-time mothers, percentage distribution of low birthweight categories by Indigenous status, 1986–2010	60
Figure 44: Liveborn babies born to first-time mothers, percentage distribution of high birthweight by Indigenous status, 1986–2010	61
Figure 45: Fetal, neonatal and perinatal deaths, rate by Indigenous status, 1986–2010	62
Figure 46: NT Indigenous females, Estimated Resident Population by age group, 1986–2010	65
Figure 47: NT non-Indigenous females, Estimated Resident Population by age group, 1986–2010	65

Selected Health Gains Planning publications

Mothers and babies reports

Markey PG, d'Espaignet ET, Condon JR, Woods M. *Trends in the Health of Mothers and Babies Northern Territory 1986–1995*. Darwin: Territory Health Services, 1998.

Zhang X, Dempsey KE, Johnstone K, Guthridge S. *Trends in the health of mothers and babies, Northern Territory: 1986–2005*. Department of Health and Families, Darwin, 2010.

Annual reports of 1996 – 2013 for *NT Midwives' Collection. Mothers and Babies* (not individually listed).

Other related publications

d'Espaignet ET, Kennedy K, Paterson BA, Measey ML. *From Infancy to Young Adulthood: Health status in the Northern Territory 1998*. Darwin: Territory Health Services, 1998.

Jones C, Zhang X, Dempsey KE, Schwarz N, Guthridge SL. *The Health and Wellbeing of Territory Women: From the Desert to the Sea*. Darwin: Department of Health and Community Services, 2005.

Carson BE, Guthridge SL, Li SQ, Measey ML. *Growing up in the Territory: Parent Survey*. Darwin: Department of Health and Community Services, 2006.

Li SQ, Jacklyn SP, Carson BE, Guthridge SL, Measey ML. *Growing up in the Territory: Social-emotional Wellbeing and Learning Outcomes*. Darwin: Department of Health and Community Services, 2006.

Li SQ, Guthridge SL, d'Espaignet ET, Paterson BA. *From Infancy to Young Adulthood: Health status in the Northern Territory 2006*. Darwin: Department of Health and Community Services, 2007.

Guthridge S, Li L, Silburn S, Li SQ, McKenzie J, Lynch J. *Impact of perinatal health and socio-demographic factors on school educational outcomes: A population study of Indigenous and non-Indigenous children in the Northern Territory*. J Paediatr & Child H 2015; doi:10.1111/jpc.12852

Thompson F, Dempsey K, Mishra G. *Trends in Indigenous and non-Indigenous caesarean section births in the Northern Territory of Australia, 1986–2012: a total population-based study*. BJOG: An International Journal of Obstetrics & Gynaecology 2016; DOI: 10.1111/1471-0528.13881

Guthridge S, Li L, Silburn S, Li SQ, McKenzie J, Lynch J. *Early influences on developmental outcomes among children, at age 5, in Australia's Northern Territory*. Early Child Res Q 2015; DOI:10.1016/j.ecrsq.2015.12.008