MINISTRY OF HEALTH
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Report on Maternity

2012

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The Ministry of Health welcomes comments and suggestions about this publication.

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Executive summary

The *Report on Maternity* series provides annual health statistics about women giving birth, their pregnancy and childbirth experience, and the characteristics of live-born babies in New Zealand. This publication is focused on women who gave birth, and the babies who were born, in 2012. A summary of the key findings is provided below.

Birth rates remained stable

In 2012, 62,321 women were recorded as giving birth. This equates to a birth rate (the proportion of females aged 15–44 years in the population) of 68.9 per 1000 females of reproductive age, similar to the 2011 rate of 68.6 per 1000 females of reproductive age. Overall, birth rates remained stable from 2008 to 2012, ranging from 68.6 to 71.1 births per 1000 females of reproductive age.

The distribution of birth rates by age group, ethnic group and deprivation quintile of residence also remained fairly consistent over this time.

Women giving birth were predominantly European, aged 25–34 years, residing in more deprived areas, and had had at least one previous birth

Of the women giving birth in 2012:

- more than half were between the ages of 25 and 34 years
- almost half were European and about a quarter were Māori
- the median age for Māori and Pacific women giving birth was five years younger than for Asian and European women
- over a quarter resided in the most deprived areas
- almost 60% had previously given birth.

Most women received care from a midwife Lead Maternity Carer

The vast majority of women were registered with and received care from a Lead Maternity Carer (LMC) during their pregnancy and postnatal period. A midwife LMC was the most common practitioner type.

More than half were registered to receive care within the first trimester of pregnancy in 2012. All district health board regions had more women registered with an LMC within the first trimester in 2012 than in 2008.

Most women gave birth at a secondary or tertiary maternity facility

The vast majority of women gave birth at a maternity facility, with approximately 87% giving birth at a secondary or tertiary facility.

Home births were more common among Māori or European women, in their 30s

Approximately 3% of women giving birth had a home birth in 2012. The proportion of home births has remained stable over the last decade. Home births were more common among:

- women in the 30–39 years age group
- Māori and European women
- women residing in the West Coast DHB region.

Elective caesarean sections have increased

Two-thirds of women had a spontaneous vaginal birth, a quarter had a caesarean section and the remaining women had an assisted birth.

Between 2003 and 2012 there was an increase in the proportion of elective caesarean sections and a slight decrease in spontaneous vaginal births. The proportion of women having an emergency caesarean section or assisted birth showed little variation over the same time period.

Women who had a higher proportion of caesarean sections were:

- aged 35 years or more
- in the Asian or in the European or Other ethnic groups
- residing in the least deprived areas.

One in four women had some form of intervention

In 2012 one in four women giving birth had at least one form of intervention: 23% had an induction, 28% had their labour augmented and 26% had an epidural. Approximately 12% of women had an episiotomy.

More babies were male than female

There were 62,739 live-born babies in 2012, 51.1% of whom were male.

No change in average birthweight

Babies born in 2012 had the same average birthweight as babies born between 2009 and 2011 at 3.42 kg, with male babies on average heavier than female babies.

Approximately 6% of babies were born with a low birthweight. Female babies were more likely to have a low birthweight than male babies.

Median gestation was 39 weeks

The vast majority of babies were born at term in 2012, while 8% were born preterm.

The median gestation each year between 2008 and 2012 was 39 weeks, a decrease from the median gestation of 40 weeks between 2003 and 2007.

Of the babies born at term, 1.9% had a low birthweight. The highest percentage was among Asian babies and those born to older women.

Most babies were exclusively or fully breastfed

Almost 80% of babies were exclusively or fully breastfed at two weeks after birth. The highest proportion of exclusively or fully breastfed babies were among babies:

- born to women aged 30–39 years
- in the European or Other ethnic group
- residing in the least deprived areas
- residing in the West Coast DHB region.

Introduction

This chapter provides the purpose and background of the report, as well as information on the source of the data provided, how the data is presented and the analytical methods used. Contact details are also provided if you require additional information.

Purpose

This publication presents data from the National Maternity Collection and is the latest release in the *Report on Maternity* series. It provides annual health statistics about women giving birth, their pregnancy and childbirth experience and the characteristics of live-born babies in New Zealand.[1]

Background

In New Zealand, maternity services are classified according to the level of complexity of clinical care a woman and her baby requires—either primary, secondary or tertiary. Maternity services are provided by a range of practitioners (midwives, general practitioners, obstetricians, radiologists and childbirth educators), and in a range of settings (the woman's home, consulting rooms, primary birthing units and hospitals). A summary of these services is described in 'Appendix 1: Maternity model of care'.

Maternity services are a crucial part of public health services. The World Health Organization (WHO) states that 'care for pregnant women is often the entry point for health services for the family and community' (WHO 2005). Monitoring maternal and newborn health is therefore an integral part of monitoring the health of the overall population.

Data sources

Data for this publication was extracted from maternity events recorded in the Ministry of Health's National Maternity Collection on 5 November 2014. The National Maternity Collection provides statistical, demographic and clinical information about selected publicly funded maternity services up to nine months before and three months after a birth. Further information about the collection and source of data for women giving birth in 2012 is presented in 'Appendix 2: National Maternity Collection'.

Maternal and newborn records are coded and extracted separately, and so the information collected in these sources (eg, maternal age) may differ. Some disparities may be due to incomplete maternal or newborn information submitted to the Ministry of Health by district health boards (DHBs) and other maternity providers.

Population data used to calculate birth rates in this publication was derived from multiple data sets provided by Statistics New Zealand. The list of data sets is available in 'Appendix 3: Technical notes'.

[1] Data on stillbirths and maternal deaths is recorded in the Mortality Collection and is not included in the National Maternity Collection. Data about stillbirths is presented in the Fetal and Infant Deaths series and data about maternal deaths will be included in the next report from the Mortality and Demographic Data series.

Data presentation

This publication first presents information about women giving birth, their demographic profile and selected antenatal factors. This is followed by events relating to labour and birth, covering the type of birth, interventions and place of birth. Finally, a description of the characteristics of live-born babies is provided, along with data on care after birth for the woman and her baby.

Figures

Graphs and maps are included to help you to visualise the quantitative information more easily. They are intended to highlight trends and relationships rather than as a means to look up individual values. The underlying numbers used to create graphs and maps in this publication are provided in the accompanying online tables.

Geographical information is usually presented in maps with DHB boundaries showing. On the maps the darkest colour represents the highest percentage or rate, and the lightest colour the lowest percentage or rate. See 'Appendix 4: Guide to reading maps' for the location of DHBs in New Zealand and help with reading maps in this publication.

Time series

Although the focus of this publication is on births in 2012, births between 2003 and 2011 are often included in figures to provide context and to help with interpreting the information. Note that data sourced from Lead Maternity Carer (LMC) claims is only available from 2008 onwards.

Percentages vs birth rates

Percentages in this publication are calculated to show the distribution of women giving birth or of live-born babies. They are based on the number of women giving birth or of live-born babies.

In contrast, birth rates are calculated for selected demographic groups (age, ethnic group and deprivation) to show the proportions of the female population in New Zealand who are giving birth. They are calculated based on the female population of reproductive age (15–44 years).

Commonly used terms

Definitions for key terms are usually provided at the start of the relevant section. A list of common terms and their descriptions or definitions is provided in the Glossary.

Analytical methods

The data presented in this publication primarily pertains to all women recorded as giving birth and to live-born babies in 2012, as sourced from the National Maternity Collection. Data prior to 2012 has also been analysed using the same methods and criteria to provide a consistent view over time.

Ethnicity

Each individual represented in the data is allocated to a single ethnic group (if multiple ethnicities are recorded) using the priority system of Māori > Pacific peoples > Asian > European > Other (Ministry of Health 2004). Individuals of European and of Other ethnicities are often presented as the 'European or Other' ethnic group due to small numbers in the Other ethnic group. See the 'Ethnicity' section in 'Appendix 3: Technical notes'.

Counting births and babies

In the 'Women giving birth' and 'Labour and birth' chapters, births are counted using the number of women giving birth during the calendar year (ie, between 1 January and 31 December). These births include live-born babies (born at any gestation) and stillborn babies (born at ≥ 20 weeks' gestation or with a birthweight of ≥ 400 g). A twin or multiple birth is counted as one birth. Women giving birth twice within the same calendar year are counted as having two births.

In the 'Babies' chapter, the numbers presented only include live-born babies (at any gestation). Babies resulting from a twin or a multiple pregnancy are counted as individual babies.

Percentages

The denominator for percentage calculations is the total for each variable for which the information was recorded and excludes 'Unknown' categories.

For example:

Sex	Babies	Percentage
Male	32,053	51.1
Female	30,722	48.9
Unknown	2	-
Total	**62,777**	**100.0**

$$\text{Percentage of male babies} = \frac{\text{Number of male babies} * 100}{\text{Total number of babies – Babies of unknown sex}}$$

$$= \frac{32{,}053 * 100}{62{,}777 - 2}$$

$$= 51.1\%$$

All percentages are calculated using raw data. Summarised information presented may be slightly different from the sum of percentages presented in the tables due to rounding.

Birth rates

A birth rate shows the proportion of women giving birth out of the female population who are of reproductive age (15–44 years). It is expressed as births per 1000 females of reproductive age.

Rates for a specific group (eg, Māori, residence in quintile 3, 30–34 years age group) are calculated using the best available population for that group.

For example:

$$\text{Māori birth rate} = \frac{\text{Number of Māori women giving birth}}{\text{Female Māori population aged 15–44 years}} \times 1000$$

More than one population data set may be used within a set of birth rate calculations. The list of different population data sets used in this publication is provided in the 'Population data' section of 'Appendix 3: Technical notes'.

Regional rates (DHB regions) are calculated based on the residence of the woman giving birth. Rates have not been standardised for differences in population structures.

Confidence intervals

In this publication, 95% confidence intervals are used to assist in comparing percentages and rates. Confidence intervals that do not overlap indicate that the difference between the two values is statistically significant, making it reasonable to conclude that the difference is not due to chance. Overlapping confidence intervals indicate that the difference is not considered statistically significant and no conclusions can be drawn about the difference.

Methods used include (Association of Public Health Observatories 2008):

- the Wilson Score method for calculating the 95% confidence interval for a percentage
- Byar's method for calculating the 95% confidence interval for a birth rate.

Additional information

If you require information not included in this publication or in the accompanying online tables, the Ministry of Health is able to produce customised data extracts tailored to your needs. These may incur a charge (at Official Information Act rates). The contact details are provided below.

Postal address:	Analytical Services Ministry of Health PO Box 5013 Wellington 6145 New Zealand
Email:	data-enquiries@moh.govt.nz
Phone:	(04) 496 2000

Women giving birth

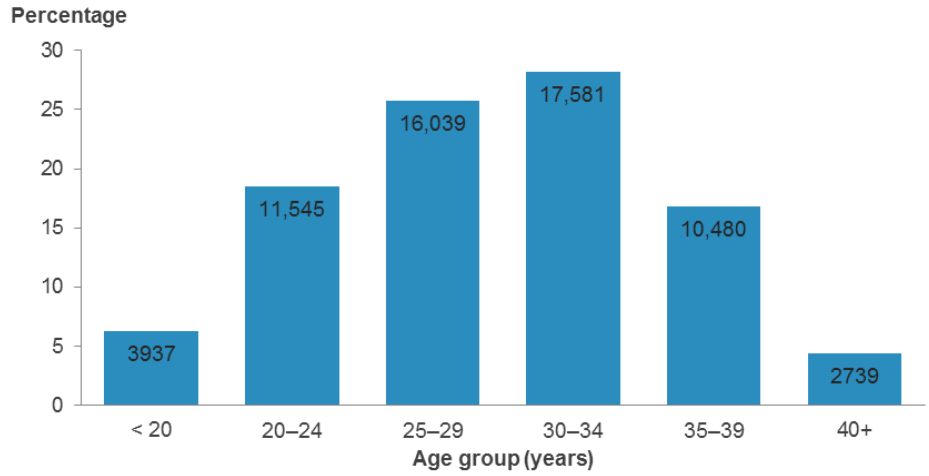
This chapter aims to describe the demographic profile of the women giving birth and selected antenatal factors. The sections are: Age; Ethnicity; Deprivation; Geographic distribution; Parity; Body mass index; Smoking status and Registration with a Lead Maternity Carer.

There were 62,321 women recorded as giving birth in New Zealand during the 2012 calendar year (including 41 women who gave birth twice during this time). Approximately 1 in every 15 females in the population aged 15–44 years gave birth in 2012. This is represented as a birth rate of 68.9 births per 1000 females of reproductive age. The 2012 rate was similar to the 2011 rate (68.6 per 1000 females of reproductive age). Overall, birth rates remained stable from 2008 to 2012, ranging from 68.6 to 71.1 births per 1000 females of reproductive age.

Age

The median age of women giving birth in 2012 was 29 years,[2] with more than half of the women giving birth in 2012 either in the 25–29 years or the 30–34 years age groups (25.7% and 28.2%, respectively). There were 3937 women aged 20 years and under and 2739 women aged 40 years and over who gave birth. Both of these age groups made up approximately 10% of all women giving birth (Figure 1).

Figure 1: Percentage of women giving birth, by age group, 2012



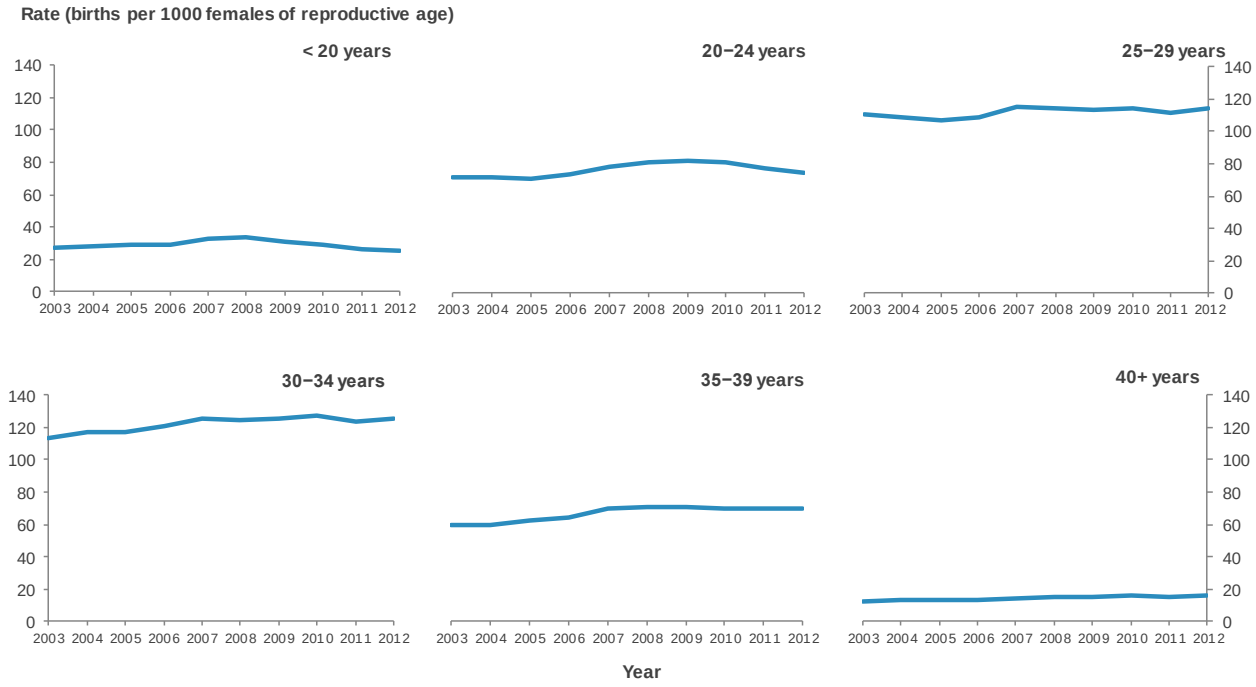
Note: the number on the bar is the number of women giving birth in that age group.

The highest birth rate was for the 30–34 years age group, with 125.3 births per 1000 females of reproductive age, followed by the 25–29 years age group (114.1 per 1000 females of reproductive age). Rates were lowest for the 40 years and over and under 20 years age groups (16.4 and 25.7 per 1000 females of reproductive age, respectively).

Rates of birth for each age group have remained fairly stable over the last 10 years. The 30–34 years age group had the highest birth rate each year between 2003 and 2012. The age groups with the lowest birth rates were for women aged 40 years and over and aged under 20 years (Figure 2).

[2] Age was recorded for all women giving birth.

Figure 2: Birth rate, by age group, 2003–2012

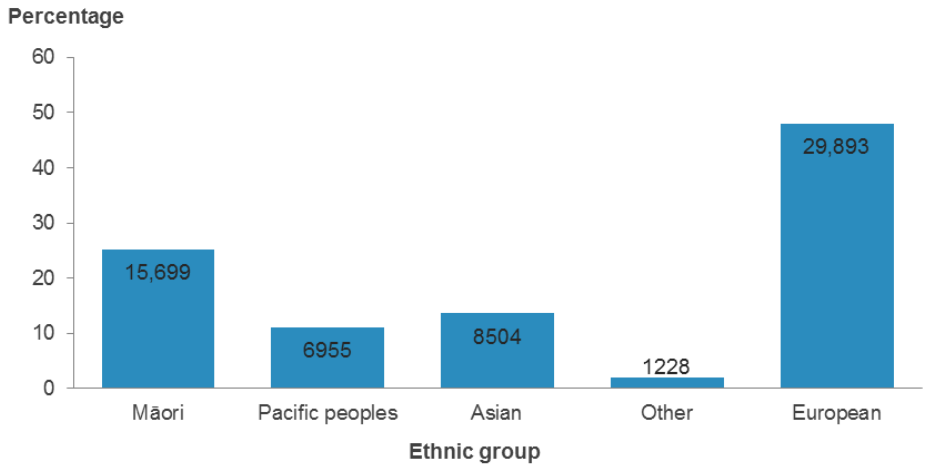


Note: reproductive age is 15–44 years.

Ethnicity

Of the 62,279 women who gave birth in 2012 with known ethnicity, 48.0% were European, 25.2% were Māori, 13.7% were Asian, 11.2% were Pacific and 2.0% were of other ethnicities (Figure 3).

Figure 3: Percentage of women giving birth, by ethnic group, 2012



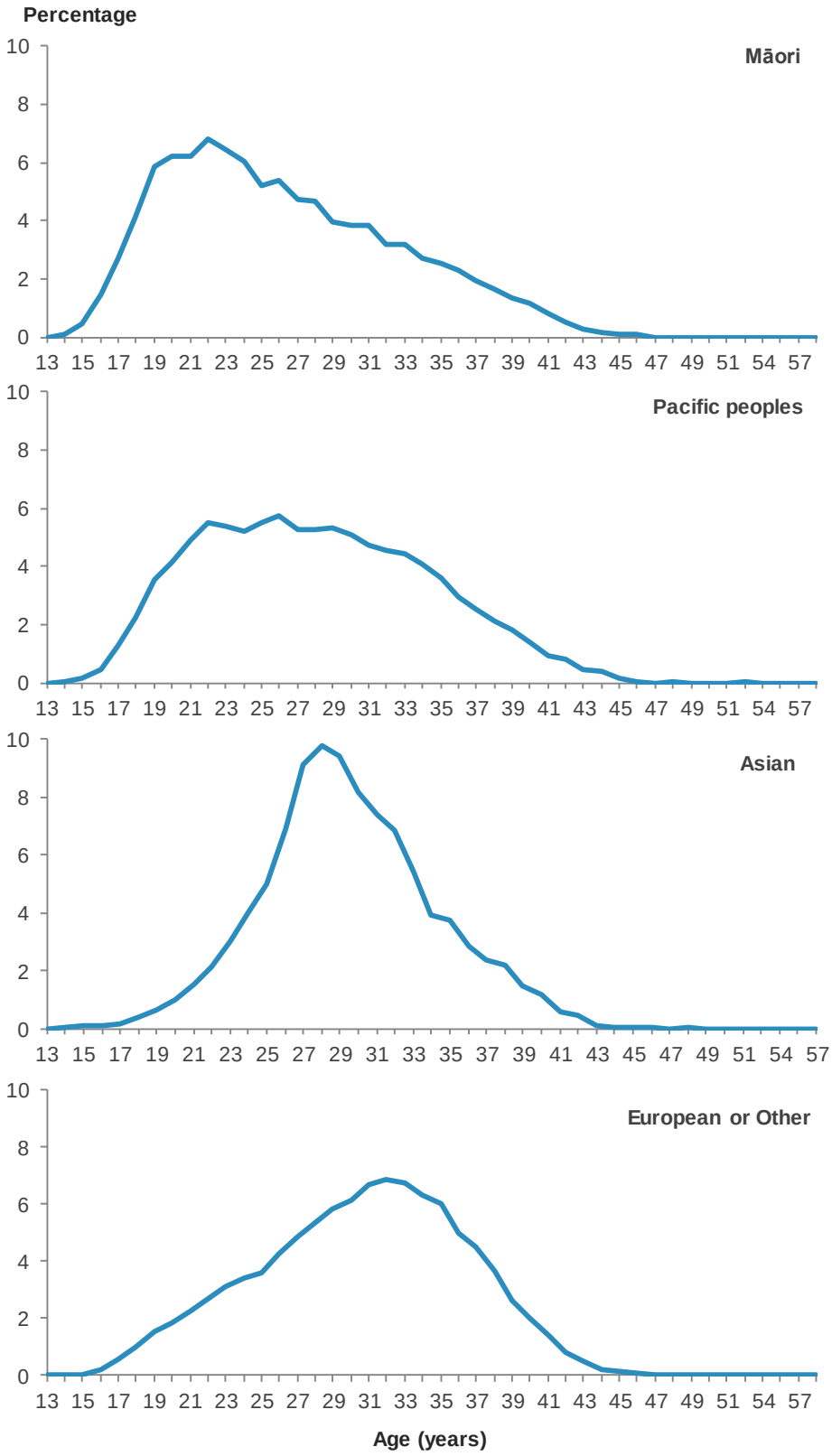
Notes:

The number on the bar is the number of women giving birth in that ethnic group.

The denominator used to calculate percentages excludes those with unknown ethnicity (42 women).

Māori and Pacific women gave birth at a younger age (median ages of 25 years and 28 years, respectively). The median ages for Asian and European women giving birth were higher, at 30 years and 31 years, respectively (Figure 4).

Figure 4: Percentage of women giving birth, by age, for each ethnic group, 2012

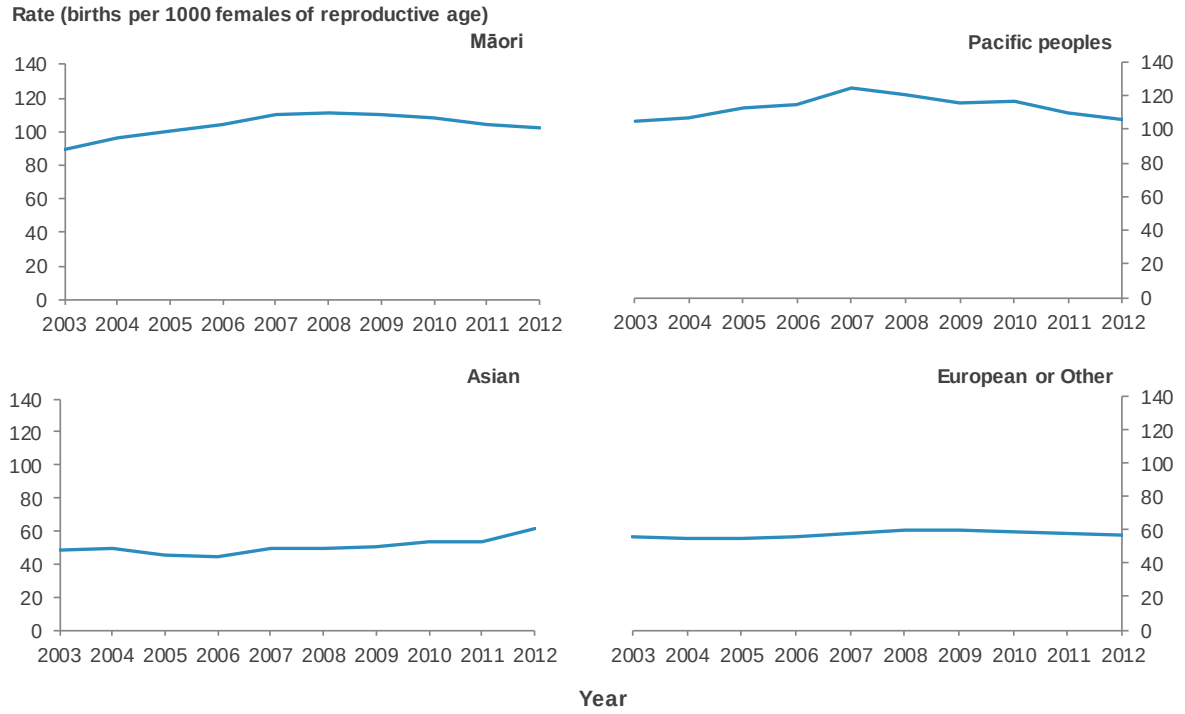


Note: the denominator used to calculate percentages is the total number of women giving birth for each ethnic group.

In 2012, birth rates were highest for the Pacific peoples and Māori ethnic groups (105.7 and 102.2 births per 1000 females of reproductive age, respectively), followed by Asian women (61.5 per 1000 females of reproductive age) and women in the European or Other ethnic group (57.0 per 1000 females of reproductive age).

Birth rates for Māori and Pacific peoples showed a slight increasing trend from 2003 to 2008, and then a slight decrease from 2009 onwards. The birth rate for Asian women fluctuated between 45.0 and 49.8 per 1000 females of reproductive age between 2003 and 2008 but has since increased from 49.5 in 2008 to 61.5 in 2012. The 2012 birth rate for Asians was the highest within the 10-year period. Birth rates among women in the European or Other ethnic group showed little variation over the same time period, fluctuating between 54.9 and 59.5 per 1000 females of reproductive age (Figure 5).

Figure 5: Birth rate, by ethnic group, 2003–2012



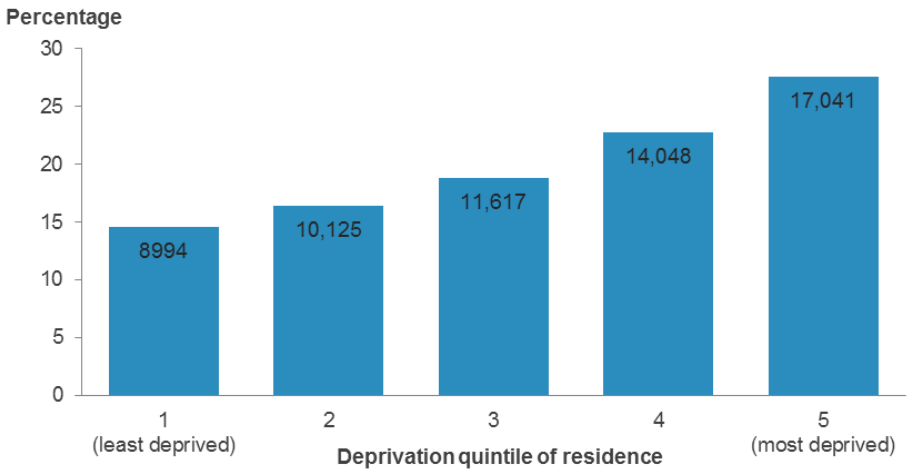
Note: reproductive age is 15–44 years.

Deprivation

Deprivation quintiles are based on the area of residence for the woman or baby. They range from 1 (least deprived) to 5 (most deprived), according to the 2006 New Zealand Deprivation Index. Approximately equal numbers of the population reside in areas associated with each of the five deprivation quintile areas. See the 'Deprivation' section in 'Appendix 3: Technical notes' for more information.

Half of women giving birth in 2012 resided in the more deprived areas, with 27.6% residing in quintile 5 and 22.7% residing in quintile 4. Less than 15% of women giving birth in 2012 resided in the least deprived areas (quintile 1).[3] Figure 6 shows the distribution of women giving birth, by deprivation quintile of residence.

Figure 6: Percentage of women giving birth, by deprivation quintile of residence, 2012



Notes:

The number on the bar is the number of women giving birth residing in that deprivation quintile.

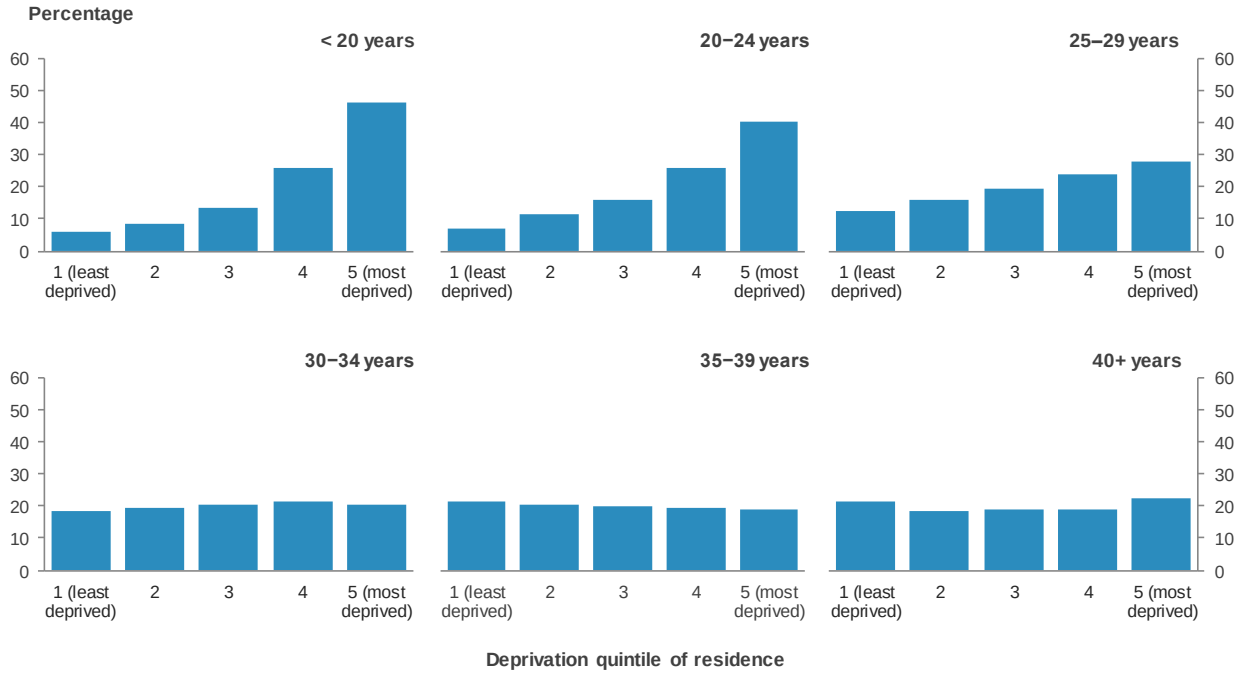
The denominator used to calculate the percentage is the total number of women giving birth, excluding those with unknown deprivation quintile (496 women).

[3] Deprivation quintile was unknown for 496 women (0.8%).

The median age of women residing in the most deprived areas (median age of 27 years for quintile 5) was lower than the median age of women residing in the least deprived areas (median age of 32 years for quintile 1).

The distribution of younger women (under 30 years) giving birth by deprivation quintile of residence was skewed towards more deprived areas (Figure 7). A much larger proportion of younger women giving birth resided in the more deprived areas, particularly for the under 20 years age group (46.1% in quintile 5 compared with 6.1% in quintile 1) and the 20–24 years age group (40.3% in quintile 5 compared with 6.9% in quintile 1). Older women giving birth (30 years and over) were equally distributed across all deprivation quintiles (which reflects the overall New Zealand population).

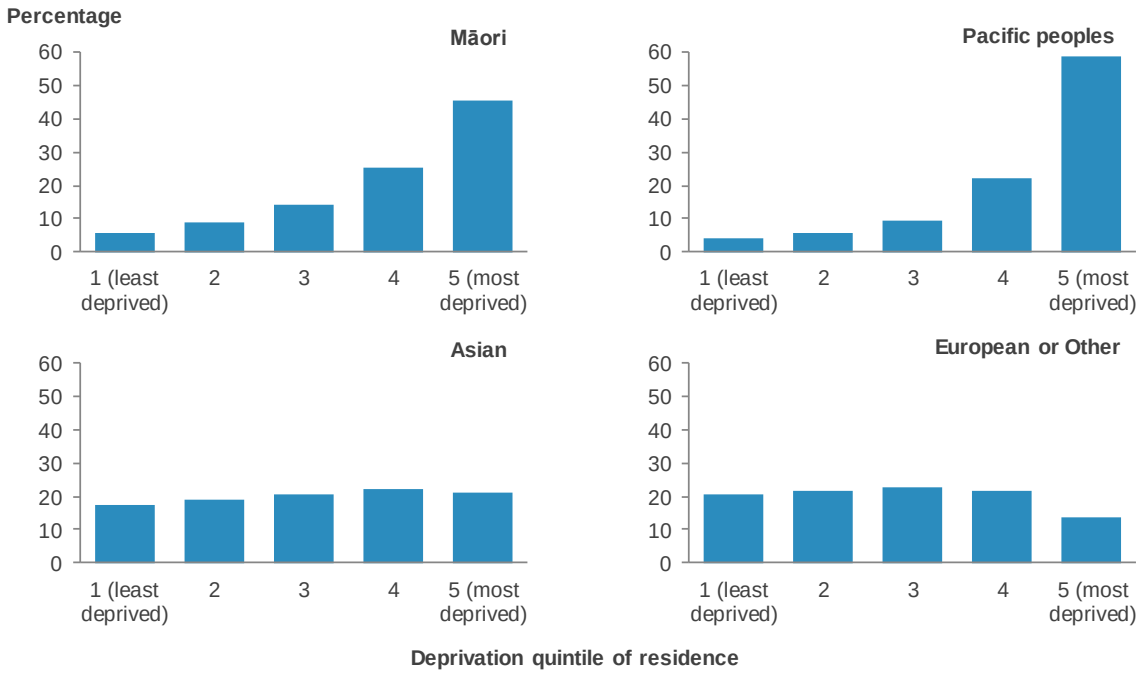
Figure 7: Distribution of women giving birth, by deprivation quintile of residence for each age group, 2012



Note: the denominator used to calculate the percentage is the number of women giving birth for that age group, excluding those with unknown deprivation quintile of residence.

As with younger women giving birth, the distribution of Māori and Pacific women giving birth by deprivation quintile of residence was skewed towards more deprived areas (Figure 8). A much larger proportion of Māori and Pacific women resided in the most deprived areas (45.5% of Māori and 58.6% of Pacific women in quintile 5) compared with the least deprived areas (5.7% of Māori and 3.9% of Pacific women in quintile 1). Births among women in the Asian and European or Other ethnic groups were equally distributed across all deprivation quintiles (which reflects the overall New Zealand population).

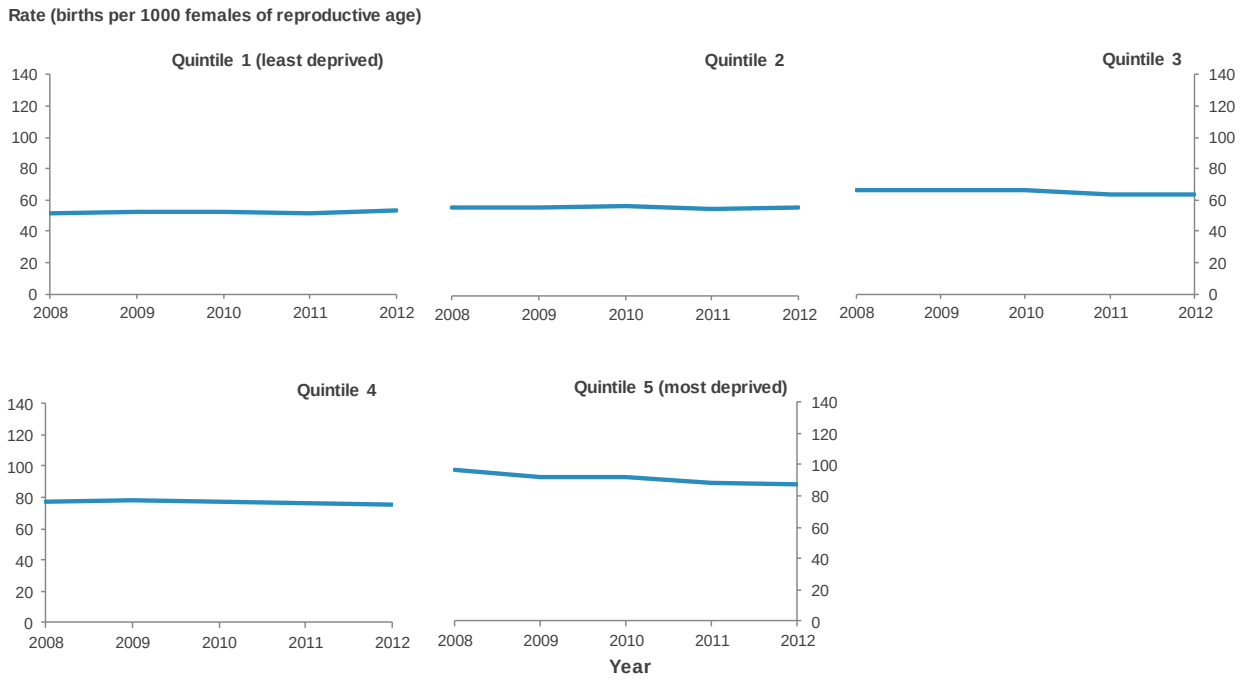
Figure 8: Distribution of women giving birth, by deprivation quintile of residence for each ethnic group, 2012



Note: the denominator used to calculate the percentage is the number of women giving birth for that ethnic group, excluding those with unknown deprivation quintile of residence.

Birth rates were consistently highest for women residing in the most deprived areas (quintile 5) and lowest among women residing in the least deprived areas (quintile 1) over the last five years. The birth rate for those residing in quintile 5 was 1.7–1.9 times the rate for those in quintile 1. Birth rates by deprivation have not changed over the last five years, except for a slight decrease for women residing in the most deprived areas (quintile 5). Figure 9 shows the birth rates over time for each deprivation quintile.

Figure 9: Birth rate, by deprivation quintile of residence, 2008–2012



Note: reproductive age is 15–44 years.

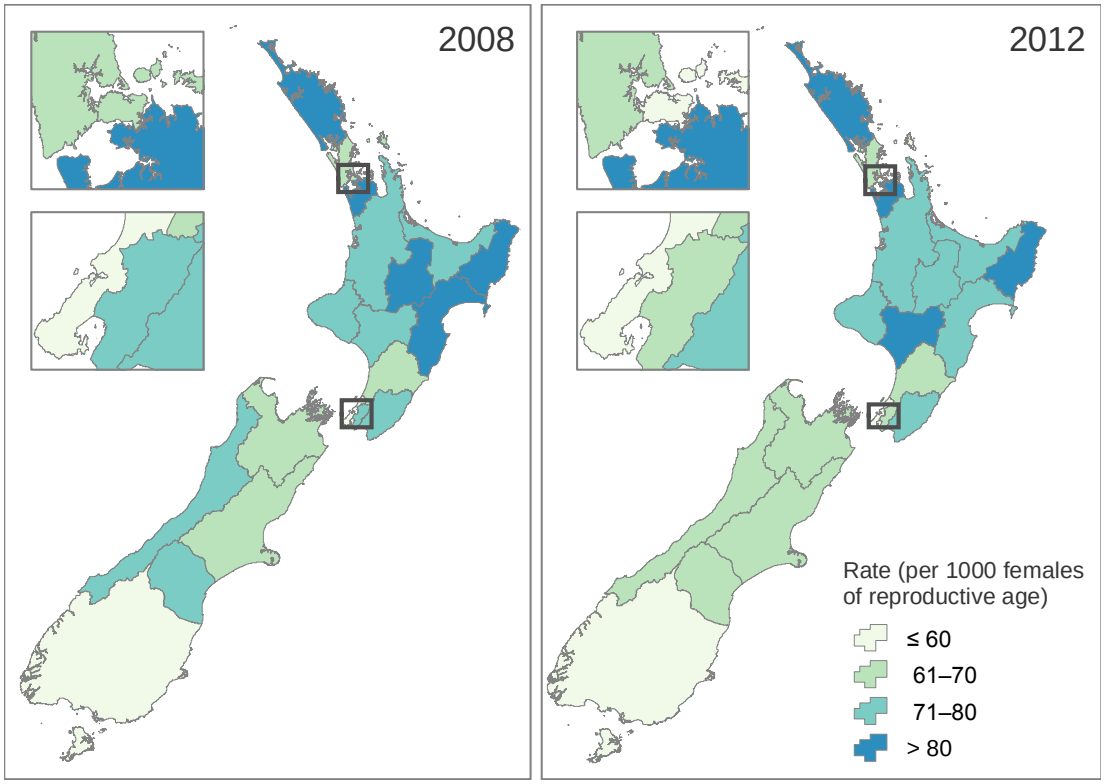
Geographic distribution

The geographic distribution of women giving birth is based on the DHB region of residence. Rates and numbers in this section are intended to reflect the usually resident population of the DHB and not necessarily the facilities run by that DHB. See 'Appendix 4: Guide to reading maps' for the location of DHBs in New Zealand and further information on each component of the maps presented in this section.

Birth rates in 2012 varied across the different DHB regions of residence. The highest birth rates were for women residing in Northland (82.5 per 1000 females of reproductive age), Counties Manukau (81.8 per 1000 females of reproductive age) and Tairawhiti (81.7 per 1000 females of reproductive age) DHB regions. The lowest rates were for women residing in Capital & Coast (56.4 per 1000 females of reproductive age), Southern (57.6 per 1000 females of reproductive age) and Auckland (59.9 per 1000 females of reproductive age) DHB regions (Figure 10).

There was a significant decrease when comparing the 2008 birth rate to the 2012 birth rate for women residing in the Hutt Valley (from 75.0 to 68.6 per 1000 females of reproductive age) and Canterbury (from 63.7 to 60.3 per 1000 females of reproductive age) DHB regions. Birth rates for the remaining DHB regions in 2012 were not significantly different from their respective 2008 birth rates (Figure 10).

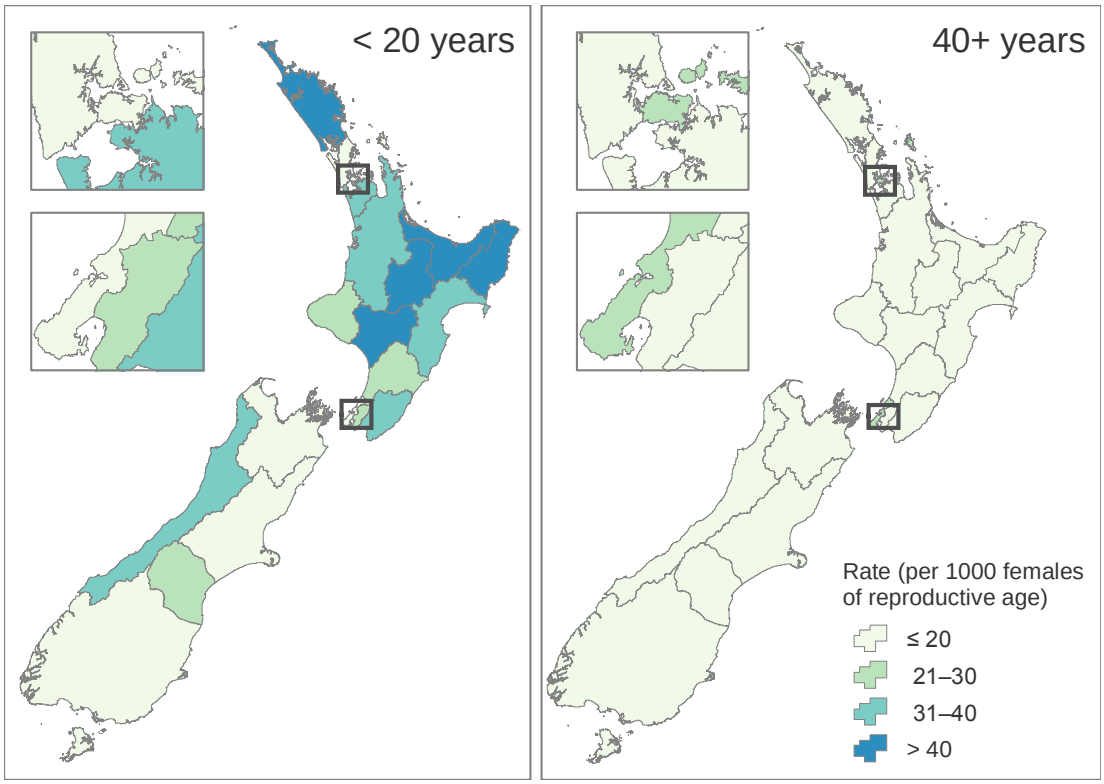
Figure 10: Birth rates by DHB of residence, 2008 and 2012



Note: reproductive age is 15–44 years.

Most DHB regions had a higher birth rate for teens than for older women (Figure 11). Birth rates for teens (< 20 years) were higher for those residing in the North Island, particularly in the Whanganui (49.8 per 1000 females of reproductive age) and Northland (46.9 per 1000 females of reproductive age) DHB regions. Birth rates for older women (40+ years) were generally lower, ranging from 9.8 per 1000 females of reproductive age (South Canterbury DHB) to 22.9 per 1000 females of reproductive age (Auckland DHB).

Figure 11: Birth rates for the under 20 years and the 40 years and over age groups, by DHB of residence, 2012

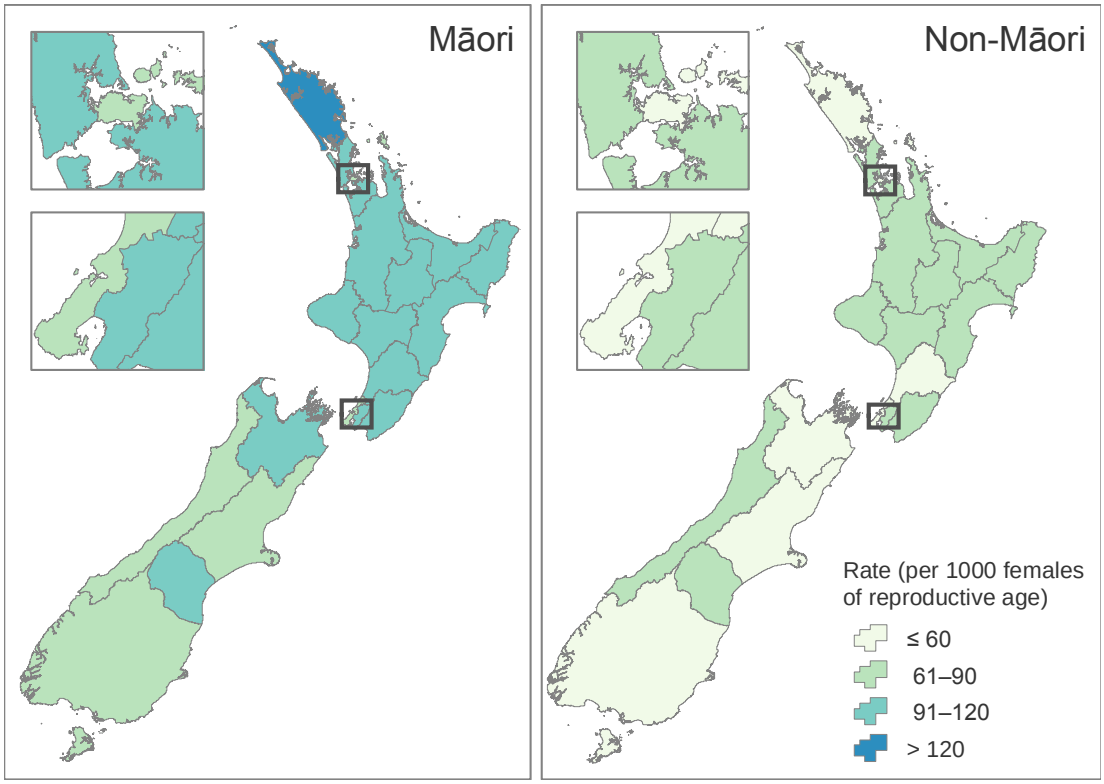


Note: reproductive age is 15–44 years.

Māori birth rates were higher than non-Māori birth rates for all DHB regions in 2012 (Figure 12). The Māori birth rate for each DHB region was 1.3–2.2 times the rate for non-Māori. Northland DHB region had the highest birth rate for Māori (122.3 per 1000 females of reproductive age). The lowest Māori birth rate was for women residing in Capital & Coast and Canterbury DHB regions (72.0 and 77.4 per 1000 females of reproductive age). Birth rates for non-Māori women ranged from 54.0 to 74.2 per 1000 females of reproductive age.

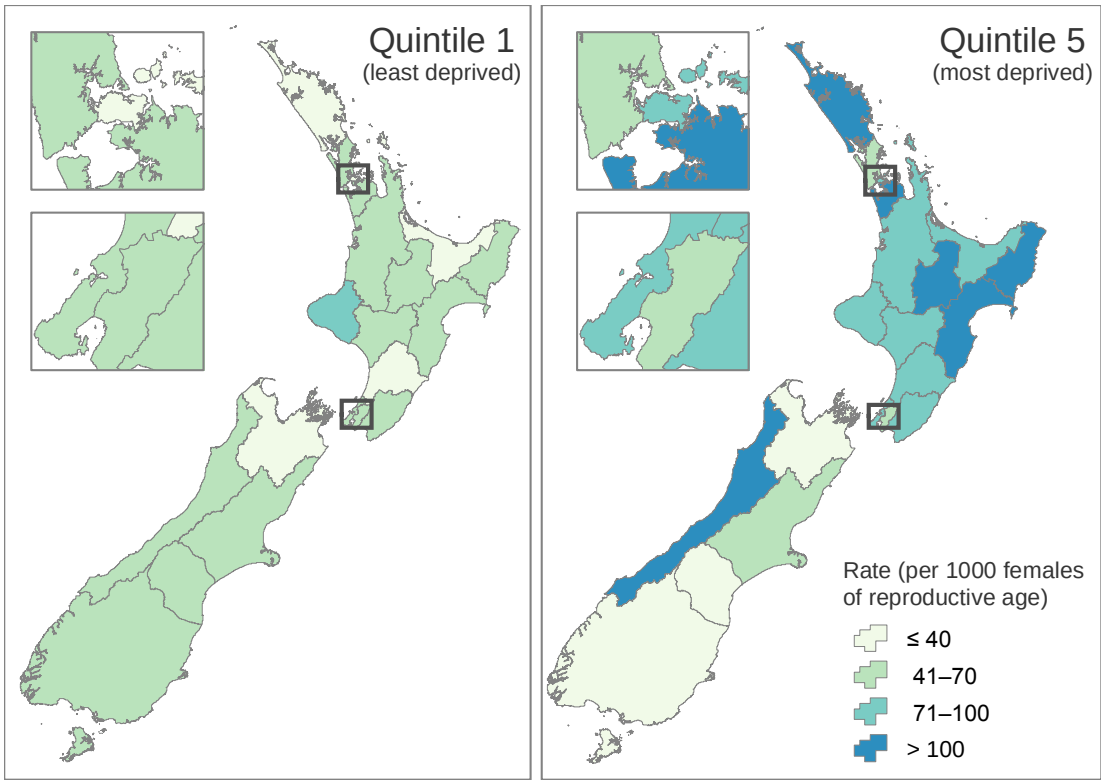
Birth rates by deprivation quintile (of residence) varied throughout the country (Figure 13). For the majority of DHB regions in 2012, the birth rate for the most deprived areas (quintile 5) was higher than for the least deprived areas (quintile 1). In the Bay of Plenty and Northland DHB regions the birth rate for women residing in quintile 5 was 7.3 and 5.9 times, respectively, the birth rate for women residing in quintile 1. Birth rates for women residing in the most deprived areas (quintile 5) were similar to rates for the least deprived areas (quintile 5) in the Waitemata and Canterbury DHB regions.

Figure 12: Birth rates for Māori and non-Māori, by DHB of residence, 2012



Note: reproductive age is 15–44 years.

Figure 13: Birth rates of women residing in deprivation quintile 1 (least deprived) and in quintile 5 (most deprived), by DHB of residence, 2012



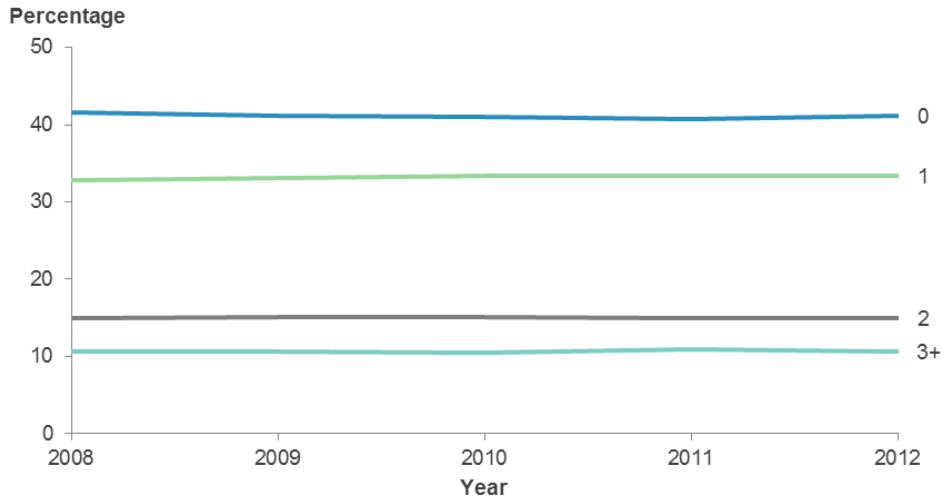
Note: reproductive age is 15–44 years.

Parity

Parity refers to the number of times a woman has given birth, including stillbirths. The data presented on parity is sourced from LMC claim forms and is therefore only available for women registered with an LMC (approximately 90% of women giving birth).

Of the women giving birth in 2012, 41.2% (22,691 women) were giving birth for the first time (had not given birth previously). A further 33.3% had given birth to one child previously, 14.9% had given birth to two children previously and 10.6% had given birth to three or more children previously.[4] This distribution of women giving birth, by parity, has remained fairly consistent over the last five years (Figure 14).

Figure 14: Percentage of women giving birth, by number of previous births (parity), 2008–2012



Notes:

The denominator used to calculate percentages is the number of women giving birth, excluding those with unknown parity.

Parity data is only available for women registered with a Lead Maternity Carer (LMC).

In 2012 the vast majority of young women giving birth did so for the first time (81.9% of women aged under 20 years).

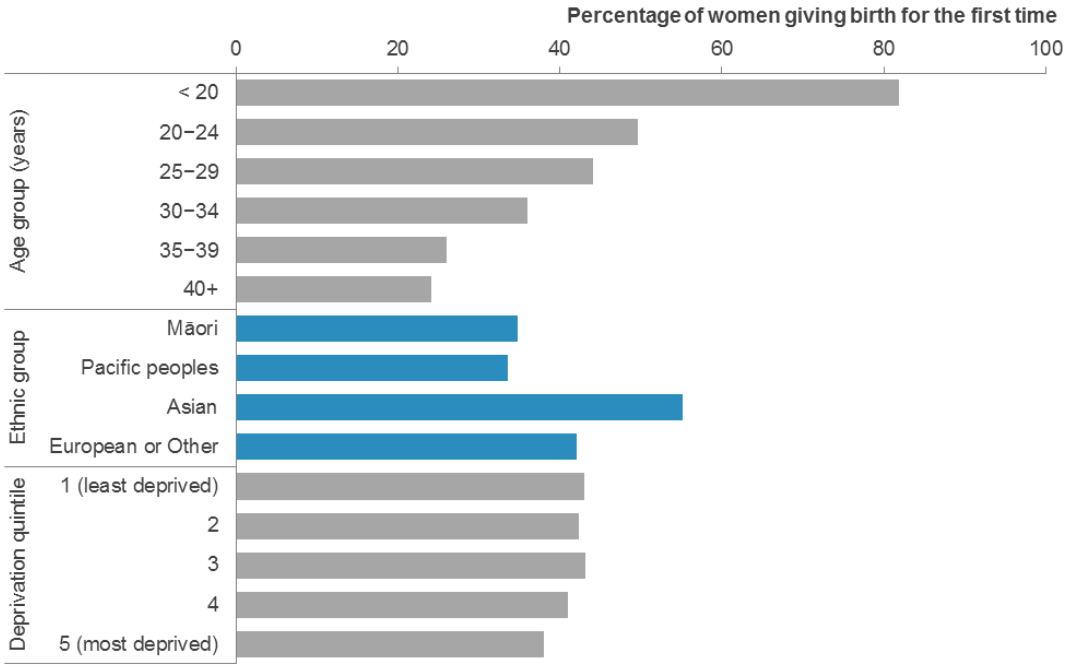
Over 55% of Asian women giving birth in 2012 did so for the first time, compared with 42.0% of women in the European or Other ethnic group and approximately 34% of Māori and Pacific women.

The proportion of women giving birth for the first time was fairly stable among women residing in the less deprived areas (42.8% of women residing in quintiles 1–3), and was slightly lower among those residing in the more deprived areas (39.5% of women residing in quintiles 4–5).

Figure 15 presents the proportion of women giving birth for the first time in 2012 for each age group, ethnic group and deprivation quintile.

4 Parity was unknown for 233 women (0.4%).

Figure 15: Percentage of women giving birth for the first time in 2012, by age group, ethnic group and deprivation quintile of residence



Notes:

The denominator used to calculate percentages is the number of women giving birth for that demographic, excluding those with unknown parity.

Parity data is only available for women registered with a Lead Maternity Carer (LMC).

Body mass index

Body mass index (BMI) is a ratio used to determine healthy weight ranges, and it has been used to define the medical standard for overweight and obesity. BMI is defined as the weight in kilograms divided by the square of the height in metres. The BMI range for each weight category is as follows:

Underweight: <19
Healthy weight: 19–24
Overweight: 25–29
Obese: 30+

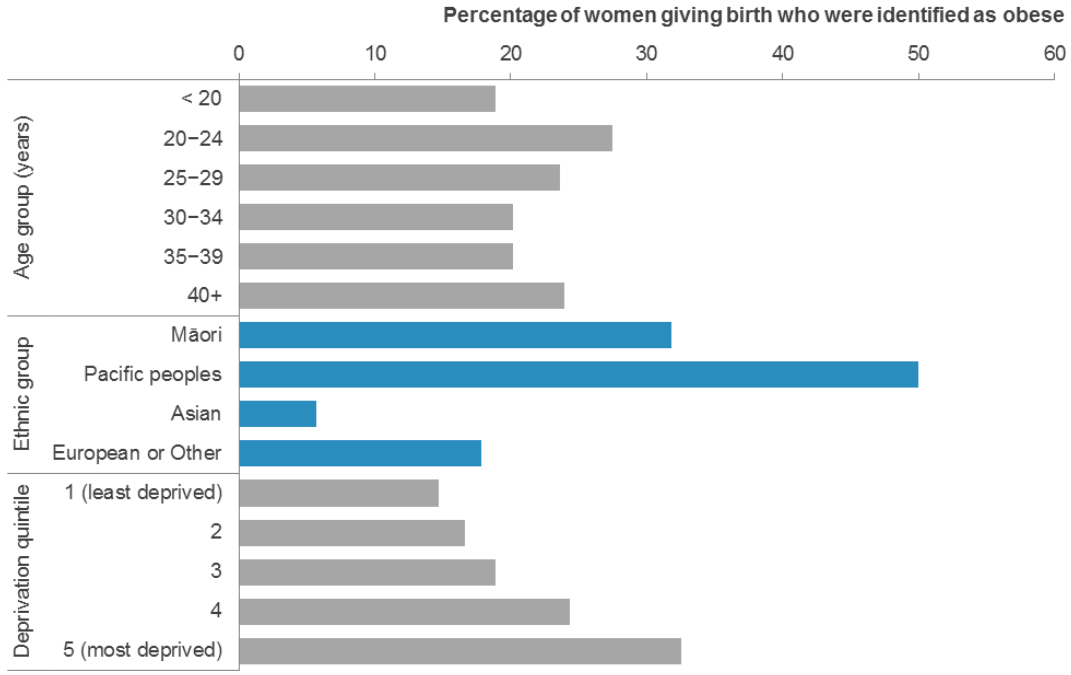
Height and weight measurements for calculating BMI are taken during registration with an LMC. The data is sourced from LMC claim forms and is therefore only available for women registered with an LMC (approximately 90% of women giving birth).

Over half of women giving birth in 2012 were identified as overweight (28.1%, 15,507 women) or obese (22.5%, 12,412 women) at time of LMC registration. A further 46.6% of women had a healthy weight and 2.8% were underweight.[5]

5 BMI was unknown for 109 women (0.2%).

The proportion of women identified as obese was highest among Pacific women giving birth (50.0%), followed by Māori women (31.8%). Women residing in the most deprived areas had a higher proportion of obesity than women residing in the least deprived areas (32.6% of women residing in quintile 5, compared with 14.7% of women residing in quintile 1). There was little variation in the proportion of obese women giving birth across age groups (Figure 16).

Figure 16: Percentage of women giving birth identified as obese when registering with a Lead Maternity Carer, by age group, ethnic group and deprivation quintile of residence, 2012



Notes:

A woman is identified as obese if her body mass index (BMI) is 30 or more.

The denominator used to calculate percentages is the number of women giving birth for that demographic group, excluding those with unknown BMI.

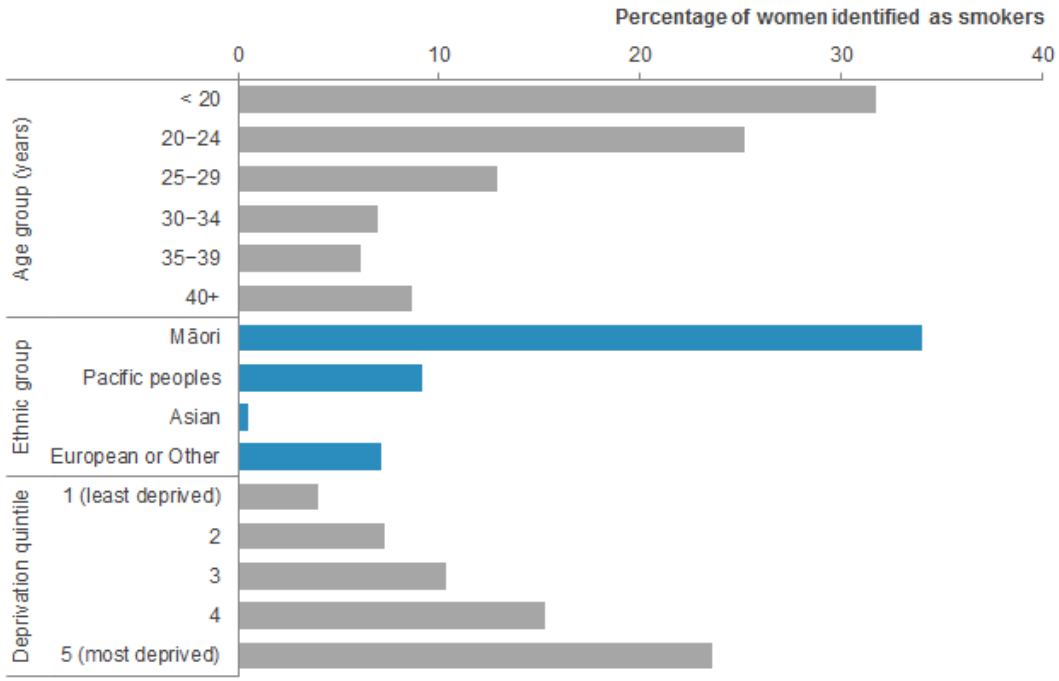
Smoking status

Maternal smoking status is recorded at the time of LMC registration and at two weeks after birth. The data presented on smoking is sourced from LMC claim forms and is therefore only available for women registered with an LMC (approximately 90% of women giving birth).

In 2012, 15.2% of women giving birth were identified as smokers at time of LMC registration, and 13.2% at two weeks after birth. The percentage of women identified as smokers at two weeks after birth has not changed much, fluctuating between 13.2% and 14.7% over the last five years.

A higher percentage of smokers was identified in younger women (31.8% of women aged under 20 years) and Māori women (34.0%). The proportion of smokers was also higher for women residing in the most deprived areas (23.6% of those residing in quintile 5) compared with the least deprived areas (4.0% of women residing in quintile 1) (Figure 17).

Figure 17: Percentage of women giving birth identified as smokers at two weeks after birth, by age group, ethnic group and deprivation quintile of residence, 2012



Notes:

The denominator used to calculate percentages is the number of women giving birth for that demographic group, excluding those with unknown smoking status.

Smoking status is only available for women registered with a Lead Maternity Carer (LMC).

Registration with a Lead Maternity Carer

Primary maternity care is usually provided by a community-based LMC. An LMC provides a 'woman and her baby with continuity of care throughout pregnancy, labour and birth and the postnatal period'.[6] Most LMCs are midwives, but a general practitioner (GP) meeting the required criteria or an obstetrician may also provide LMC services. A description of LMC services from registration to discharge is available from the New Zealand College of Midwives website.

Registration: the selection of an LMC and the documentation of this selection.

Discharge: the end of an LMC care episode, which occurs six weeks after the baby's birth.

This section focuses on women registered with an LMC, when they registered and the type of practitioner they chose. Information presented in this chapter may not fully reflect the collaborative and complex nature of primary maternity care. LMCs may work in a group or as solo practitioners with a back-up LMC for when they are not available. Analysis of non-LMC maternity services such as GP visits and ultrasounds, and of DHB-funded primary maternity services, is not presented in this publication (data can be made available on request).

The data presented is sourced from LMC claim forms submitted to the Ministry of Health for payment of services.

The vast majority of women giving birth in 2012 (88.8%) registered with an LMC. The other 11.2% of women giving birth were not registered with an LMC and mostly likely received primary maternity care from their DHB. Some may not have received any primary maternity care.

Registration with an LMC varied across age groups, ethnic groups and deprivation quintiles of residence, with most groups having at least 80% of women registered (Figure 18).

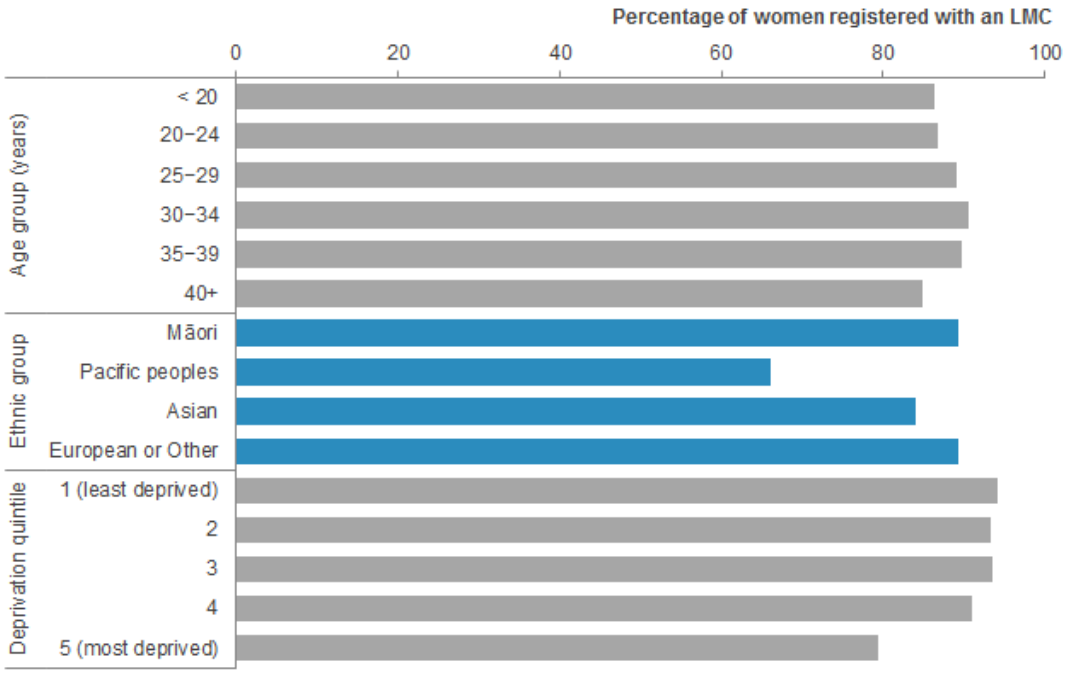
The proportion of women registered with an LMC ranged between 84.9% and 90.5% across all age groups. European women were most likely to register with an LMC (95.6%), followed by Māori women (89.2%). Registration with an LMC was least common among Pacific women (66.1%).

The percentage of registered women was over 90% for women residing in quintiles 1–4. This percentage was lower for women residing in the most deprived areas (79.4% of women residing in quintile 5).

Variations in the proportion of women registered with an LMC probably reflect the different levels of primary maternity services provided by each DHB for women who do not access an LMC (through choice or availability).

[6] Primary Maternity Services Notice 2007 pursuant to Section 88 of the New Zealand Public Health and Disability Act 2000.

Figure 18: Percentage of women registered with a Lead Maternity Carer (LMC) by age group, ethnic group and deprivation quintile of residence, 2012



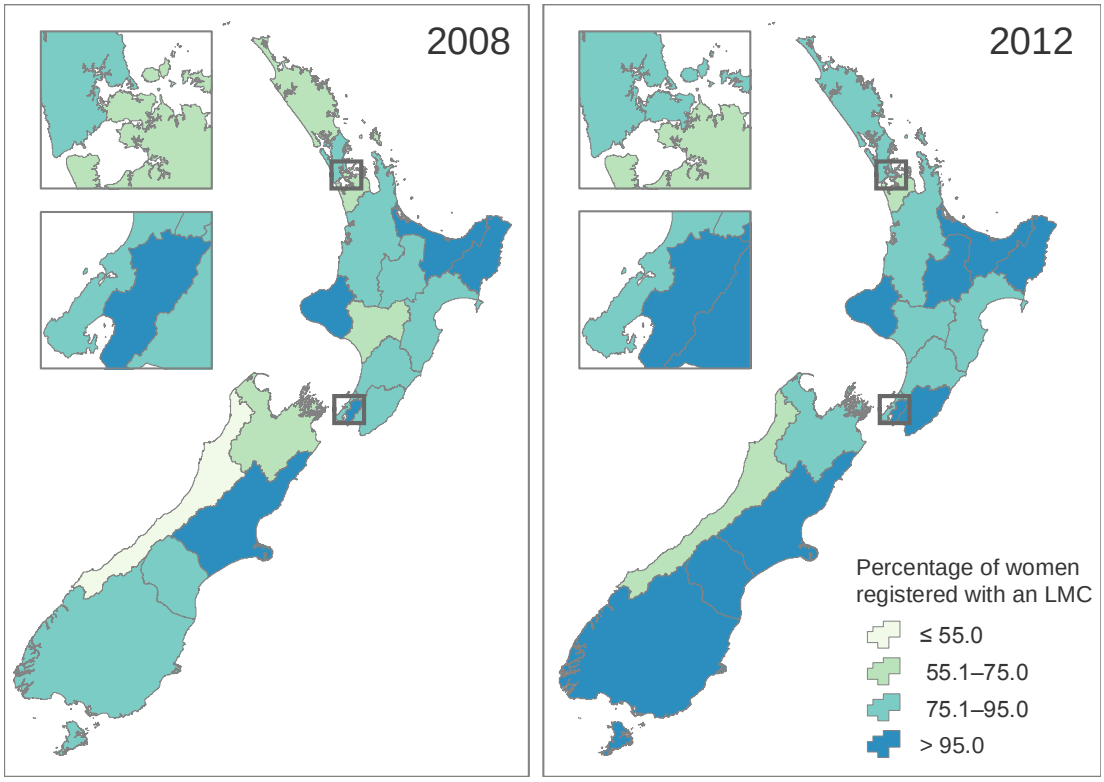
Note: the denominator used to calculate percentages is the number of women giving birth for that demographic group.

The proportion of women who registered with an LMC varied across DHBs in 2012, ranging from 64.3% of women residing in the West Coast DHB region and 66.3% of women residing in the Counties Manukau DHB region, to over 99% of women residing in the following DHBs:

- Bay of Plenty
- Tairawhiti
- Canterbury
- South Canterbury.

Between 2008 and 2012 the proportion of women registered with an LMC, of all women giving birth, increased or remained close to 100% for all DHBs. The largest increases were seen for women residing in Whanganui DHB (from 61.5% to 93.7%) and West Coast DHB (from 35.0% to 64.3%) regions (Figure 19).

Figure 19: Percentage of women registered with a Lead Maternity Carer (LMC) by DHB of residence, 2008 and 2012

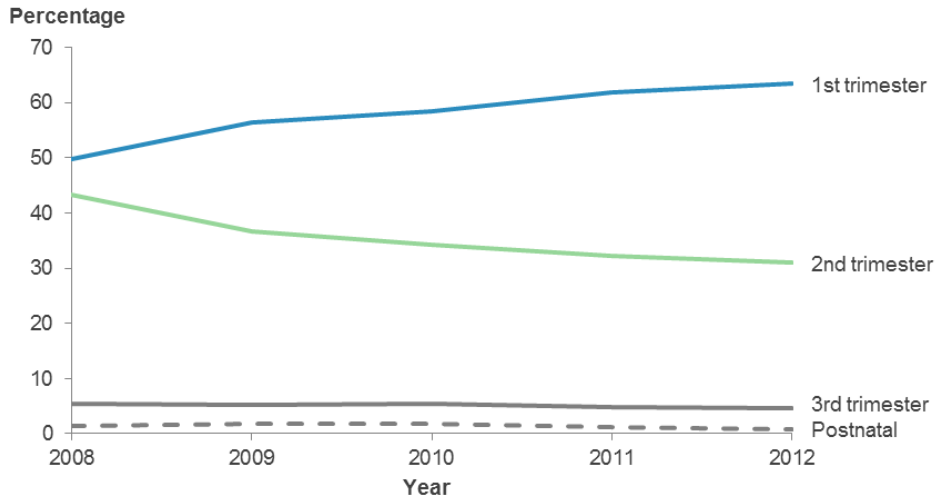


Note: the denominator used to calculate percentages is the number of women giving birth residing in the DHB region.

Trimester of registration

Of the women giving birth in 2012 who were registered with an LMC, 63.4% registered within the first trimester of pregnancy, an increase from 49.7% in 2008. Conversely, the percentage of women who registered during the second trimester of pregnancy decreased from 43.3% in 2008 to 27.5% in 2012 (Figure 20).

Figure 20: Percentage of women registered with a Lead Maternity Carer (LMC) by trimester of registration, 2008–2012



Note: the denominator used to calculate percentages is the number of women registered with an LMC.

Less than 40% of women in the following demographic groups registered with an LMC within the first trimester of pregnancy:

- women aged under 20 years
- Pacific women
- women residing in the most deprived areas (quintile 5).

Approximately 80% or more of women in each age group and ethnic group registered with an LMC by the end of the second trimester, except for the Pacific peoples ethnic group.

The percentage of women registered with an LMC by the end of the second trimester is markedly lower for quintile 5 compared with the other quintiles (Figure 21).

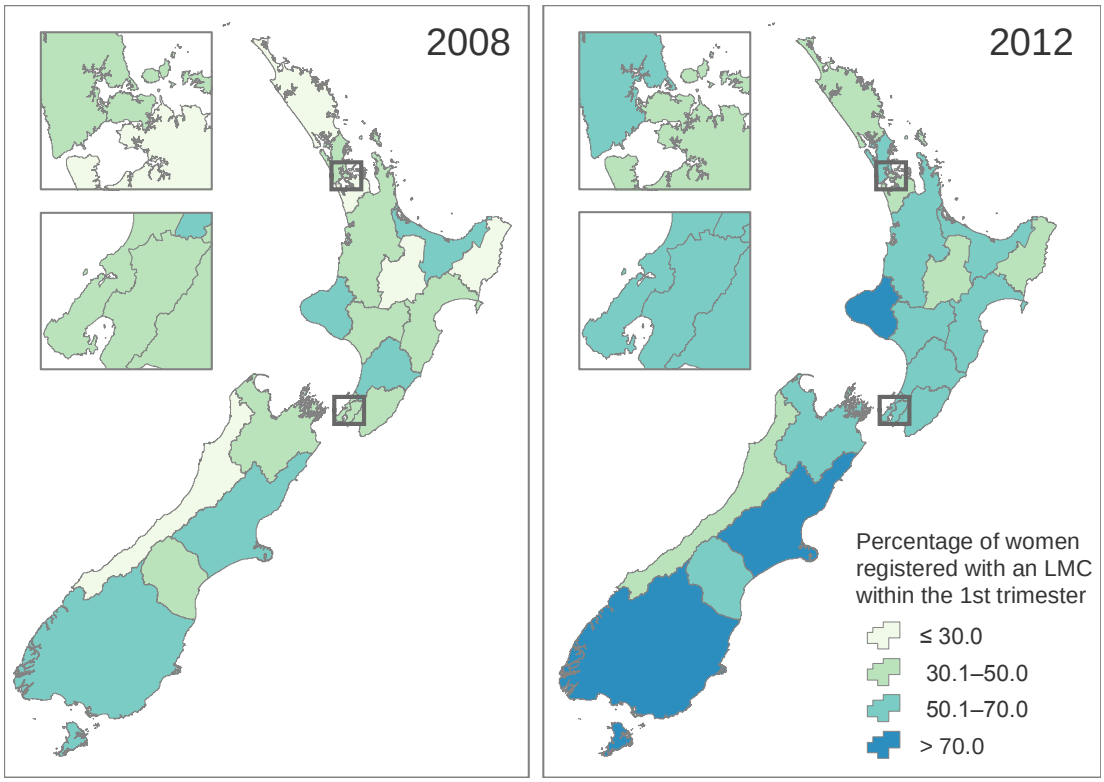
Figure 21: Percentage of women registered with a Lead Maternity Carer (LMC) prior to birth, by trimester of registration, age group, ethnic group and deprivation quintile of residence, 2012

Note: the denominator used to calculate percentages is the number of women giving birth for that demographic group.

The percentage of women registered with an LMC within the first trimester of pregnancy ranged from 31.3% to 73.5% across DHBs in 2012. The lowest percentage was for women residing in Counties Manukau DHB region, and the highest was for the Canterbury DHB region. Fourteen of the 20 DHBs had at least 50% of women giving birth registered with an LMC within the first trimester of pregnancy (Figure 22).

All DHBs had more women registered with an LMC within the first trimester of pregnancy in 2012 than in 2008. The largest increases were seen for women residing in West Coast DHB (from 14.8% to 40.1%) and Whanganui DHB (from 30.1% to 55.0%) regions (Figure 22).

Figure 22: Percentage of women registered with a Lead Maternity Carer (LMC) within the first trimester of pregnancy, by DHB of residence, 2008 and 2012

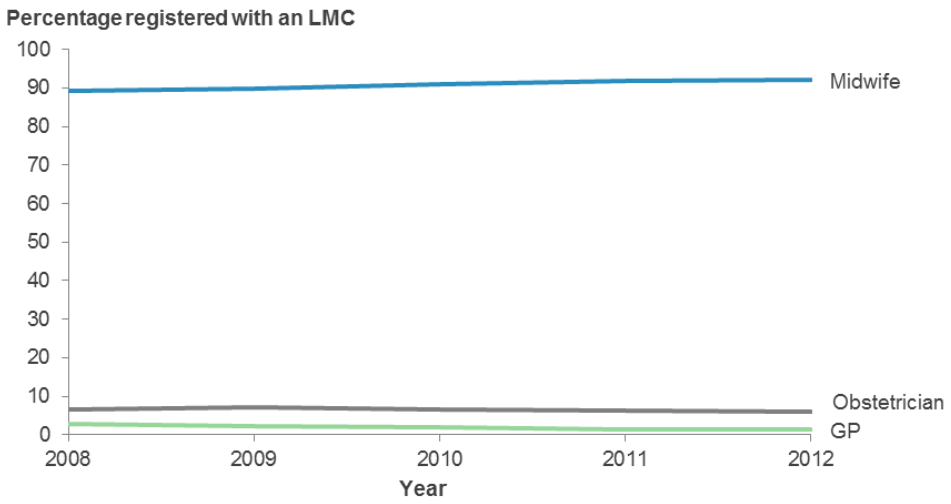


Note: the denominator used to calculate percentages is the number of women giving birth residing in the DHB region.

Type of Lead Maternity Carer

In 2012 the majority of women giving birth were registered with a midwife LMC (92.0% of women who were registered with an LMC). A small proportion of women were registered with an obstetrician or a GP as an LMC (6.2% and 1.3%, respectively, of women who were registered). The distribution of LMC type has not changed much since 2008, with approximately 90% of women registering with a midwife LMC each year (Figure 23).

Figure 23: Percentage of women registered with a Lead Maternity Carer (LMC) by type of LMC, 2008–2012



Note: the denominator used to calculate the percentage is the number of women registered with an LMC.

When compared with 2003 (prior to implementation of the Primary Maternity Services Notice 2007), there was an increase in the percentage of women registered with a midwife LMC (from 60.7% in 2003 to 81.6% in 2012) and a decrease in the percentage of women registered with a GP LMC (from 6.1% to 1.1%). The number and percentage of each LMC type in 2003 and 2012 are presented in Table 1.

Table 1: Comparison of Lead Maternity Carer (LMC) types between 2003 and 2012

LMC type	2003		2012	
	Number	Percentage	Number	Percentage
Registered with LMC	42,906	77.7	55,331	88.8
Midwife	33,531	60.7	50,878	81.6
Obstetrician	3,342	6.1	3,413	5.5
General practitioner	3,376	6.1	715	1.1
Other/unknown	2,657	4.8	325	0.5
Not registered with LMC	12,306	22.3	6,990	11.2
Total	**55,212**	**100.0**	**62,321**	**100.0**

Note: 2003 data was sourced from the Report on Maternity: Maternal and Newborn Information 2003 (Ministry of Health 2006).

Labour and birth

This chapter describes events relating to labour and birth, covering the type of birth, interventions and place of birth. The sections are: Type of birth; Plurality; Interventions; and Place of birth.

Type of birth

The numbers presented in this section refer to the number of women giving birth, not the number of birth procedures. A priority system is used to report a procedure type for women having more than one of the birth procedures described (see the 'Type of birth' section in 'Appendix 3: Technical notes' for more information). Types of birth have been grouped into the following aggregated categories.

Spontaneous vaginal birth: birth of a baby without any obstetric intervention to facilitate delivery; includes spontaneous breech birth (vaginal birth in which the baby's buttocks or lower limbs precede its head). It may also include other obstetric procedures such as induction.

Assisted birth: vaginal birth (including assisted breech birth) requiring obstetric delivery assistance (eg, forceps, vacuum).

Caesarean section: delivery involving an operation through an abdominal incision.

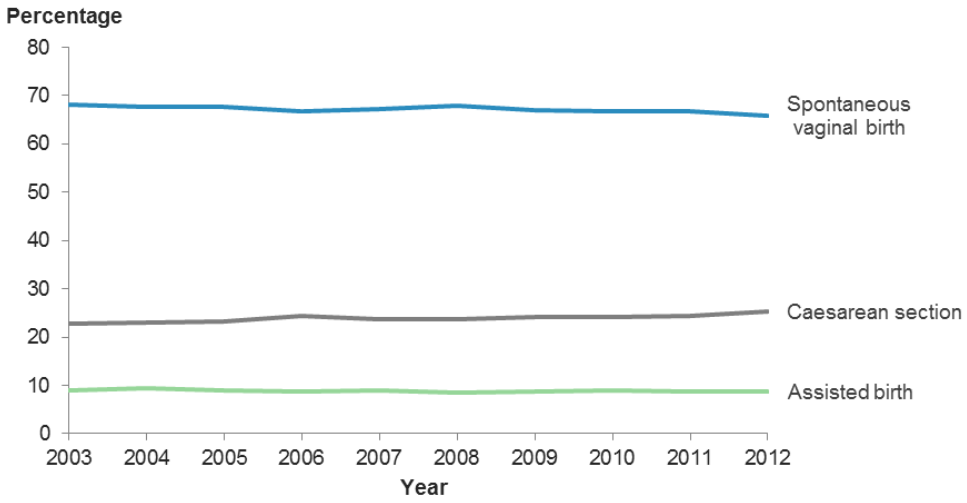
Of the 61,372 women with a known type of birth in 2012, 40,435 (65.9%) had a spontaneous vaginal birth, 15,550 (25.3%) had a caesarean section and 5387 (8.8%) had an assisted birth (Table 2).

Table 2: Number and percentage of women giving birth, by type of birth, 2012

Type of birth	Number	Percentage
Spontaneous vaginal birth	40,435	65.9
Spontaneous vertex	40,269	65.6
Spontaneous breech	166	0.3
Assisted birth	5,387	8.8
Forceps only	1,885	3.1
Vacuum only	3,384	5.5
Forceps and vacuum	12	0.0
Assisted breech	63	0.1
Breech extraction	43	0.1
Caesarean section	15,550	25.3
Emergency caesarean	8,405	13.7
Elective caesarean	7,145	11.6
Unknown	949	–
Total	**62,321**	**100.0**

Birth types have remained fairly stable over the last decade, with a slight decrease in the proportion of women having a spontaneous vaginal birth (from 68.2% in 2003 to 65.9% in 2012) and a slight increase in the proportion of caesarean sections (from 22.7% in 2003 to 25.3% in 2012). Figure 24 presents the percentage of women giving birth for each group of birth procedures over the last decade.

Figure 24: Percentage of women giving birth, by type of birth (aggregated), 2003–2012



Notes:

Spontaneous vaginal birth includes spontaneous vertex and breech births. Assisted birth includes breech extraction and assisted breech.

The denominator used to calculate percentages is the number of women giving birth, excluding those with unknown birth type.

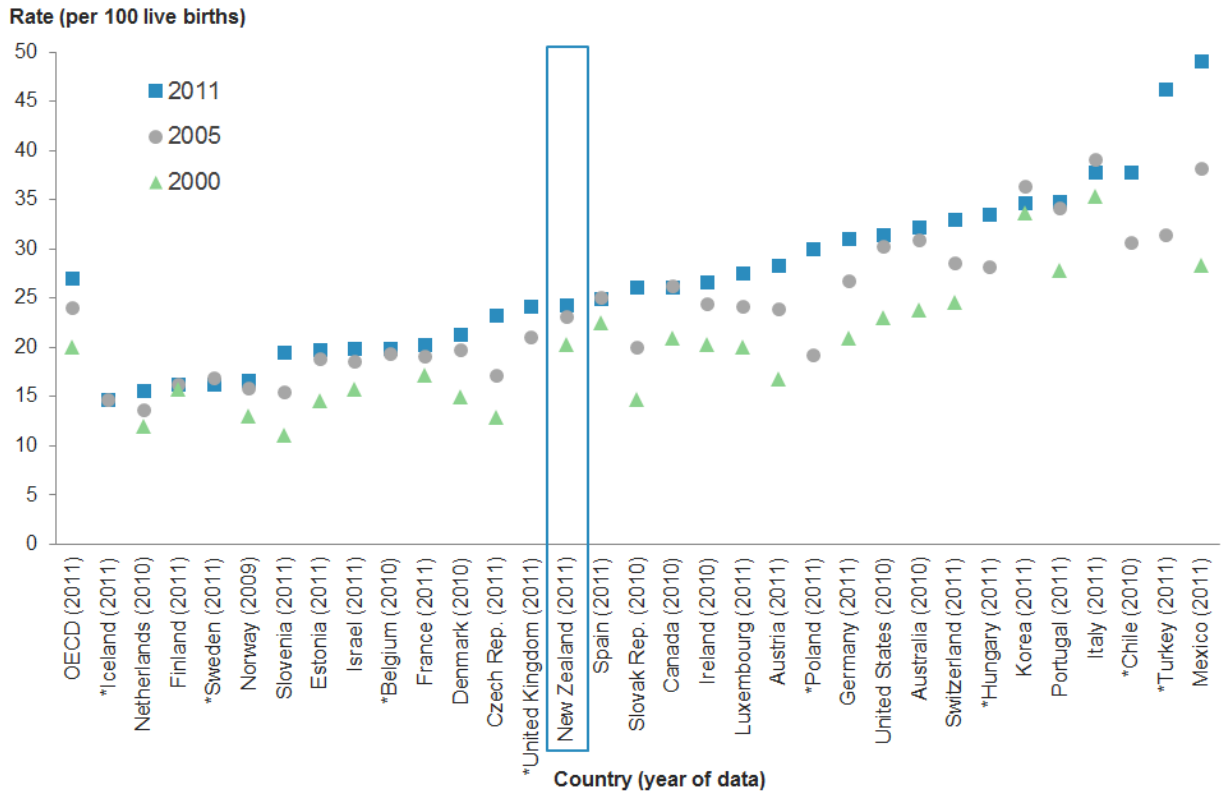
The Organisation for Economic Co-operation and Development (OECD) presented a comparison of caesarean section rates (number of caesarean section deliveries performed per 100 live births) across OECD countries between 2000 and 2011 in the most recent edition of the *Health at a Glance* publication (OECD 2013).[7]

The rate of caesarean sections for New Zealand in 2011 was 24.3 per 100 live births, the same as the United Kingdom (24.3 per 100 live births, 2011). The New Zealand rate was lower than the rates for the United States and Australia (31.4 and 32.2 per 100 live births, respectively, 2010), as well as the overall OECD rate (26.9 per 100 live births, 2011) (Figure 25).

Almost all OECD countries, including New Zealand, showed an increase in the caesarean section rate between 2000 and 2011. The most rapid increases were in Mexico and Turkey. However, the growth rate has slowed or reversed since 2005 for Finland, Italy, Korea and Sweden (Figure 25).

7 The caesarean section rate presented here is not comparable to the percentage of caesarean sections given elsewhere in this publication. The OECD report uses live births, while this publication uses the number of women giving birth as the denominator for rate or percentage calculations.

Figure 25: Comparison of caesarean section rates (per 100 live births) in 2000, 2005 and 2011 (or nearest year) for OECD countries



Notes:

Data was sourced from *Health at a Glance 2013: OECD indicators* (OECD 2013). Refer to publication for more details on limitations in data comparability.

Countries for which the caesarean section rate was unavailable for the year 2000 are marked with an asterisk (*).

The rate presented is the number of caesarean deliveries performed per 100 live births.

Breech births

Breech birth in this publication is a vaginal birth of a baby by the buttocks or lower limbs first rather than the head.

Spontaneous breech: the birth of a baby from a breech presentation without obstetric intervention to facilitate delivery, but which may include other obstetric procedures such as induction.

Assisted breech: an assisted vaginal birth in which a baby being born feet or buttocks first is delivered spontaneously as far as its umbilicus and is then extracted. It may include the use of forceps.

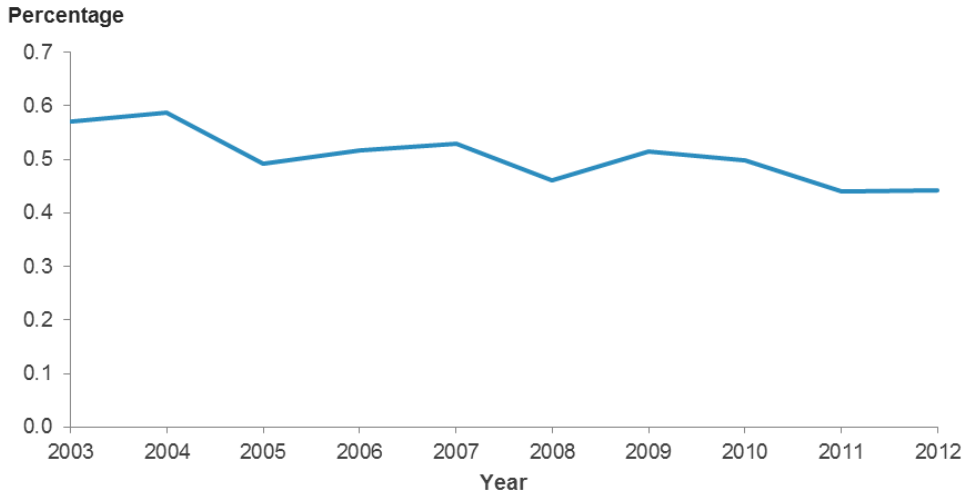
Breech extraction: an assisted vaginal birth, performed by grasping the baby's feet or buttocks before any part of the trunk is born and delivering by traction. It may include the use of forceps.

A total of 272 women had a vaginal breech birth in 2012; 166 had a spontaneous breech, 63 by assisted breech and 43 by breech extraction (Table 2). This represented 0.4% of all births with a known birth type.

Preterm births represented 60.7% of spontaneous breech births, 49.1% of assisted breech births and 43.9% of breech extractions. The majority of spontaneous and assisted breech births were for singleton pregnancies (79.5% and 66.7%, respectively), while over 70% of breech extractions were for twin or multiple pregnancies.

Vaginal breech births have become less common over the last decade, falling from 0.6% (318 women) of all births in 2003 to 0.4% (272 women) in 2012 (a significant decrease) (Figure 26).

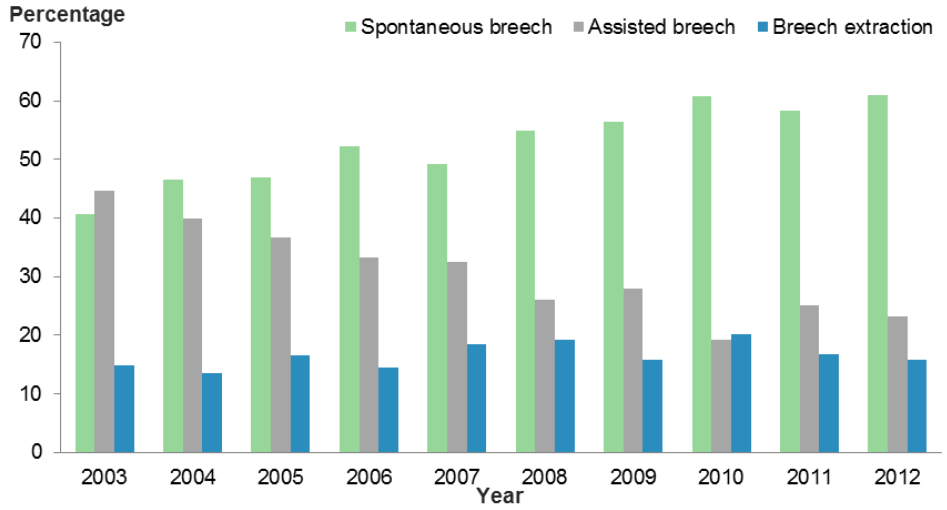
Figure 26: Percentage of vaginal breech births, 2003–2012



Note: the denominator used to calculate percentages is the number of women giving birth, excluding those with unknown birth type.

The distribution of breech birth types has also changed during this time, with an increase in the proportion of spontaneous breech births (from 40.6% to 61.0%) and a decrease in the proportion of assisted breech births (from 44.7% to 23.2%). The proportion of breech extraction fluctuated between 13.5% and 20.1% over the same time period (Figure 27).

Figure 27: Distribution of breech birth types, 2003–2012



Note: the denominator used to calculate percentages is the number of vaginal breech births.

Caesarean sections

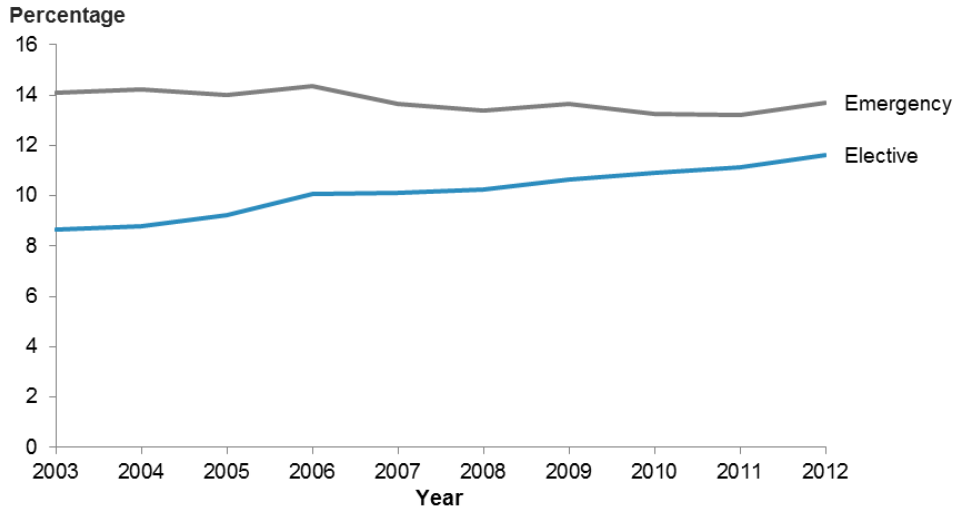
Emergency caesarean section: a caesarean section performed urgently for clinical reasons, such as the health of the woman or baby, once labour has started.

Elective caesarean section: a caesarean section performed as a planned procedure before or following the onset of labour, and the decision to have a caesarean section was made before labour.

One in four women giving birth in 2012 had a caesarean section, with just over half having an emergency caesarean section (Table 2).

Between 2003 and 2012 the percentage of elective caesarean sections increased from 8.6% to 11.6% of all births, while the percentage of emergency caesarean sections remained fairly stable, ranging from 13.2% to 14.3% of all births (Figure 28).

Figure 28: Percentage of emergency and elective caesarean sections, 2003–2012



Note: the denominator used to calculate percentages is the total number of women giving birth, excluding those with unknown birth type.

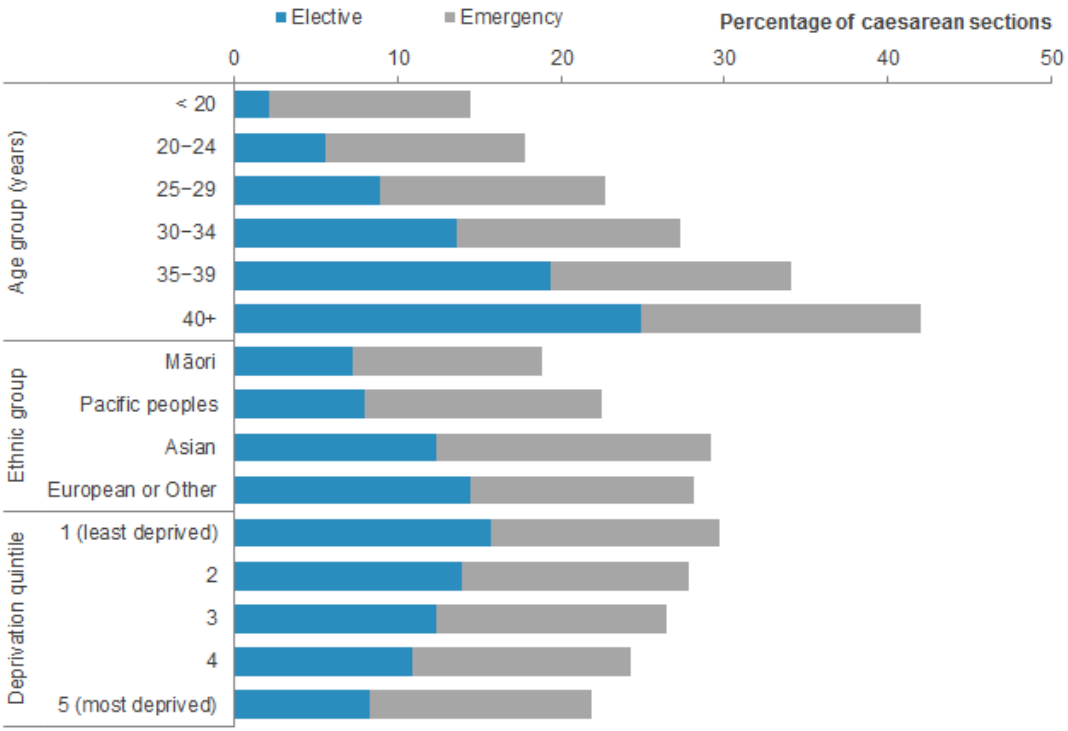
The percentage of women having a caesarean section varied by age group, ethnic group and deprivation quintile of residence in 2012 (Figure 29). This variation was primarily driven by the difference in proportion of women having an elective caesarean section by demographic group. The percentage of women having an emergency caesarean section ranged from 11.6% to 17.2% across age groups, ethnic groups and deprivation quintiles.

Women with the following characteristics were more likely to have a caesarean section:

- aged 35 years or more (34.1% of women aged 35–39 years and 42.1% of women aged 40 years and over)
- in the Asian or the European or Other ethnic groups (29.1% of Asian women and 28.1% of women in the European or Other ethnic group)
- residence in the least deprived areas (29.6% of women residing in quintile 1).

Approximately 66% of emergency caesarean sections in 2012 were for women having their first baby. In contrast, over 70% of elective caesarean sections were performed on women who had given birth previously.

Figure 29: Percentage of caesarean sections, by type, age group, ethnic group and deprivation quintile of residence, 2012

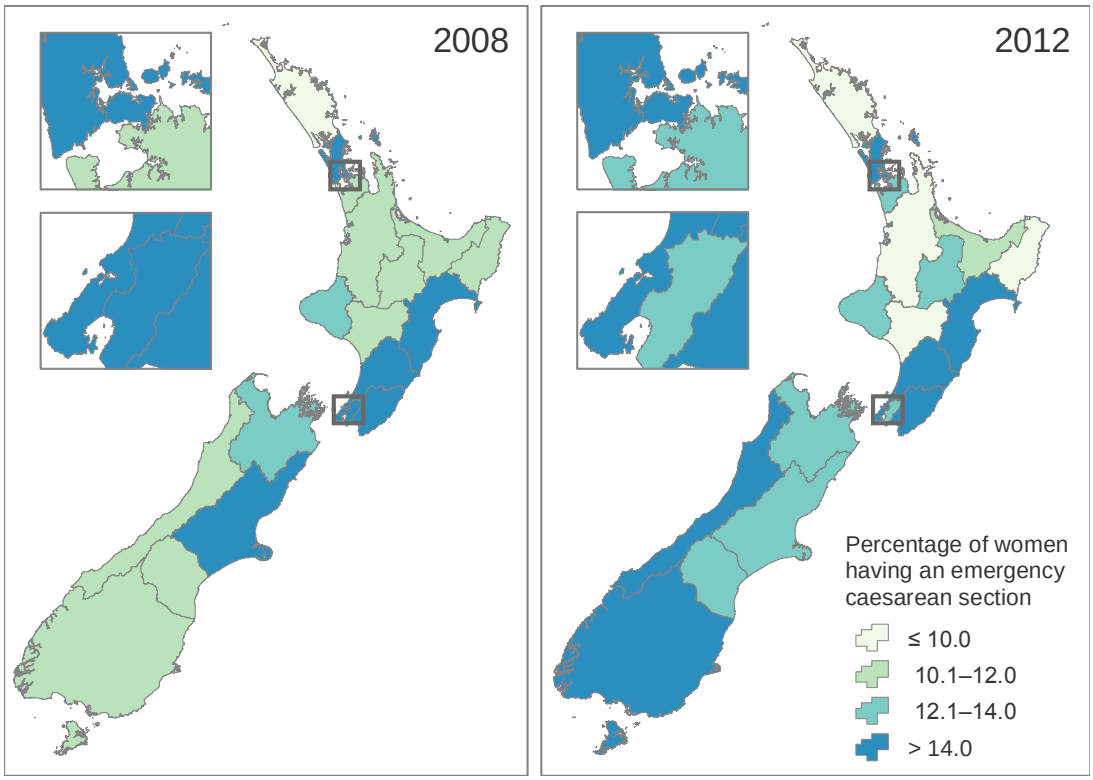


Note: the denominator used to calculate percentages is the total number of women giving birth, excluding those with unknown birth type.

The proportion of emergency caesarean sections varied throughout the country in 2012, with generally lower proportions in the middle of the North Island. Tairawhiti DHB region had the lowest proportion of emergency sections, with 9.5% of women giving birth having an emergency caesarean section, while Wairarapa DHB region had the highest proportion at 18.5% (Figure 30).

A significant increase in the proportion of emergency caesarean sections was seen in Counties Manukau DHB (from 11.5% in 2008 to 13.8% in 2012) and Southern DHB (from 11.9% in 2008 to 14.3% in 2012). Canterbury DHB was the only region with a significant decrease in emergency caesarean sections, falling from a high of 16.6% in 2008 to 13.9% in 2012 (Figure 30).

Figure 30: Percentage of emergency caesarean sections, by DHB of residence, 2008 and 2012

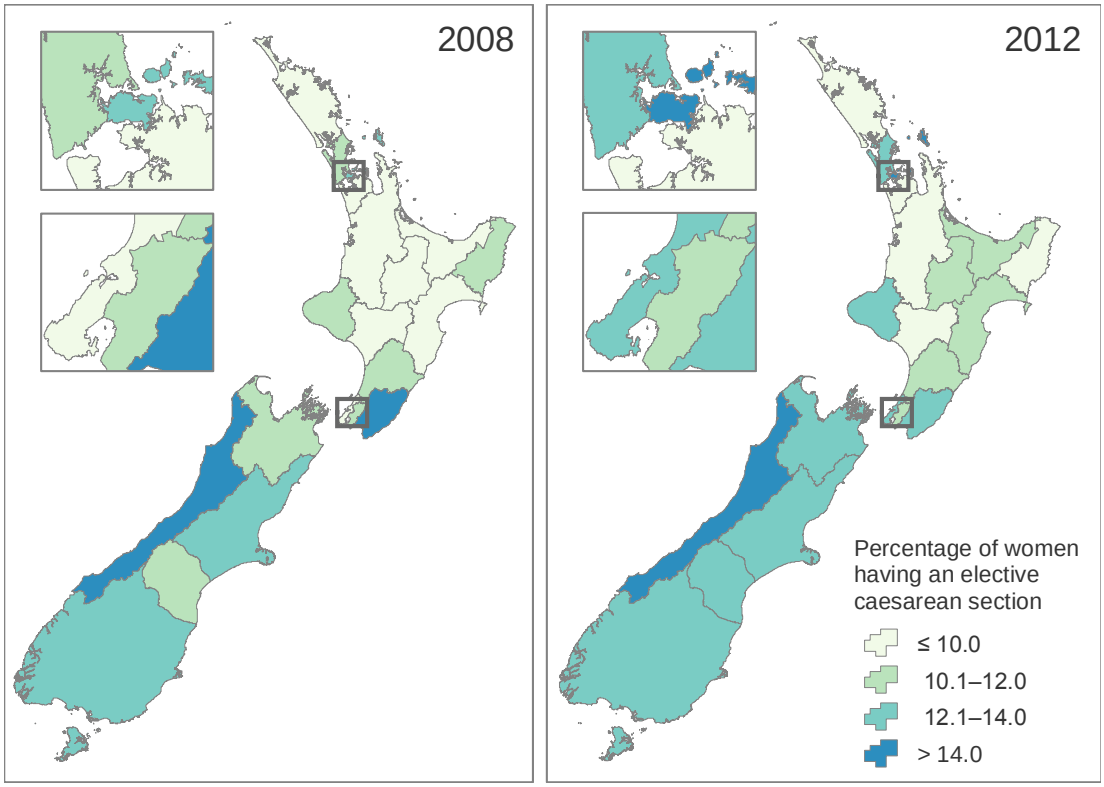


Note: the denominator used for calculating percentages is the number of women giving birth residing in the DHB region, excluding those with unknown type of birth.

The proportion of elective caesarean sections was generally higher among women residing in the South Island (13.5%) than women residing in the North Island (10.9%) in 2012. However, the highest proportion of elective caesarean sections among women giving birth was for women residing in Auckland DHB (14.4%), followed by West Coast DHB (14.3%). Northland DHB had the lowest percentage, with 4.8% of women giving birth having an elective caesarean section (Figure 31).

Between 2008 and 2012 a slight decrease in the proportion of elective caesarean sections was seen in Tairawhiti DHB and Wairarapa DHB regions. Conversely, the following DHB regions had a significant increase in 2012 when compared with 2008: Auckland (from 12.4% to 14.4%), Counties Manukau (from 7.5% to 9.0%), Waikato (from 7.7% to 9.2%), Taranaki (from 10.1% to 13.3%) and Capital & Coast (from 9.8% to 12.6%).

Figure 31: Percentage of elective caesarean sections, by DHB of residence, 2008 and 2012



Note: the denominator used for calculating percentages is the number of women giving birth residing in the DHB region, excluding those with unknown type of birth.

Plurality

Plurality is the number of babies resulting from a single pregnancy.

Singleton pregnancy: pregnant with one baby.

Twin pregnancy: pregnant with two babies.

Multiple pregnancy: pregnant with three or more babies.

The vast majority of women giving birth in 2012 (98.6%) gave birth to one baby (singleton pregnancy) and 892 women (1.4%) gave birth to two or more babies (twin/multiple birth).[8] The proportion of twin or multiple births has not changed much over the last decade, ranging from 1.4% to 1.7% of all women giving birth.

The type of birth varied with plurality, as shown in Table 3. Approximately 75% of women with singleton pregnancies had a vaginal birth (includes assisted birth), compared with 36.4% of women pregnant with twins and 11.8% of women with multiple pregnancy. The proportion of emergency and elective caesarean sections increased with the number of babies, with 24.8% of women with a singleton pregnancy having a caesarean section compared with 63.6% of women with a twin pregnancy and 88.2% of women with a multiple pregnancy.

Table 3: Number and percentage of women giving birth, by type of birth and plurality, 2012

Plurality	Spontaneous vaginal birth		Assisted birth		Caesarean section				Total[1]
					Emergency		Elective		
	No.	%[2]	No.	%[2]	No.	%[2]	No.	%[2]	No.
Singleton	40,113	66.5	5,270	8.7	8,154	13.5	6,826	11.3	61,008
Twin	201	23.0	117	13.4	245	28.1	310	35.5	875
Multiple	2	11.8	0	0.0	6	35.3	9	52.9	17
Unknown	119	–	0	–	0	–	0	–	421
Total	**40,435**	**65.9**	**5,387**	**8.8**	**8,405**	**13.7**	**7,145**	**11.6**	**62,321**

1 Includes women where type of birth was unknown.

2 Percentage for each plurality category by type of birth, calculated using the total number of women giving birth where type of birth was reported.

8 Plurality was unknown for 421 women (0.7%).

Interventions

Common obstetric interventions during labour and birth include the following.

Induction: the process of artificially stimulating the uterus to start labour by artificial rupture of membranes or pharmacological means.

Augmentation: the process of stimulating the uterus to increase the frequency, duration and intensity of contractions after the onset of spontaneous labour by artificial rupture of membranes or pharmacological means.

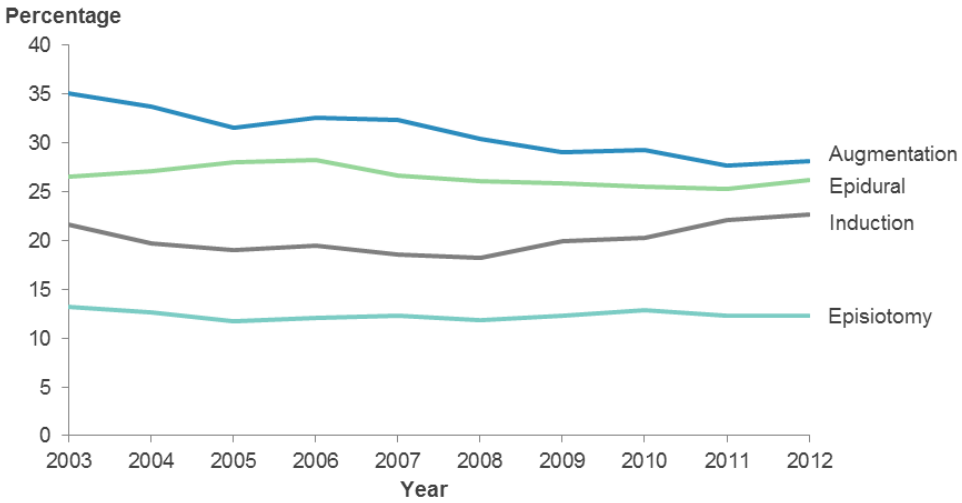
Epidural: a regional analgesic agent injected into the epidural space of the spinal cord.

Episiotomy: an incision of the perineal tissue surrounding the vagina at the time of birth to facilitate delivery.

The number and percentage of inductions, augmentations and epidurals presented does not include women giving birth by elective caesarean section. The number and percentage of episiotomies is limited to vaginal births (all births excluding caesarean sections). It should be noted that women giving birth may have more than one of these procedures.

Between 2003 and 2012 the proportion of women undergoing augmentation decreased slightly, from 35.0% to 28.1%. The proportion of inductions decreased from 21.6% in 2003 to 18.3% in 2008, but it has since increased to 22.7% in 2012. The proportion of women undergoing an epidural and episiotomy remained fairly stable over the same time period, with over a quarter of women having an epidural (25.3%–28.2% each year) and about 12% of women having an episiotomy each year (11.7%–13.2% each year) (Figure 32).

Figure 32: Percentage of women having an intervention during labour and birth, by type of intervention (induction, augmentation, epidural and episiotomy), 2003–2012



Notes:

The denominator used to calculate percentage of induction, augmentation and epidural is the total number of women giving birth, excluding those who had an elective caesarean section and those with unknown birth type.

The denominator used to calculate percentage of episiotomy is the number of women who had vaginal births.

Induction

In 2012, 22.7% (12,291) of women giving birth (excluding elective caesarean sections) had an induction of labour. Figure 33 shows the distribution of women undergoing induction.

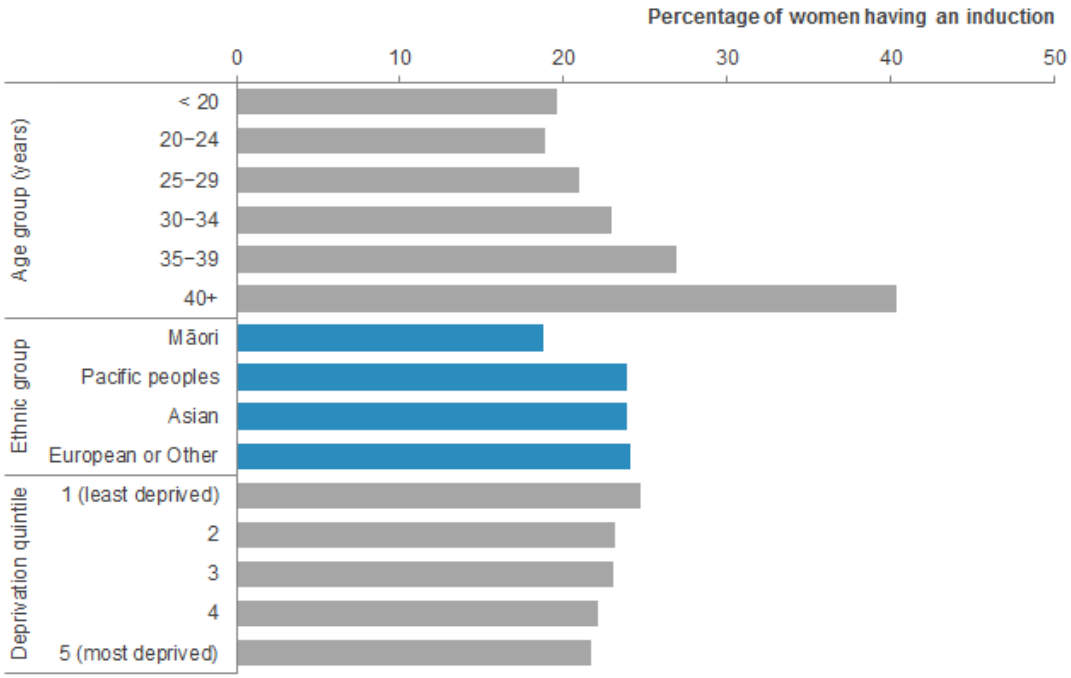
The proportion of inductions among women giving birth increased with maternal age (19.6% of women aged under 20 years, compared with 40.4% of women aged 40 years and over).

Māori women were less likely to have an induction compared with other ethnic groups (18.8% of Māori women, compared with 24.1% of non-Māori women).

The proportion of inductions was also slightly lower among women residing in the most deprived areas (21.7% of women residing in quintile 5) compared with those residing in the least deprived areas (24.7% of women residing in quintile 1).

Women giving birth for the first time in 2012 had a higher proportion of inductions (26.6%) compared with women who had given birth previously (18.7%).

Figure 33: Percentage of women having an induction of labour, by age group, ethnic group and deprivation quintile of residence, 2012



Note: the denominator used to calculate percentages is the number of women giving birth for that demographic group, excluding those who had an elective caesarean section or those with unknown birth type.

Augmentation

A total of 15,232 women (28% of women giving birth, excluding elective caesarean sections) had their labour augmented in 2012. Figure 34 shows the distribution of women undergoing augmentation of labour.

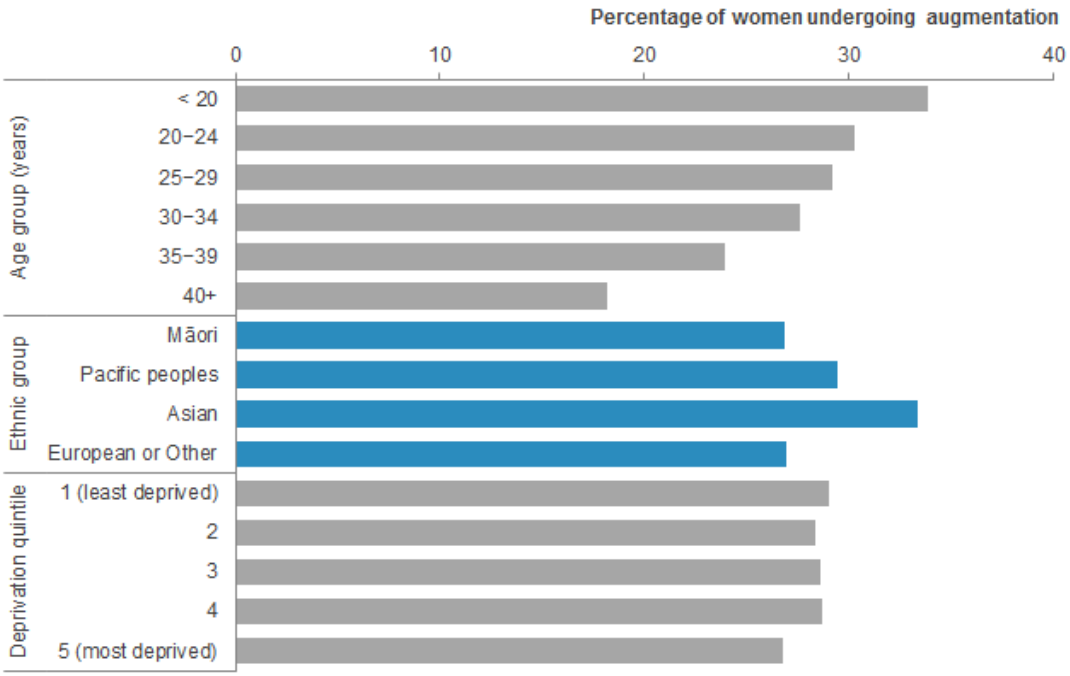
The proportion of augmentation among women giving birth decreased with maternal age (33.9% of women aged under 20 years, compared with 18.2% of women aged 40 years and over).

Augmentation was more common for Asian women (33.4% of Asian women) than for women in the other ethnic groups.

The proportion of women who had their labour augmented was similar across deprivation quintiles, ranging from 26.8% of women residing in the most deprived areas (quintile 5) to 29.1% of women residing in the least deprived areas (quintile 1).

A third of women giving birth for the first time in 2012 had their labour augmented. In comparison, the proportion of women who had previously given birth needing an augmentation of labour was lower, at 24.3%.

Figure 34: Percentage of women undergoing augmentation of labour, by age group, ethnic group and deprivation quintile of residence, 2012



Note: the denominator used to calculate percentages is the number of women giving birth for that demographic group, excluding those who had an elective caesarean section or those with unknown birth type.

Epidural

One in every four women giving birth (excluding those having an elective caesarean section) in 2012 had an epidural (26.2%; 14,191 women). Figure 35 shows the distribution of women having an epidural.

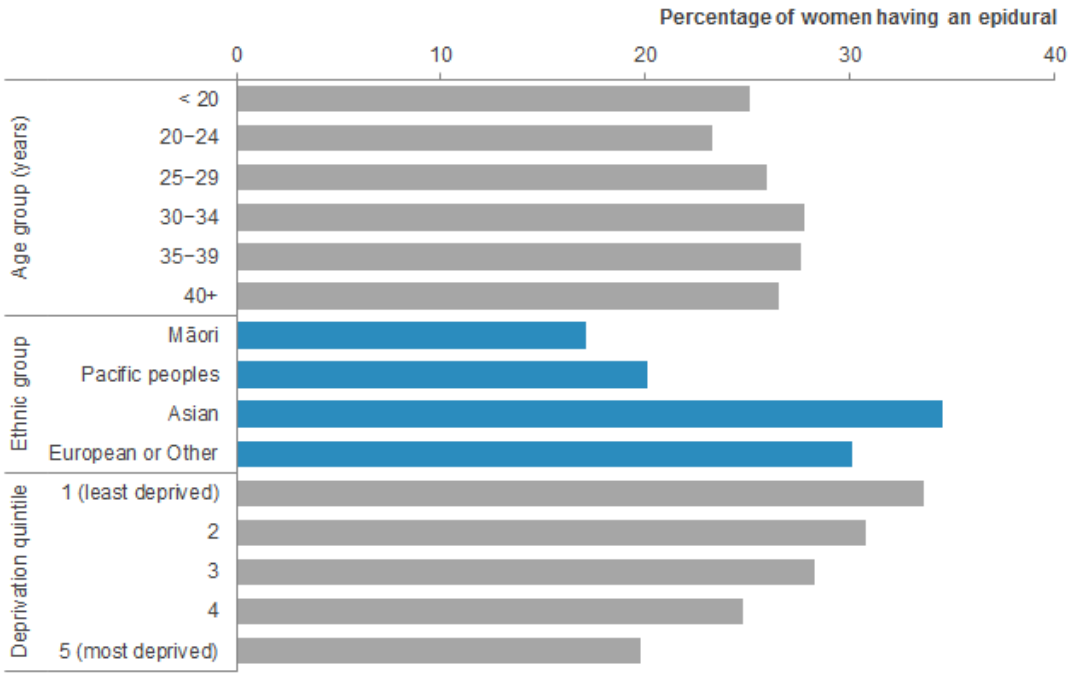
The proportion of epidurals was fairly consistent across age groups, ranging from 23.3% (20–24 years age group) to 27.8% (30–34 years age group) of women.

Use of epidural differed by ethnic group, with 34.5% of Asian women and 30.1% of women in the European or Other ethnic groups having an epidural. In contrast, 17.1% of Māori women and 20.1% of Pacific women had an epidural in 2012.

Women residing in the least deprived areas had the highest proportion of epidurals (33.7% of women residing in quintile 1), while women residing in the most deprived areas had the lowest proportion of epidurals (19.8% of women residing in quintile 5).

The proportion of epidurals among women giving birth for the first time was 2.8 times the proportion for women who had given birth previously (40.7% compared with 14.6%).

Figure 35: Percentage of women having an epidural, by age group, ethnic group and deprivation quintile of residence, 2012



Note: the denominator used to calculate percentage is the number of women giving birth for that demographic group, excluding those who had an elective caesarean section or those with unknown birth type.

Episiotomy

In 2012, 12.3% (5659) of women giving birth vaginally had an episiotomy. Figure 36 shows the distribution of women having an episiotomy.

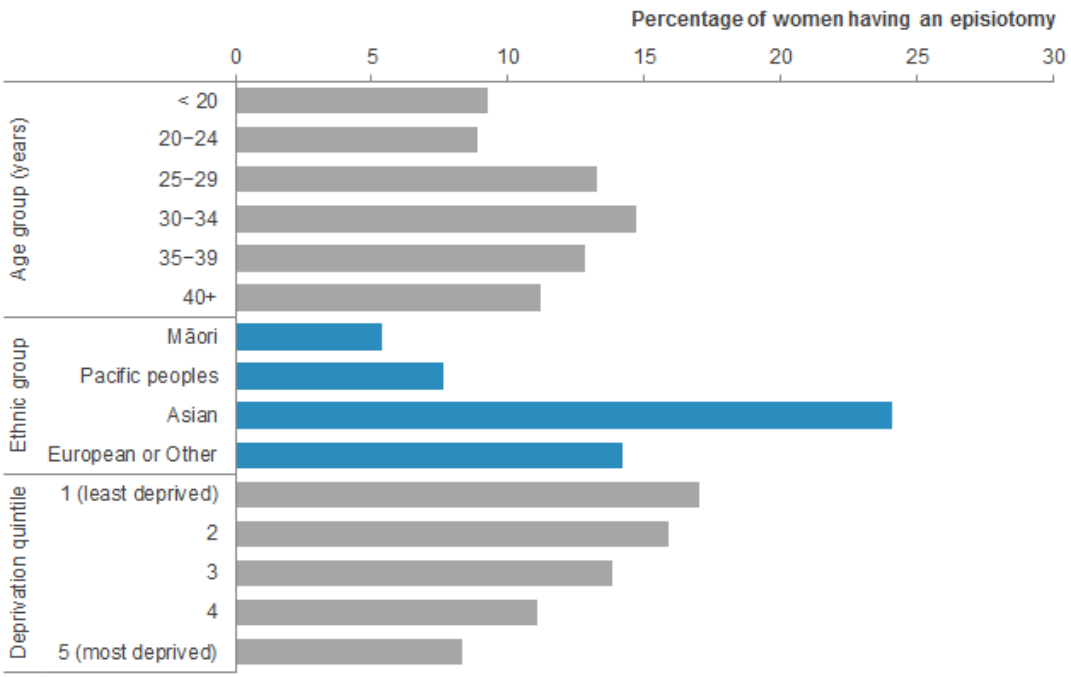
The proportion of episiotomy was generally higher for women aged 25 years and over (13.6%) compared with women aged under 25 years (9.0%).

The highest proportion of women having an episiotomy was for women in the Asian ethnic group (24.1%). The percentage for Asian women was over three times the percentage for Māori and Pacific women (5.4% of Māori women and 7.7% of Pacific women had an episiotomy).

Women residing in the least deprived areas had twice the percentage of episiotomy (17.0% of women residing in quintile 1) compared with women residing in the most deprived areas (8.3% of women residing in quintile 5).

The proportion of episiotomies among women giving birth for the first time was 5.2 times the proportion for women who had given birth previously (24.6% compared to 4.7%).

Figure 36: Percentage of women having an episiotomy, by age group, ethnic group and deprivation quintile of residence, 2012



Note: the denominator used to calculate percentages is the number of women giving birth vaginally for that demographic group, excluding those with unknown birth type.

Place of birth

Women are entitled to choose where they give birth. This may include a secondary or tertiary hospital, a primary birthing unit or at home. Women are entitled to give birth at a facility with greater clinical capacity than their expected clinical need. Primary birthing units and home births are recommended for well, healthy women likely to experience normal birth (Birthplace in England Collaborative Group 2011; NICE 2014). Place of birth usually reflects the local configuration of facilities and LMC access agreements in addition to clinical need. See 'Appendix 5: Catchment areas' for a list of maternity facilities by DHB region.

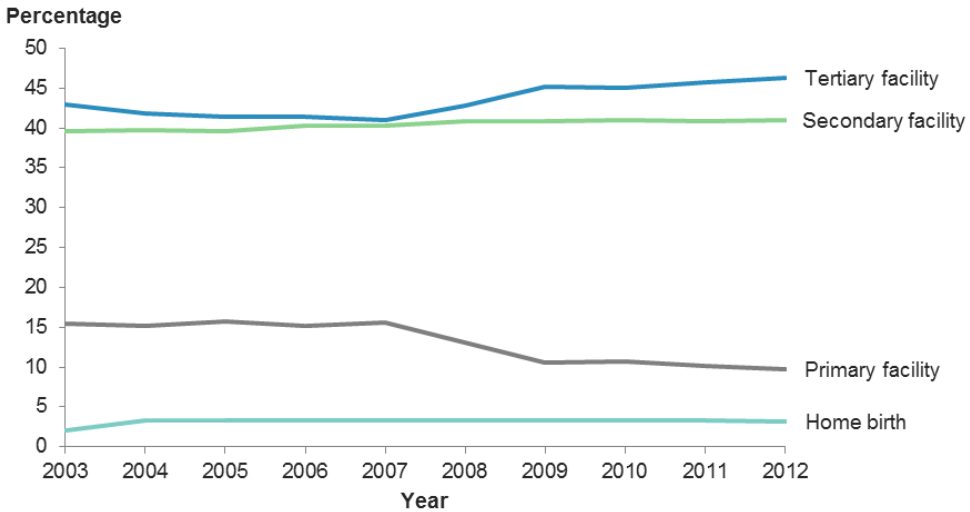
The vast majority (96.9%) of women gave birth at a maternity facility in 2012, with 9.7% of women giving birth at a primary facility, 40.9% at a secondary facility and 46.3% at a tertiary facility. A total of 1924 women (3.1%) had a home birth (Table 4).

Table 4: Number and percentage of women giving birth, by place of birth, 2012

Place of birth	Number	Percentage
Home	1,924	3.1
Maternity facility	59,553	96.9
Primary	5,942	9.7
Secondary	25,162	40.9
Tertiary	28,449	46.3
Unknown	844	–
Total	**62,321**	**100.0**

The percentage of women giving birth at a tertiary facility decreased from 42.9% in 2003 to 40.9% in 2007, followed by an increase up to 46.3% in 2012. There was a corresponding decrease over this time in the percentage of women giving birth at a primary facility, falling from 15.6% in 2007 to 9.7% in 2012. The proportion of births at home and at a secondary facility has remained stable over the last decade (Figure 37).

Figure 37: Percentage of women giving birth, by place of birth, 2003–2012



Note: the denominator used to calculate percentages is the number of women giving birth, excluding women without a place of birth recorded.

The breakdown of women by place of birth differed across DHB regions (Table 5). Women residing in West Coast DHB had the highest proportion of home births (13.0% for West Coast DHB compared with 3.1% nationally). At least 90% of women residing in 14 of the 20 DHBs gave birth at a maternity facility within their DHB of residence.

Table 5: Number and percentage of women giving birth, by DHB of residence and place of birth, 2012

DHB of residence	Home birth		Maternity facility				Unknown	Total
			In DHB[1]		Outside DHB[2]			
	No.	%[3]	No.	%[3]	No.	%[3]	No.	No.
Northland	169	7.5	2,001	88.6	88	3.9	38	2,296
Waitemata	218	2.8	6,459	81.6	1,239	15.7	59	7,975
Auckland	91	1.4	5,557	83.5	1,006	15.1	39	6,693
Counties Manukau	80	0.9	7,392	85.2	1,206	13.9	67	8,745
Waikato	183	3.4	5,031	93.2	182	3.4	91	5,487
Lakes	49	3.2	1,422	92.1	73	4.7	15	1,559
Bay of Plenty	123	4.2	2,671	91.3	133	4.5	40	2,967
Tairawhiti	28	3.9	673	93.1	22	3.0	12	735
Hawke's Bay	46	2.0	2,156	95.8	48	2.1	10	2,260
Taranaki	43	2.8	1,466	94.5	42	2.7	7	1,558
MidCentral	104	4.9	1,944	90.8	93	4.3	12	2,153
Whanganui	30	3.5	712	83.2	114	13.3	18	874
Capital & Coast	135	3.5	3,540	91.8	180	4.7	17	3,872
Hutt Valley	49	2.5	1,819	91.1	129	6.5	9	2,006
Wairarapa	11	2.2	456	90.5	37	7.3	4	508
Nelson Marlborough	93	6.1	1,395	91.7	33	2.2	6	1,527
West Coast	53	13.0	308	75.7	46	11.3	2	409
Canterbury	204	3.4	5,724	96.1	30	0.5	32	5,990
South Canterbury	9	1.4	597	93.6	32	5.0	11	649
Southern	106	3.0	3,447	96.4	21	0.6	21	3,595
Total[4]	**1,924**	**3.1**	**54,770**	**89.1**	**4,783**	**7.8**	**844**	**62,321**

1 Women giving birth at a facility located within the DHB of residence.

2 Women giving birth at a facility located outside the DHB of residence.

3 Denominator used for calculating the percentage excludes women with unknown place of birth (844 women).

4 Total includes women with unknown DHB of residence (463 women).

Maternity facilities

A maternity facility is a place that women attend, or are resident in, for the primary purpose of receiving maternity care, usually during labour and birth. It may be classed as primary, secondary or tertiary depending on the availability of specialist services (Ministry of Health 2012). This section describes women giving birth at a maternity facility.

Primary facility: a maternity unit that provides care for normal births with care provision from midwives. It is usually community-based and specifically for women assessed as being at low risk of complications for labour and birth care. Access to specialist secondary maternity services and care will require transfer to a secondary/tertiary facility. Primary facilities do not provide epidural analgesia or operative birth services. Birthing units are considered to be primary facilities.

Secondary facility: a hospital that provides care for normal births, complicated pregnancies and births including operative births and caesarean sections plus specialist adjunct services including anaesthetics and paediatrics. As a minimum, secondary facilities include an obstetrician rostered on site during working hours and on call after hours, with access to support from an anaesthetist, paediatrician, radiological, laboratory and neonatal services.

Tertiary facility: a hospital that provides care for women with high-risk, complex pregnancies by specialised multidisciplinary teams. Tertiary maternity care includes an obstetric specialist or registrar immediately available on site 24 hours a day. Tertiary maternity care includes an on-site, level 3, neonatal service.

See 'Appendix 5: Catchment areas' for a list of available facilities by DHB region.

Overall, women were more likely to give birth at a secondary or tertiary facility than at a primary facility in New Zealand in 2012. The distribution of women giving birth at a maternity facility, by type of facility and demographic group, is presented in Figure 38.

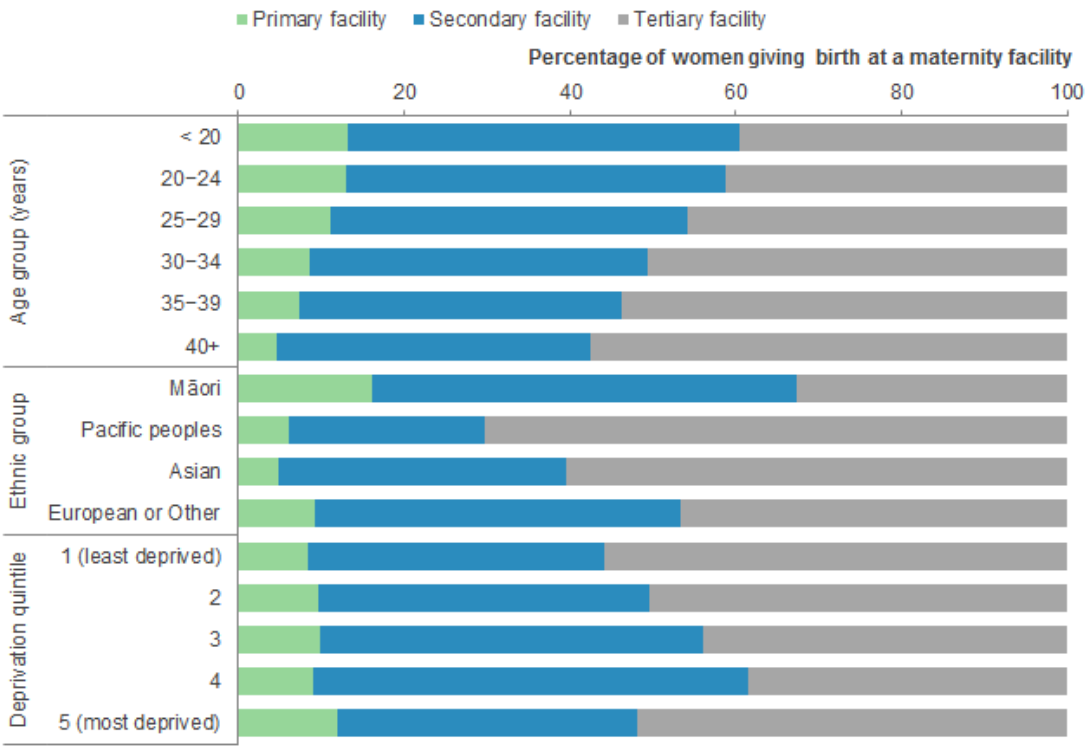
Births in a primary facility were more common among younger women, with 13.3% of women aged under 20 years giving birth at a primary facility compared with 4.7% of women aged 40 years and over. The proportion of Māori women giving birth at a primary facility was double the proportion of non-Māori women (16.1% of Māori women compared with 7.9% of non-Māori women). The proportion of births at a primary facility ranged from 8.4% to 11.9% across all deprivation quintiles of residence.

There was little variation in the percentage of women giving birth at a secondary facility across the standard demographic groups (range from 34.6% to 52.3%), except for a low percentage among Pacific women (23.8%).

Tertiary maternity facilities were more likely to be used by:

- older women (57.6% of women aged 40 years and over, compared with 39.5% of women aged under 20 years)
- Pacific and Asian women (70.2% of Pacific women and 60.6% of Asian women, compared with 32.7% of Māori women)
- women residing in the least and most deprived areas (55.6% of women residing in quintile 1 and 51.9% of women residing in quintile 5).

Figure 38: Distribution of women giving birth at a maternity facility, by type of facility, age group, ethnic group and deprivation quintile of residence, 2012



Note: the denominator used for calculating percentages is the number of women giving birth at a maternity facility for each demographic group.

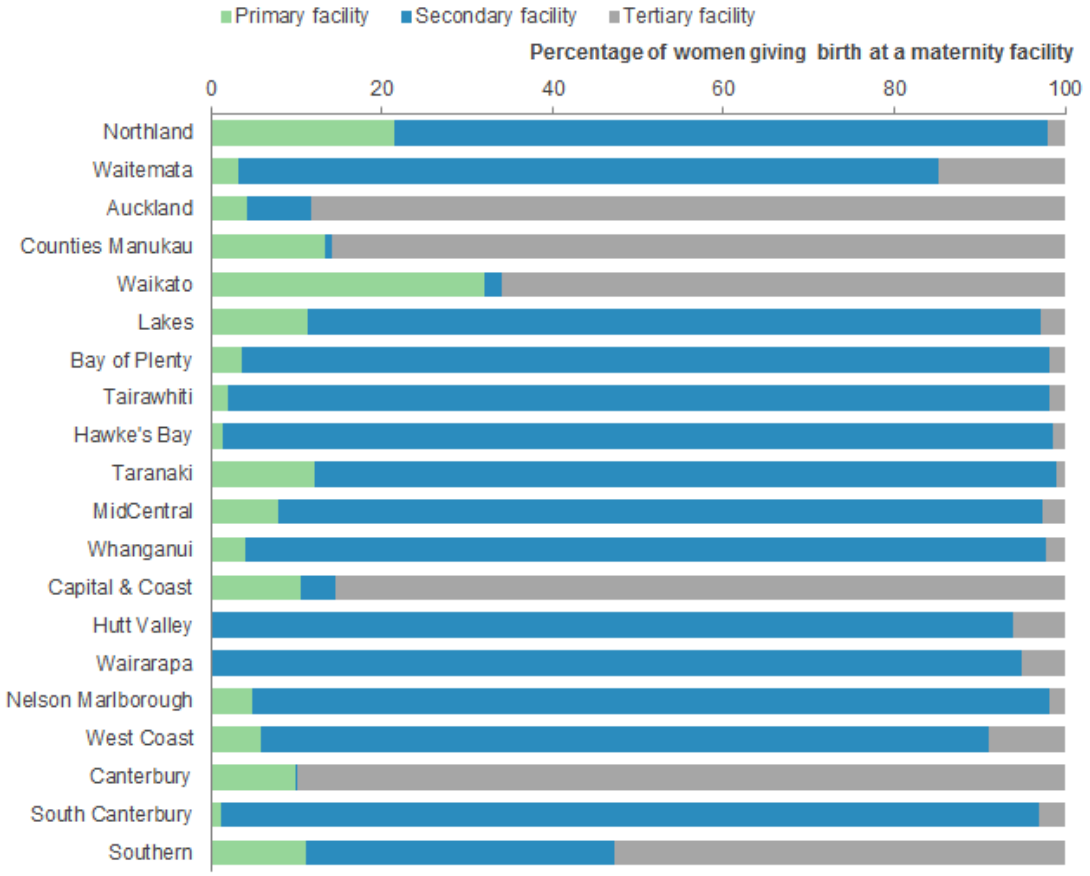
The distribution of women giving birth at a maternity facility by type of facility used varied throughout the country (Figure 39). This variation primarily reflects the availability of maternity facilities in a DHB region, as three DHBs do not have any primary facilities within the region (Hutt Valley, Wairarapa and South Canterbury DHBs), and DHBs either have a tertiary facility or a secondary facility within the region (DHBs with a tertiary facility within the region are Auckland, Counties Manukau, Waikato, Capital & Coast, Canterbury and Southern).

Among women giving birth at a maternity facility, the highest proportion of births at a primary facility was for women residing in Waikato DHB region (32.0%), followed by Northland DHB region (21.5%).

Of the 14 DHB regions with a secondary facility, eight had at least 90% of women giving birth at a secondary facility (out of women giving birth at a maternity facility). The DHB regions with the highest percentages were Hawke's Bay (97.1%) and South Canterbury (96.1%).

Four of the six DHB regions with a tertiary facility had over 80% of women giving birth at a tertiary facility out of all women giving birth at a maternity facility: Canterbury (89.9%), Auckland (88.2%), Counties Manukau (85.9%) and Capital & Coast (85.5%). Waikato and Southern DHB regions had a smaller proportion of women giving birth at a tertiary facility (66.0% and 52.7%, respectively).

Figure 39: Distribution of women giving birth at a maternity facility, by type of facility and DHB of residence, 2012



Note: the denominator used for calculating percentages is the number of women residing in each DHB region who gave birth at a maternity facility.

Home births

Intended home birth: a birth for which there is a documented plan to give birth at home and the management of the labour commences at home.

Home birth (actual): a birth that takes place in a person's home and not in a maternity facility or birthing unit.

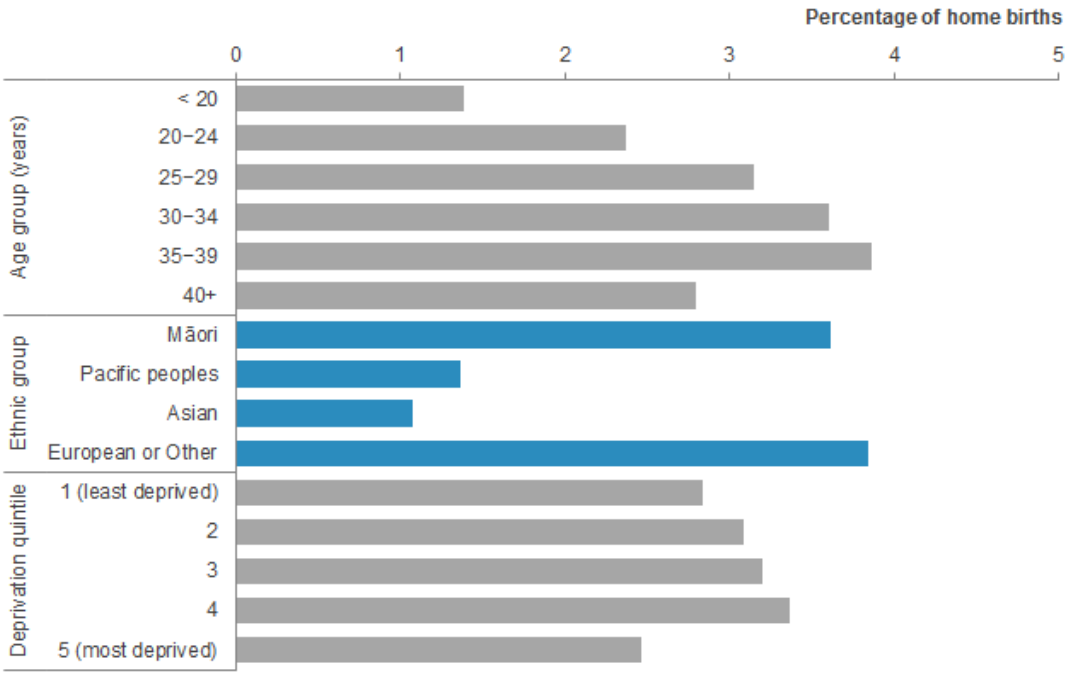
In 2012, 2013 women (3.4%) intended to give birth at home. Of these, 1924 women (3.1%) actually gave birth at home.

The proportion of home births (actual) varied across age groups, ethnic groups and deprivation quintile of residence (Figure 40). Home births were more common among women:

- aged 30–39 years (3.6% of women aged 30–34 years and 3.9% of women aged 35–39 years)
- in the Māori and the European or Other ethnic groups (3.6% of Māori women, 3.8% of women in the European or Other ethnic group).

The proportion of women having home births among those residing in the most deprived areas (quintile 5) was lower than among those residing in other quintiles. However, it should be noted that the differences between quintiles were fairly small.

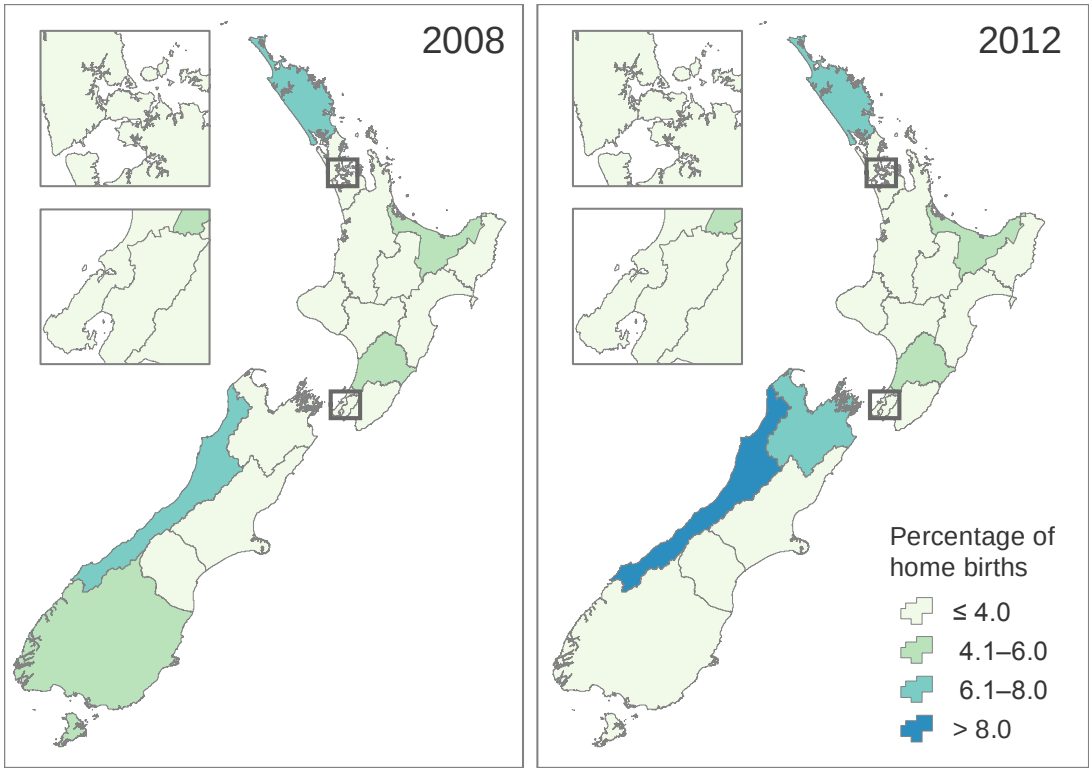
Figure 40: Percentage of women giving birth at home, by age group, ethnic group and deprivation quintile of residence, 2012



Note: the denominator used to calculate percentages is the number of women giving birth for that demographic group, excluding those without a place of birth recorded.

The percentage of home births did not vary between 2008 and 2012 for most DHB regions (Figure 41). The most notable increases over this time period were seen for West Coast (from 7.4% to 13.0%), Nelson Marlborough (from 3.8% to 6.1%) and Whanganui (from 1.5% to 3.5%).

Figure 41: Percentage of home births, by DHB of residence, 2008 and 2012



Note: the denominator used to calculate percentages is the number of women giving birth residing in each DHB region, excluding those without a place of birth recorded.

Babies

This chapter describes the demographic profile of live-born babies in New Zealand, their birthweight and gestation, and the care provided to the women giving birth and to their babies in the postnatal period. The sections are: Sex, maternal age, ethnicity and deprivation; Birthweight; Gestation; Breastfeeding; and Care after birth.

There were 62,739 live-born babies recorded in the National Maternity Collection during 2012, a slight increase from the 62,619 babies in 2011.

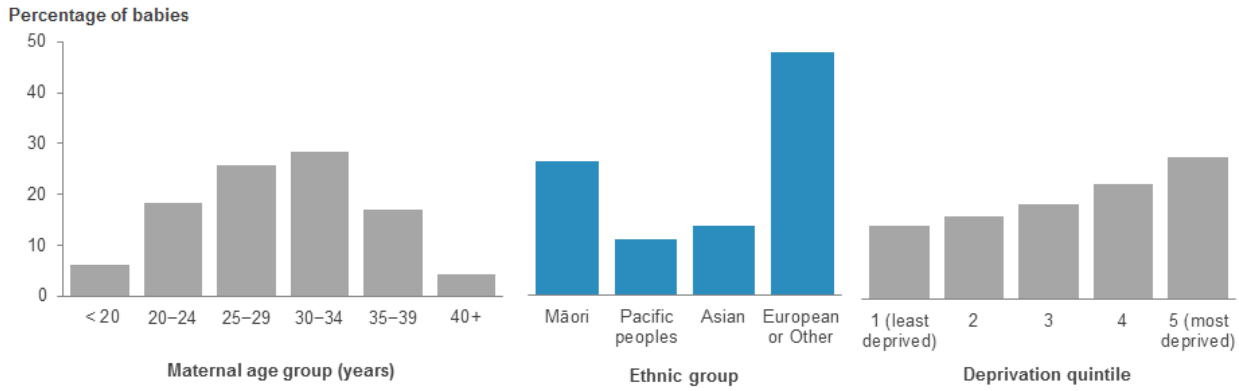
Sex, maternal age, ethnicity and deprivation

There were more male babies (51.1%) than female babies (48.9%) born in 2012. There was a higher proportion of babies born to women aged between 20 years and 39 years than any other age group. Approximately 6% of babies were born to women aged under 20 years, and a further 4.3% to women aged 40 years and over (Figure 42).

Over a quarter of all live-born babies in 2012 were Māori (26.7%). Non-Māori babies were predominantly in the European or Other ethnic group (48.3%), followed by the Asian (13.8%) and Pacific peoples (11.2%) ethnic groups (Figure 42). There were more male babies than female babies in all ethnic groups.

There were more babies residing in the most deprived areas than in the least deprived areas (27.8% residing in quintile 5, compared with 14.5% residing in quintile 1) (Figure 42).

Figure 42: Percentage of babies, by maternal age group, baby ethnic group and baby deprivation quintile of residence, 2012



Note: the denominator used for calculating percentages is the total number of babies where information for that variable was available (eg, percentage of Māori babies was calculated by dividing the number of Māori babies by the total number of babies, excluding those with unknown ethnicity, then multiplying by 100).

Birthweight

Birthweight: first weight of the fetus or newborn obtained after birth, preferably measured within the first hour of life before significant postnatal weight loss has occurred (WHO 1975).

Prematurity, multiple pregnancy and restricted fetal (intra-uterine) growth are possible contributors to a baby's low weight at birth. Low birthweight (< 2.5 kg) is associated with fetal and neonatal mortality and morbidity, as well as inhibited growth and cognitive development (WHO, UNICEF 2004). Babies born with a low birthweight generally have the highest mortality and morbidity rates.

In 2012 the majority of live-born babies (91.3%) were within the normal weight range at birth (2.5–4.4 kg). A further 6.2% of babies were considered to be born with a low birthweight (< 2.5 kg) and 2.5% were born with a high birthweight (≥ 4.5 kg).[9] As in previous years (2009–2011), the average birthweight of babies born in 2012 was 3.42 kg, with male babies on average heavier (3.47 kg) than female babies (3.37 kg).

Average birthweight varied slightly by maternal age, the baby's ethnicity, and socioeconomic deprivation (Figure 43).

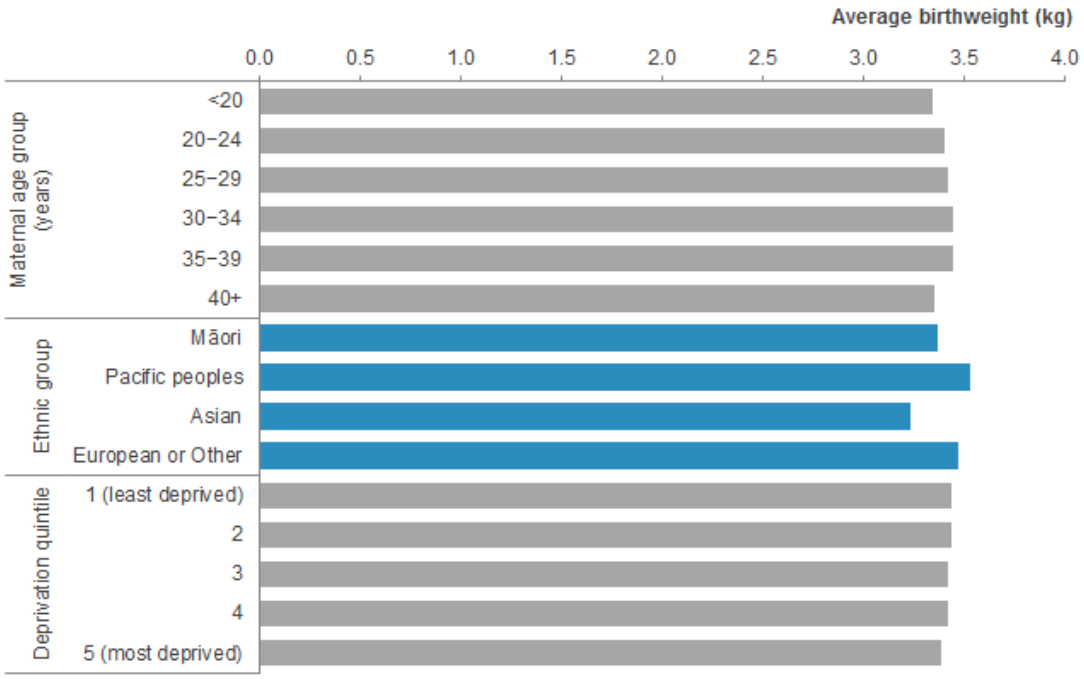
Asian babies had the lowest average birthweight (3.24 kg), while Pacific babies had the highest average birthweight (3.53 kg). The average birthweight of babies for each ethnic group has remained fairly constant since 2003.

Babies of women aged under 20 years and aged 40 years and over had a lower average birthweight (3.35 kg and 3.36 kg, respectively) compared with babies of women aged 20–39 years (range from 3.41 kg to 3.45 kg).

Average birthweight decreased with increasing levels of deprivation, ranging from an average of 3.44 kg for babies residing in the least deprived areas (quintile 1) to 3.39 kg for babies residing in the most deprived areas (quintile 5).

9 Birthweight was unknown for 2706 babies (4.3%).

Figure 43: Average birthweight, by maternal age group, baby ethnic group and baby deprivation quintile of residence, 2012



Note: the average birthweight is calculated based on the number of live-born babies, excluding those with unknown birthweight.

Babies with low birthweight

There were 3711 babies (6.2%) born in 2012 with a low birthweight (< 2.5 kg). Babies born with a low birthweight accounted for 6.0%–6.2% of all babies born each year from 2003 to 2012.

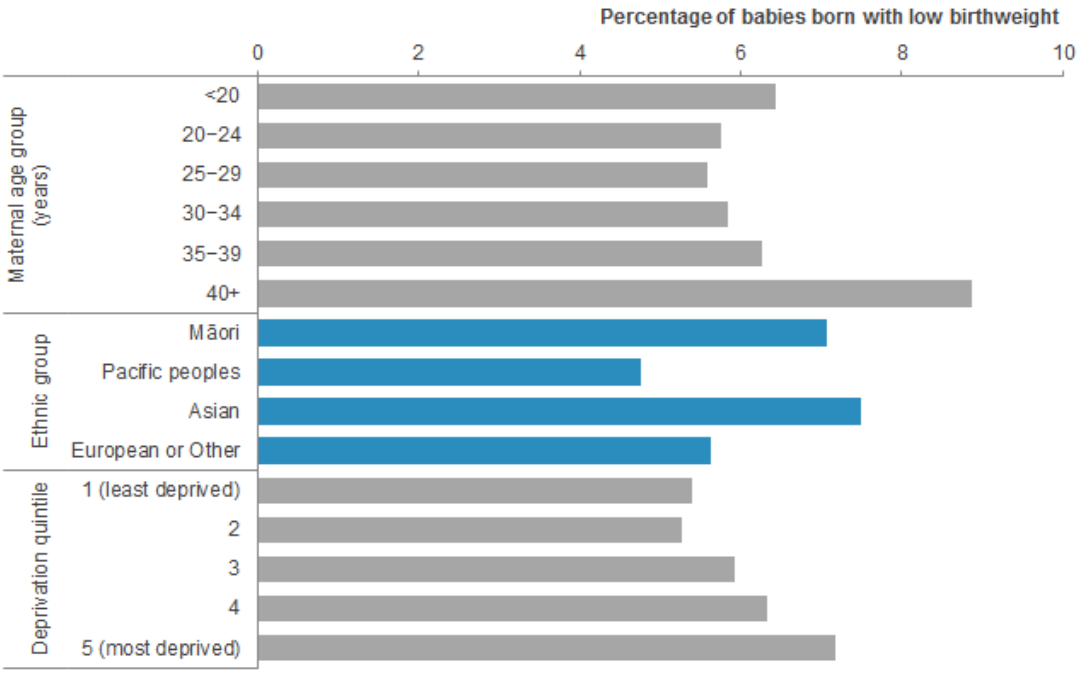
A higher proportion of female babies were born with a low birthweight (6.7%) compared with male babies (5.7%) in 2012. Figure 44 shows the percentage of low-birthweight babies for each ethnic group, maternal age group and deprivation quintile in 2012.

Babies of women aged 40 years and over had the highest proportion of babies born with a low birthweight (8.9%), followed by babies of Asian and Māori ethnicities (7.5% and 7.1%, respectively).

Babies born with a low birthweight were more common among those residing in the most deprived areas compared with those residing in less deprived areas (7.2% of babies residing in quintile 5, compared with 5.3% of babies residing in quintiles 1–2).

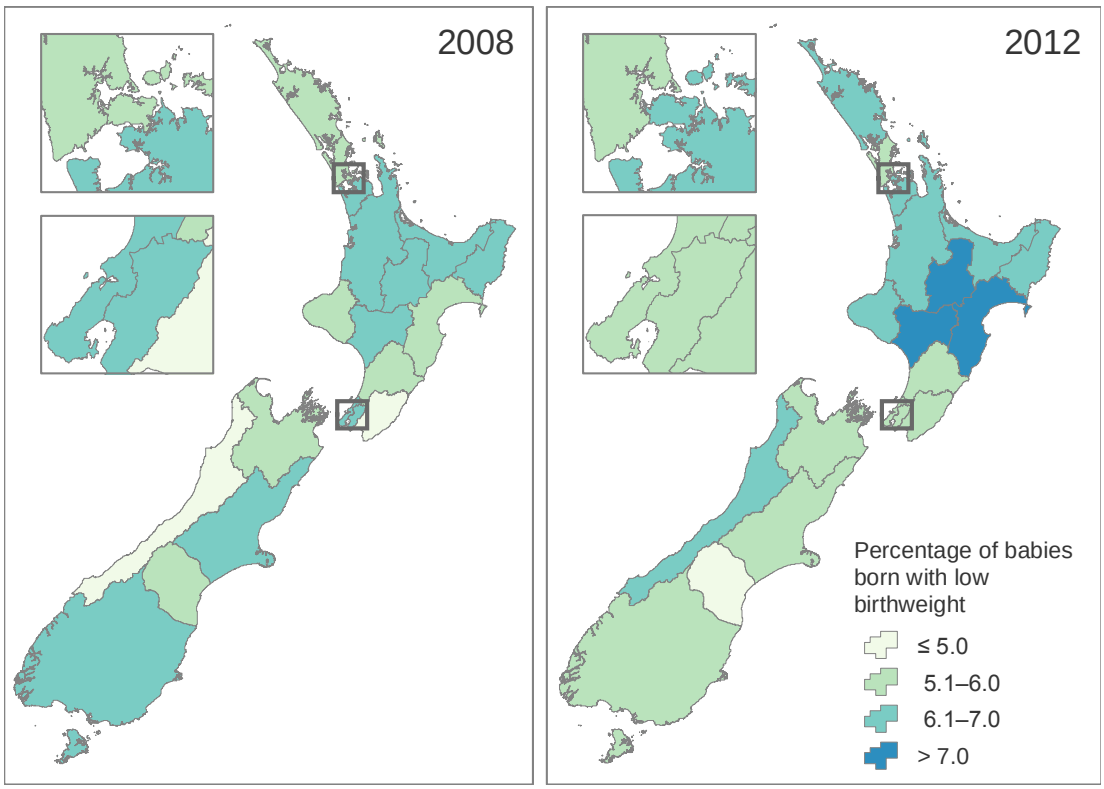
The proportion of low-birthweight babies by DHB of residence varied across the country in 2012, with a high of 8.1% of babies residing in Whanganui DHB region to a low of 3.3% of babies residing in South Canterbury DHB region (Figure 45). Between 2008 and 2012 the largest increases were seen in the West Coast (from 4.6% to 6.6%) and Hawke's Bay (from 6.0% to 7.7%) DHB regions. Other DHB regions showed fluctuations in the proportion of low-birthweight babies over the same time period. These percentages are calculated based on small numbers and should be interpreted with caution.

Figure 44: Percentage of babies born with a low birthweight (< 2.5 kg), by maternal age group, baby ethnic group and baby deprivation quintile of residence, 2012



Note: the denominator used for calculating percentages is number of live-born babies, excluding those with unknown birthweight.

Figure 45: Percentage of babies born with a low birthweight (< 2.5 kg), by DHB of residence, 2008 and 2012



Note: the denominator used to calculate percentages is the number of live-born babies for each DHB region, excluding those with unknown birthweight.

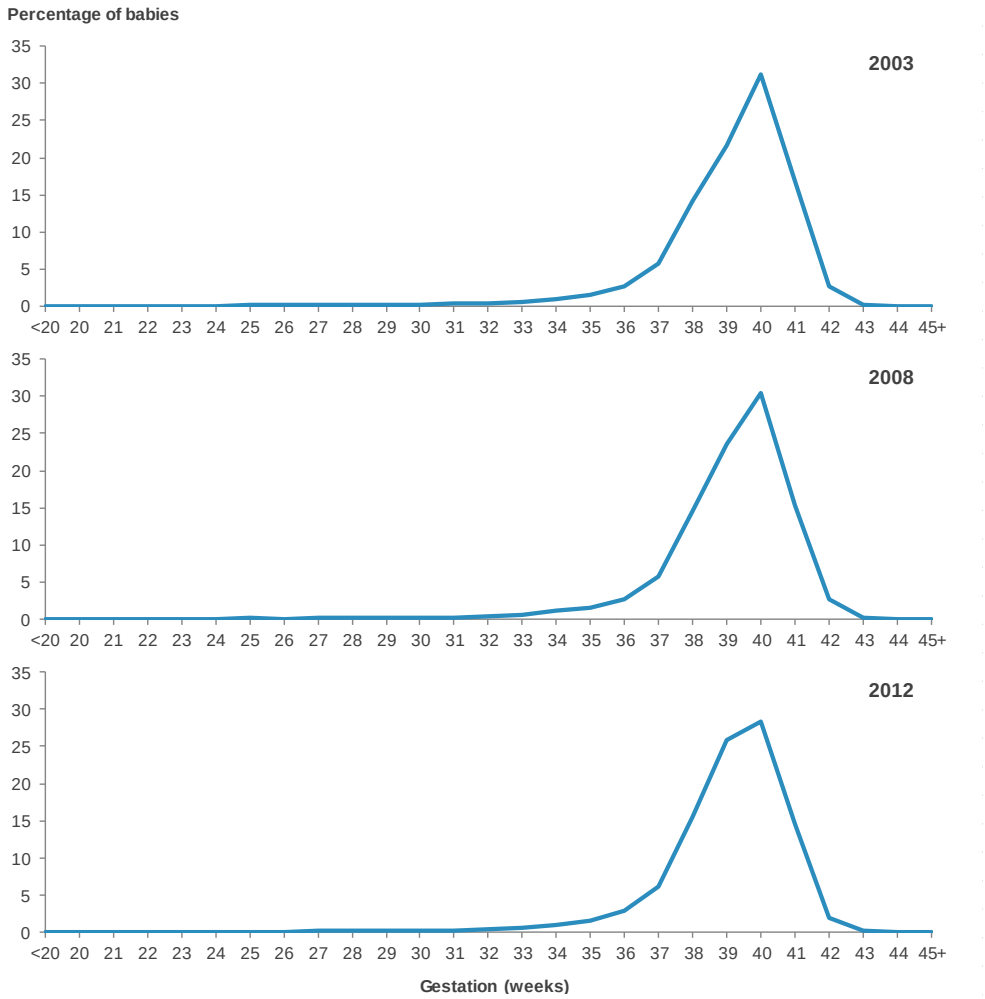
Gestation

Gestation: the duration of pregnancy measured from the first day of the last normal menstrual period to the delivery date, expressed in completed weeks (WHO 1975). Gestational age may also be derived from clinical assessment during pregnancy or from an examination of the baby after birth.

Of the 62,571 babies born in 2012 with known gestation, 90.2% were born at term (37–41 completed weeks of gestation), an increase from 89.5% of babies born at term in 2003.

Between 2003 and 2012 the proportion of babies born at 37, 38 and 39 weeks increased while the proportion of babies born at 40, 41 and 42 weeks decreased (Figure 46). This corresponds with the change in annual median gestation from 40 weeks during 2003—2007 to 39 weeks during 2008–2012.

Figure 46: Percentage of babies, by gestation in weeks, 2003, 2008 and 2012



Note: the denominator used to calculate percentages is the total number of live-born babies, excluding those with unknown gestation.

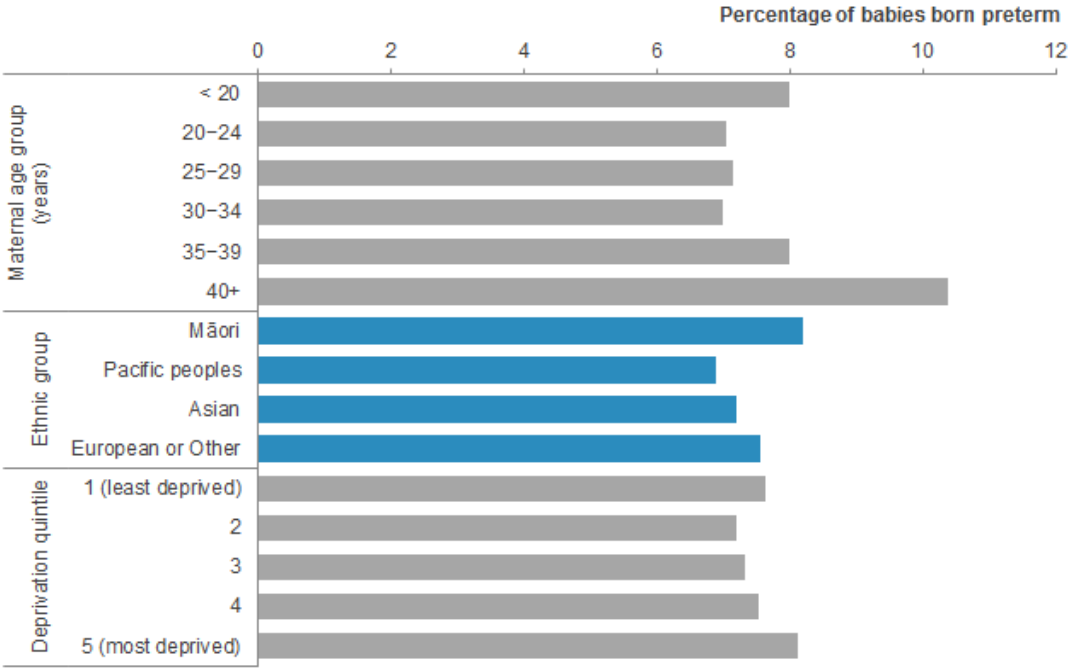
Preterm babies

In 2012, 4767 (7.6%) of babies were born preterm, with 822 (1.3%) born at under 32 weeks' gestation and 3945 (6.3%) born at 32–36 weeks' gestation. The proportion of preterm (< 37 weeks' gestation) babies showed slight variations between 2003 and 2012, with babies born under 32 weeks' gestation ranging from 1.2% to 1.5% of all births, and babies born at 32–36 weeks' gestation ranging from 5.9% to 6.3% of all births.

In 2012 the proportion of babies born preterm varied across the demographic groups with no obvious trends (Figure 47), except for a higher proportion among babies born to older women (10.4% of babies born to women in the 40+ years age group).

There was a higher proportion of male babies born preterm compared with female babies across maternal age groups, ethnic groups and deprivation quintile of residence.

Figure 47: Percentage of babies born preterm (< 37 weeks' gestation), by maternal age group, baby ethnic group and baby deprivation quintile of residence, 2012

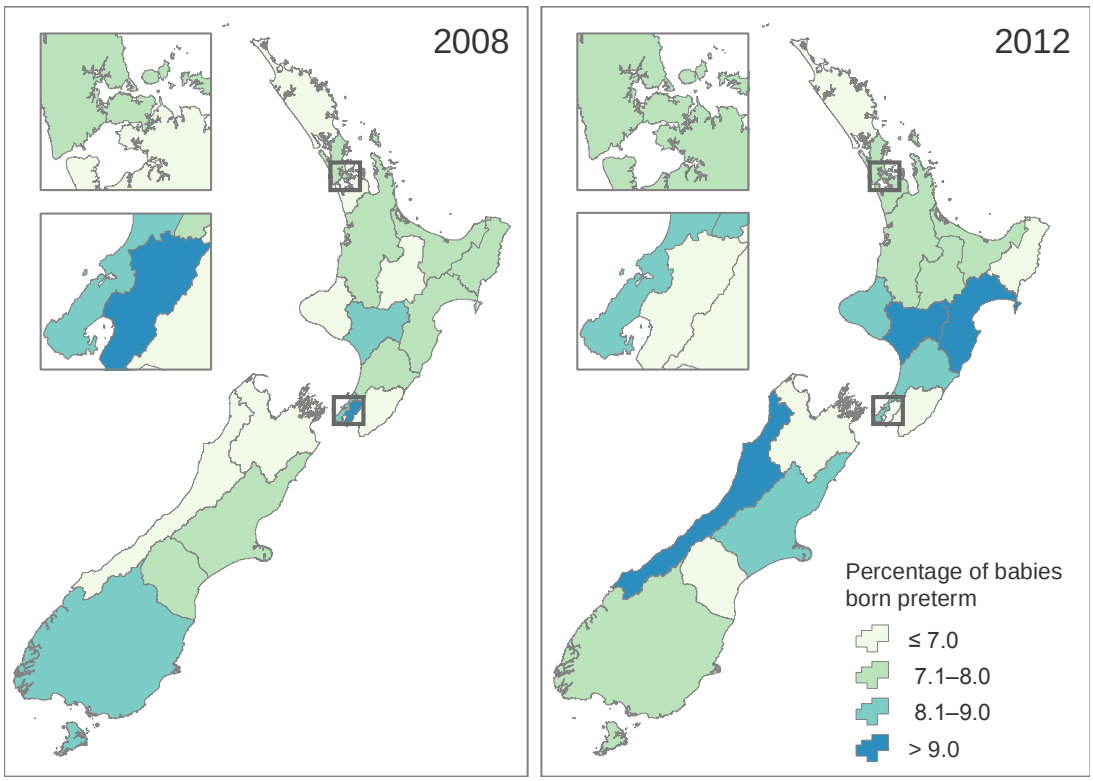


Note: the denominator used to calculate percentages is the total number of live-born babies, excluding those with unknown gestation.

The proportion of babies born preterm ranged from 5.0% to 9.2% across the 20 DHB regions in 2012, the highest being for babies residing in West Coast and Hawke's Bay DHB regions and the lowest for South Canterbury DHB region. Between 2008 and 2012 an increase in the proportion of preterm babies was seen in the West Coast DHB region (from 5.0% to 9.2%) while a steady decrease was seen in South Canterbury (from 8.0% to 5.0%) and Hutt Valley (from 9.1% to 6.7%) DHB regions. Other DHB regions showed fluctuations in the proportion of preterm babies over the same time period (Figure 48). These percentages are calculated based on small numbers and should be interpreted with caution.

More than half of babies born preterm had a low birthweight, with 88.8% of babies born at under 32 weeks' gestation having a low birthweight and 48.7% of babies born at 32—36 weeks' gestation having a low birthweight in 2012.

Figure 48: Percentage of babies born preterm (< 37 weeks' gestation), by DHB of residence, 2008 and 2012



Note: the denominator used to calculate percentages is the total number of live-born babies for each DHB region, excluding those with unknown gestation.

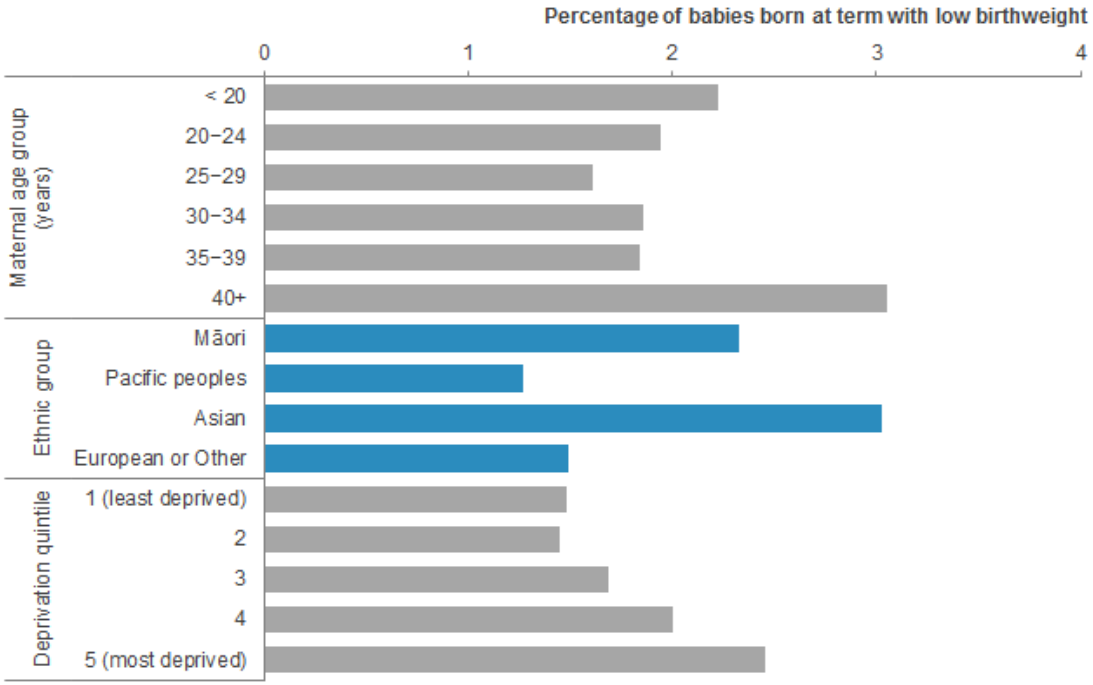
Term babies with low birthweight

In 2012, 1.9% (1054 babies) of babies born at term (37+ weeks' gestation) had a low birthweight. Between 2003 and 2012, 1.8%–2.0% of babies born at term each year had a low birthweight.

In 2012 there was a larger proportion of female babies born at term with a low birthweight, compared with male babies (2.2% of female babies compared with 1.6% of male babies).

Babies born to women aged 40 years and over and babies of Asian ethnicity had the highest proportion of babies born at term with a low birthweight (3.1% and 3.0%, respectively). The proportion of babies born at term with a low birthweight increased with increasing levels of deprivation, from 1.5% of those residing in quintile 1 (least deprived) to 2.5% of those residing in quintile 5 (most deprived) (Figure 49).

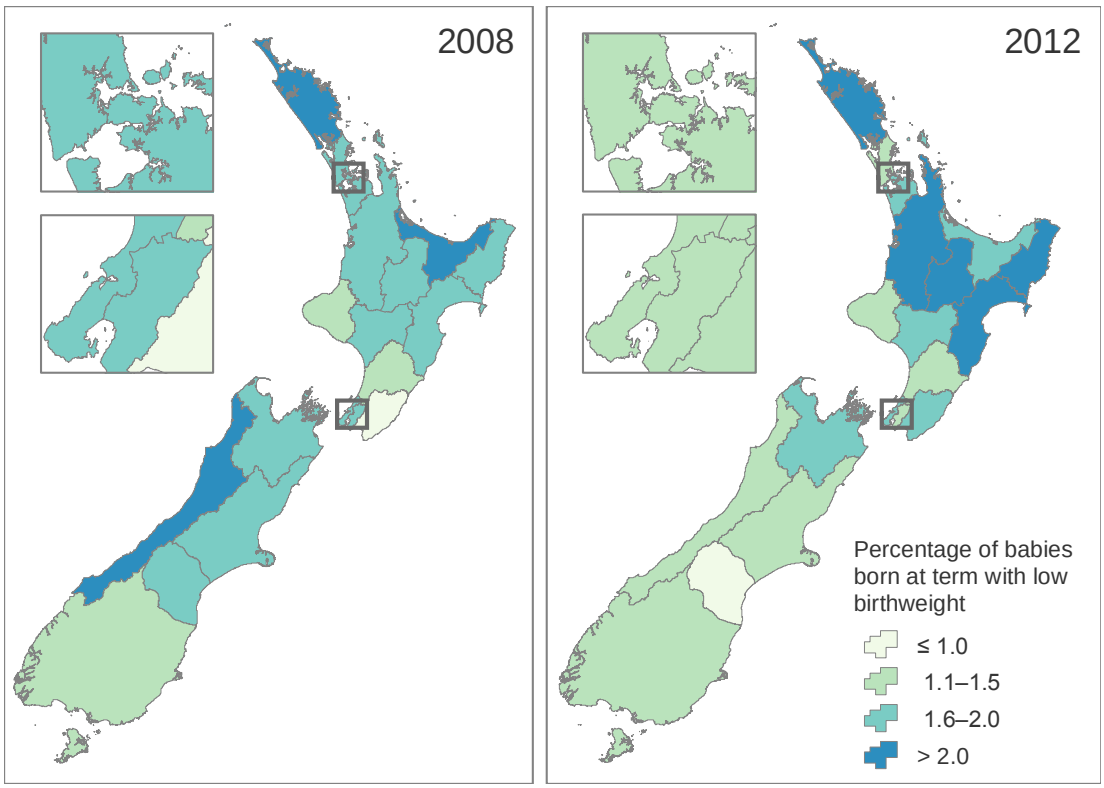
Figure 49: Percentage of babies born at term (37+ weeks' gestation) with a low birthweight (< 2.5 kg), by maternal age group, baby ethnic group and baby deprivation quintile of residence, 2012



Note: the denominator used to calculate percentages is the number of live-born babies born at gestation of 37 weeks or more for each demographic group, excluding those with unknown birthweight.

The region with the highest percentage of babies born at term with a low birthweight in 2012 was Lakes DHB (3.2%). In comparison, only 0.7% of babies born at term in South Canterbury DHB had a low birthweight. Between 2008 and 2012 the proportion of babies born at term with a low birthweight fluctuated slightly for each DHB. Some small increases were seen in the DHB regions in the central North Island over this time period. DHB regions in the South Island showed little change or a slight decrease between 2008 and 2012 (Figure 50).

Figure 50: Percentage of babies born at term (37+ weeks' gestation) with a low birthweight (< 2.5 kg), by DHB of residence, 2008 and 2012



Note: the denominator used to calculate percentages is the number of live-born babies born at gestation of 37 weeks or more for each DHB region, excluding those with unknown birthweight.

Breastfeeding

Breastfeeding definitions are as follows.

Exclusive: the newborn has never, to the mother's knowledge, had any water, formula or other liquid or solid food. Only breast milk (from the breast or expressed) and prescribed medicines (defined in the Medicines Act 1981) have been given to the baby from birth.

Fully: the newborn has taken breast milk and a minimal amount of water or prescribed medicines (defined in the Medicines Act 1981) but no other liquids or solids in the past 48 hours.

Partial: the newborn has taken some breast milk and some newborn formula or other solid food in the past 48 hours.

Artificial: the newborn has had no breast milk but has had alternative liquid such as newborn formula with or without solid food in the past 48 hours.

The data presented regarding breastfeeding is sourced from LMC claim forms and is therefore only available for babies of women registered with an LMC (approximately 90% of women giving birth).

The majority (92.3%) of babies (of known breastfeeding status) were breastfed, either exclusively (70.0%), fully (9.6%) or partially (12.7%) at two weeks after birth. Between 2008 and 2012 approximately 80% of babies born each year were exclusively or fully breastfed at two weeks after birth.

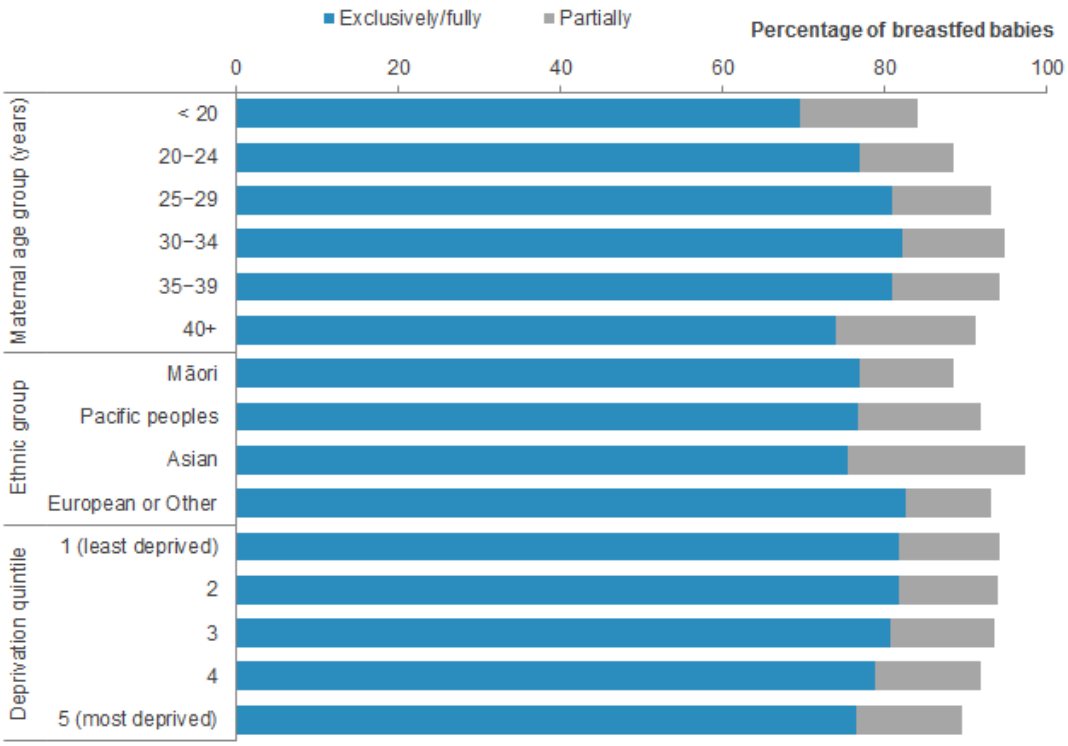
More than 80% of babies born to women aged 25–39 years were exclusively or fully breastfed at two weeks after birth. Babies born to women aged under 20 years were less likely to be breastfed at two weeks after birth, with 69.6% being exclusively or fully breastfed, 14.6% partially breastfed, and 15.9% fed artificially.

The proportion of babies receiving breast milk was lowest for Māori, with 11.4% receiving no breast milk (ie, artificially fed). This compares to 6.2% of babies in the other ethnic groups being artificially fed. Babies in the European or Other ethnic group had the highest proportion of being exclusively or fully breastfed (82.5%).

Babies residing in the least deprived areas had a higher proportion of breastfed babies (94.1% of babies in quintile 1) compared with babies residing in the most deprived areas (89.6% of babies in quintile 5).

The distribution of breastfed babies by maternal age, ethnic group and deprivation quintile is presented in Figure 51.

Figure 51: Percentage of breastfed babies, by maternal age group, baby ethnic group and baby deprivation quintile of residence, 2012



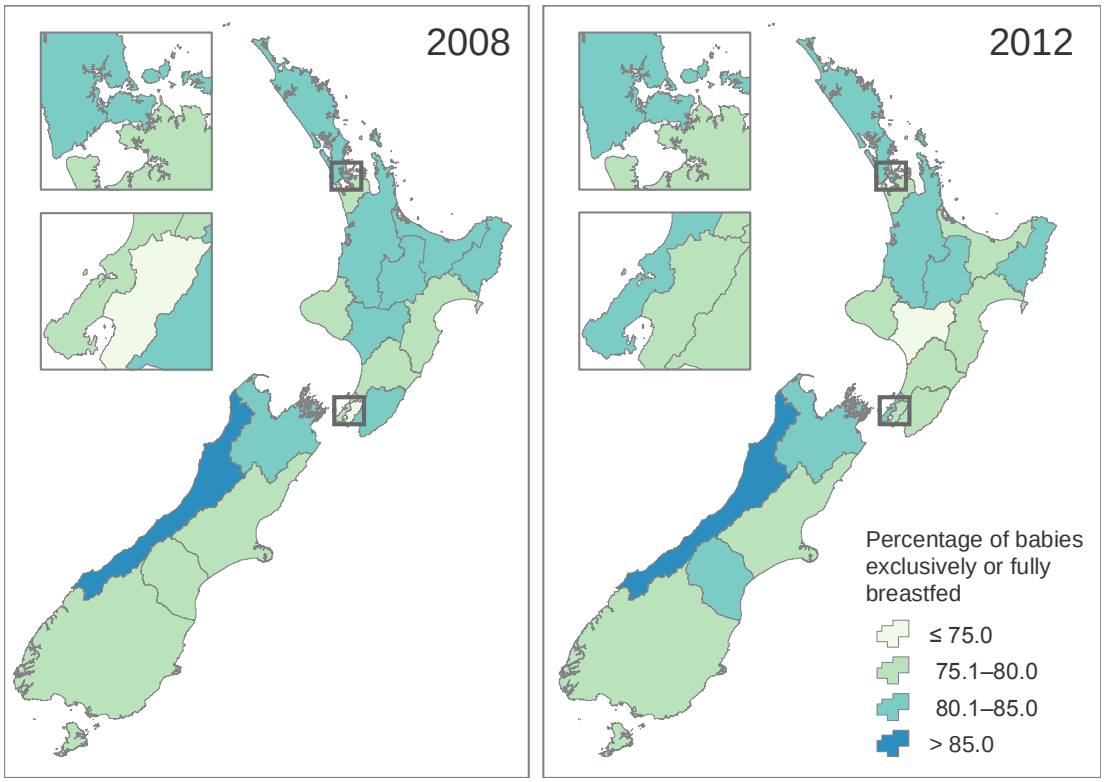
Notes:

The denominator used to calculate the percentage is the number of breastfed babies, excluding those with unknown breastfeeding status, at two weeks after birth.

Breastfeeding data is sourced from Lead Maternity Carer (LMC) claim forms and is therefore only available for babies of women registered with an LMC.

Between 2008 and 2012 the proportion of babies exclusively or fully breastfed at two weeks after birth was consistently high for babies residing in West Coast DHB (90.7% on average). The other 19 DHB regions had a lower proportion across the five-year period, ranging from 73.2% to 85.0%. There was little change in the proportion of babies exclusively or fully breastfed for each DHB over time (Figure 52).

Figure 52: Percentage of babies exclusively or fully breastfed (at two weeks after birth), by DHB of residence, 2008 and 2012



Notes:

The denominator used to calculate the percentage is the number of breastfed babies, excluding those with unknown breastfeeding status, at two weeks after birth.

Breastfeeding data is sourced from Lead Maternity Carer (LMC) claim forms and is therefore only available for babies of women registered with an LMC.

Care after birth

Under the Primary Maternity Services Notice 2007 (section 88), the LMC is responsible for ensuring that handover to primary care and Well Child / Tamariki Ora services takes place. At four to six weeks after birth the LMC must:

- discharge the woman from LMC services and notify their GP
- transfer the baby's care to a Well Child / Tamariki Ora provider.

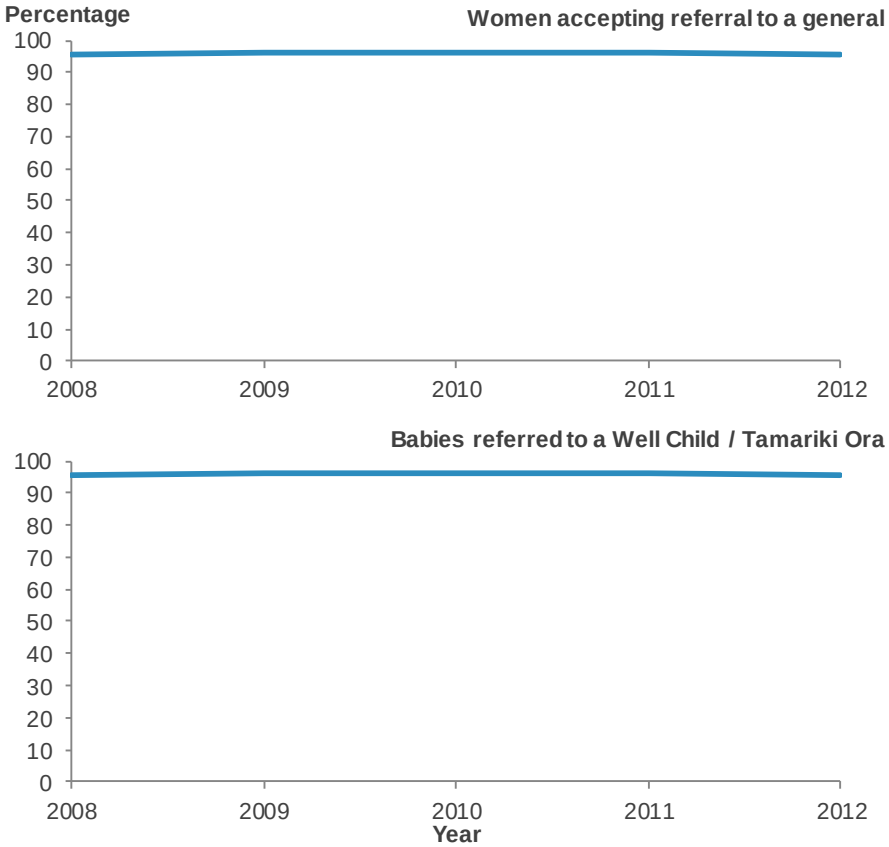
Women may decline the referral to a GP and to a Well Child / Tamariki Ora provider.

The data presented regarding referrals is sourced from LMC claim forms and is therefore only available for women registered with an LMC and their babies.

Of the women giving birth in 2012 and registered with an LMC, the vast majority accepted referral to their GPs at LMC discharge (95.3%). Care for the majority of the babies was also transferred to a Well Child / Tamariki Ora provider (96.9%), in continuation of the Well Child / Tamariki Ora programme.

The proportion of referral for women and their babies has been consistently high at over 95% over the last five years (Figure 53).

Figure 53: Percentage of women referred to a general practitioner and babies to a Well Child / Tamariki Ora provider, 2008–2012



Notes:

The denominator used to calculate percentages is the number of women giving birth or of live-born babies, excluding those with unknown status regarding referral.

Referral data is sourced from Lead Maternity Carer (LMC) claim forms and is therefore only available for women registered with an LMC and their babies.

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Glossary

Term	Definition
Artificially fed	The newborn has had no breast milk but has had alternative liquid such as infant formula with or without solid food in the past 48 hours.
Assisted birth	A vaginal birth (including breech birth) requiring obstetric assistance (eg, forceps, vacuum).
Assisted birth, forceps	An assisted vaginal birth using a metallic obstetric instrument. See also *Assisted birth*.
Assisted birth, vacuum	An assisted vaginal birth using a suction cap applied to the baby's head. See also *Assisted birth*.
Assisted breech	An assisted vaginal birth in which a baby being born feet or buttocks first is delivered spontaneously as far as its umbilicus and is then extracted. It may include the use of forceps. See also *Assisted birth*; *Breech birth*.
Augmentation (of labour)	The process of stimulating the uterus to increase the frequency, duration and intensity of contractions after the onset of spontaneous labour by artificial rupture of membranes or pharmacological means.
Birth	The birth of a live-born or stillborn baby (or babies, in the case of a twin/multiple birth). See also *Live-born baby*; *Stillbirth*.
Birth rate	$\text{Birth rate} = \frac{\text{Number of women giving birth}}{\text{Female population of reproductive age}} \times 100$ See also *Reproductive age*.
Birthing unit	A community-based birthing unit, usually staffed by midwives. Primary birthing units provide access for women assessed as being at low risk of complications for labour and birth care. They do not provide epidural analgesia or operative birth services (Guidelines for Consultation with Obstetric and Related Medical Services). See also *Primary maternity facility*.
Birthweight	The first weight of the fetus or newborn obtained after birth, preferably measured within the first hour of life before significant postnatal weight loss has occurred (WHO 1975).
Breastfed exclusively	The newborn has never, to the mother's knowledge, had any water, formula or other liquid or solid food. Only breast milk (from the breast or expressed) and prescribed medicines (defined in the Medicines Act 1981) have been given to the baby from birth.
Breastfed fully	The newborn has taken breast milk and minimal amount of water or prescribed medicines (defined in the Medicines Act 1981) but no other liquids or solids in the past 48 hours.
Breastfed partially	The newborn has taken some breast milk and some infant formula or other food in the past 48 hours.
Breech birth	A vaginal birth of a baby by the buttocks or lower limbs first rather than the head. May be spontaneous or assisted.
Breech extraction	An assisted vaginal birth performed by grasping the baby's feet or buttocks before any part of the trunk is born and delivering by traction. It may include the use of forceps. See also *Assisted birth*; *Breech birth*.
Caesarean section	An operative delivery through an abdominal incision.

Term	Definition
Confidence intervals	A confidence interval is a range of values used to describe the uncertainty around a single value and is used to estimate the true value in a population. Confidence intervals describe how different the estimate could have been if chance had led to a different set of data. In this publication, they indicate that there is a 95% chance that the true value lies within these confidence intervals. Confidence intervals can assist in comparing percentages or rates: confidence intervals that do not overlap indicate that the difference between two percentages is statistically significant, making it reasonable to conclude that the difference is not due to chance. Overlapping confidence intervals indicate that the difference is not considered statistically significant and no conclusions can be drawn about the difference.
Denominator	The number that appears at the bottom of a fraction, used to calculate proportions. See also *Proportion*.
Deprivation quintile	The deprivation quintile is derived from the 2006 New Zealand Social Deprivation Index, a measure of socioeconomic status calculated for small geographic areas. It is calculated for small geographical units, which are then built up to the relevant geographic scale using weighted average 'usually resident population' counts from the Census. Deprivation quintiles of residence ranging from 1 (least deprived) to 5 (most deprived) are presented. Approximately equal numbers of people reside in areas associated with each of the five deprivation quintiles.
District health board (DHB)	An organisation established under Section 19 of the New Zealand Public Health and Disability Act 2000, acting within a defined geographic region.
Domicile code	A code representing the usual residential address of the woman giving birth or the live-born.
Elective caesarean section	A caesarean section performed as a planned procedure before or following the onset of labour, where the decision to have a caesarean section was made before labour. See also *Caesarean section*.
Emergency caesarean section	A caesarean section performed urgently, such as for the health of the woman or baby, once labour has started. See also *Caesarean section*.
Epidural	A regional analgesic agent injected into the epidural space of the spinal cord.
Episiotomy	An incision of the perineal tissue surrounding the vagina at the time of birth to facilitate delivery.
Ethnicity, ethnic group	Ethnicity is the ethnic group or groups that people identify with or feel they belong to. Ethnicity is self-perceived and a person identify with more than one ethnic group (Ethnicity Data Protocols for the Health and Disability Sector). See also *Prioritised ethnicity*.
Facility (maternity)	See *Maternity facility*.
Forceps	See *Assisted birth, forceps*.
Gestation, gestational age	The duration of pregnancy measured from the first day of the last normal menstrual period to the delivery date, expressed in completed weeks (WHO 1975). Gestational age may also be derived from clinical assessment during pregnancy or from an examination of the baby after birth.
Home birth (actual)	A birth that takes place in a person's home and not in a maternity facility or birthing unit. See also *Intended home birth*.
Induction (of labour)	The process of artificially stimulating the uterus to start labour by artificial rupture of membranes or pharmacological means.
Intended home birth	A birth for which there is a documented plan to give birth at home and the management of the labour commences at home.

Term	Definition
Lead Maternity Carer (LMC)	A person who: • is: – a general practitioner with a Diploma in Obstetrics (or equivalent, as determined by the New Zealand College of General Practitioners); or – a midwife; or – an obstetrician; and • is either: – a maternity provider in his or her own right; or – an employee or contractor of a maternity provider; and – has been selected by the woman to provide her lead maternity care.
Live-born baby, live birth	The complete expulsion or extraction from its mother of a product of conception, irrespective of duration of pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered live-born (WHO 1975).
Low birthweight	A birthweight of less than 2.5 kg (WHO 1975). See also *Birthweight*.
Maternity facility	A facility that provides maternity facility services in accordance with the service specification for maternity facility services available from the Ministry of Health. See also *Birthing unit*; *Primary facility*; *Secondary facility*; *Tertiary facility*.
Median	The middle data point if data is ranked from the lowest to the highest. It is used instead of the mean when data does not have a normal distribution.
Ministry of Health	The New Zealand Government's principal advisor on health and disability, with overall responsibility for the management and development of the system.
National Health Index (NHI) number	A unique identifier number allocated to individual service users by the National Health Index, managed by the Ministry of Health.
National Minimum Dataset (NMDS)	A collection of health data that is collected routinely from all people discharged from a hospital in New Zealand.
Newborn	A baby from birth to four weeks of life.
Numerator	The number that appears at the top of a fraction, used to calculate proportions. See also *Proportion*.
Parity	The number of times a woman has given birth, including stillbirths.
Plurality	The number of babies resulting from a single pregnancy.
Postnatal	All pregnancy-related events up to six weeks following birth.
Post-term birth, post-term labour	Birth or labour at 42 or more weeks' of gestation (WHO 1975). See also *Gestation*.
Preterm birth, preterm labour	Birth or labour before 37 completed weeks' of gestation (WHO 1975). See also *Gestation*.
Primary maternity facility, primary facility	A maternity unit that provides care for normal births with care provision from midwives. It is usually community-based and specifically for women assessed as being at low risk of complications for labour and birth care. Access to specialist secondary maternity services and care will require transfer to a secondary or tertiary facility. Primary facilities do not provide epidural analgesia or operative birth services. Birthing units are considered to be primary facilities. See also *Birthing unit*; *Maternity facility*.

Term	Definition
Primary Maternity Services Notice 2007	Notice pursuant to section 88 of the New Zealand Public Health and Disability Act 2000 that came into force on 1 July 2007.
Prioritised ethnicity	Each individual is allocated to a single ethnic group using the priority system Māori > Pacific peoples > Asian > European > Other. See also *Ethnicity*.
Proportion	A part, share or number considered in comparative relation to a whole. Proportions are calculated by dividing the numerator by the denominator, and are expressed as a percentage in this publication. See also *Denominator*; *Numerator*.
Reproductive age	Females aged between 15 and 44 years.
Secondary maternity facility, secondary facility	A hospital that provides care for normal births, complicated pregnancies and births, including operative births and caesarean sections, plus specialist adjunct services including anaesthetics and paediatrics. As a minimum, secondary facilities include an obstetrician rostered on site during working hours and on call after hours, with access to support from an anaesthetist, paediatrician, radiological, laboratory and neonatal services (Guidelines for Consultation with Obstetric and Related Medical Services). See also *Maternity facility*.
Spontaneous breech	The birth of a baby from a breech presentation without obstetric intervention to facilitate delivery. See also *Breech birth*; *Spontaneous vaginal birth*.
Spontaneous vaginal birth	A vaginal birth without obstetric intervention to facilitate delivery. It includes spontaneous vertex and spontaneous breech births.
Spontaneous vertex	The birth of a baby from a vertex presentation without any obstetric intervention to facilitate delivery. See also *Spontaneous vaginal birth*.
Stillbirth, stillborn baby	A dead fetus that (a) weighed 400 g or more when issued from its mother, or (b) issued from its mother after the 20th week of pregnancy. (Refer to Births, Deaths, Marriages & Relationships Registration Act 1995.) See also *Birth*.
Term birth, term labour	Birth or labour at 37–41weeks' gestation (WHO 1975). See also *Gestation*.
Tertiary maternity facility, tertiary facility	A hospital that provides care for women with high-risk, complex pregnancies, by specialised multidisciplinary teams. Tertiary maternity care includes an obstetric specialist or registrar immediately available on site 24 hours a day and an on-site, level 3 neonatal service (Guidelines for Consultation with Obstetric and Related Medical Services). See also *Maternity facility*.
Trimester	One of three periods into which a woman's pregnancy is divided: first trimester: < 12 weeks' gestation; second trimester: 12–28 weeks' gestation; third trimester: 29+ weeks' gestation.
Vacuum extraction	See *Assisted birth, vacuum*.
Well Child / Tamariki Ora provider	The Well Child / Tamariki Ora programme is a package of universal health services offered free to all New Zealand families / whānau for children from birth to 5 years.
World Health Organization (WHO)	The United Nations' specialised agency for health, established in 1948 with the objective of attaining the highest possible level of health for all peoples. WHO's constitution defines health as a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity.

Appendices

The appendices are as follows:

- *Appendix 1: Maternity model of care*
- *Appendix 2: National Maternity Collection*
- *Appendix 3: Technical notes*
- *Appendix 4: Guide to reading maps*
- *Appendix 5: Catchment areas.*

Appendix 1: Maternity model of care

Maternity services in New Zealand are classified according to the level of complexity of clinical care a woman and her baby require—either primary, secondary or tertiary. Maternity services are provided by a range of practitioners (midwives, general practitioners, medical specialists, radiologists and childbirth educators) and in a range of settings (the woman's home, consulting rooms, primary birthing units and hospitals).

There are a range of employment and contracting models in place for maternity services, including direct Ministry funding, DHB funding, private funding, or a mix of these. Most maternity services are free to eligible women, although some activities involve co-payments.

Primary maternity care

The Primary Maternity Services Notice 2007, pursuant to section 88 of the New Zealand Public Health and Disability Act 2000, sets out the objectives of primary maternity services, which are to:

- give each woman, her partner and her whānau or family every opportunity to have a fulfilling outcome to the woman's pregnancy and childbirth by facilitating the provision of primary maternity services that are safe, informed by evidence and based on partnership, information and choice
- recognise that pregnancy and childbirth are a normal life stage for most women
- provide the woman with continuity of care through her LMC, who is responsible for assessing her needs, and planning her care with her and the care of her baby
- facilitate the provision of appropriate additional care for those women and babies who need it.

All eligible women in New Zealand are entitled to continuity of primary maternity care through a Lead Maternity Carer (LMC). Women who choose a midwife or GP as their LMC receive this care for free. Women may also choose to receive primary maternity care from an obstetrician operating as an LMC, but they must pay a variable co-payment for this care.

Women who do not access an LMC, either through choice or lack of availability, are entitled to receive primary maternity services from their DHB. Women are less likely to receive continuity of care within a DHB primary maternity service than with an LMC.

Place of birth

Women are entitled to choose where they give birth. This may include a tertiary hospital, secondary hospital, primary birthing unit or at home. Women are entitled to give birth at a facility with greater clinical capacity than their expected clinical need. Primary birthing units and home birth are recommended for women likely to experience normal birth. Place of birth usually reflects the local configuration of facilities and LMC access agreements, in addition to clinical need.

Current funding model

The majority of pregnant women receive services funded through the Primary Maternity Services Notice 2007. The Notice is a modular, fee-for-service model that specifies service expectations and funds LMC services, non-LMC first trimester and urgent care, primary maternity ultrasounds and some specialist services.

The Ministry purchases primary maternity services from DHBs, as well as all secondary and tertiary services and facilities. The DHB is defined in the DHB Service Coverage Schedule as the '[primary maternity service] provider of last resort' and is expected to meet the primary maternity service needs of women who do not receive care from a midwife LMC funded via the Notice, including women with no LMC and women who are under the care of an obstetric or GP LMC.

The extent of primary maternity services being provided by DHBs varies significantly by DHB, ranging from DHBs that do not currently provide any primary maternity services,[10] to DHBs where less than two-thirds of women giving birth register with a midwife LMC.[11]

[10] Bay of Plenty, Tairawhiti, Taranaki, Whanganui, Wairarapa and Southern DHBs.

[11] Auckland, Counties Manukau, Wairarapa, West Coast and South Canterbury DHBs (in 2012).

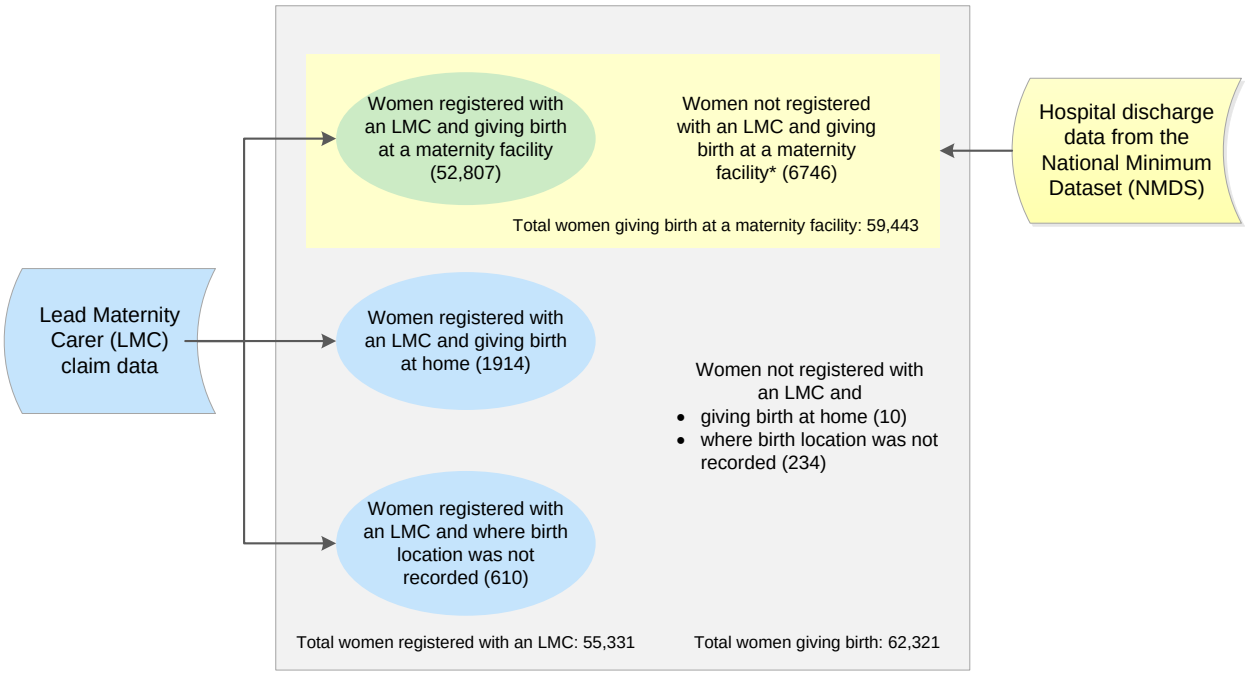
Appendix 2: National Maternity Collection

The Ministry of Health's National Maternity Collection provides statistical, demographic and clinical information about selected publicly funded maternity services up to nine months before and three months after a birth. It integrates health information from three sources:

- inpatient and day-patient health event data during pregnancy, birth and the postnatal period for women giving birth and their babies, sourced from the National Minimum Dataset (NMDS)
- Lead Maternity Carer (LMC) claim forms for primary maternity services provided under the Primary Maternity Services Notice 2007
- primary maternity services provided by DHBs to women who do not have a community LMC or are under the care of a DHB secondary service during their pregnancy or birth.[12]

These sources are collected for administrative purposes, including the funding of maternity services. See below for further notes about each of the three sources of data for the National Maternity Collection, as well as a breakdown of available data for women giving birth in 2012 (Figure 54).

Figure 54: Data sources for women giving birth in 2012 and recorded in the National Maternity Collection



[12] This data is being collected from 2014 onwards and is not included in this 2012 report. All data on primary maternity services in this report is sourced from LMC claims.

National Minimum Dataset

The National Minimum Dataset (NMDS) stores administrative information routinely collected for all publicly funded inpatients of a New Zealand maternity facility (publicly and privately funded hospitals and birthing units). This information contains a large amount of demographic and clinical data, including data on diagnoses and the procedures used. The information is assigned standardised codes that are internationally comparable. The classification system used is the International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM). This system is designed for the classification of morbidity and mortality information for statistical, epidemiological and clinical purposes. Refer to the NMDS Data Dictionary for more information on the data held in the NMDS.

Lead Maternity Carer claims data

This data set contains information on women and babies who access primary maternity services provided under the Primary Maternity Services Notice 2007. This information is received through the claim forms and includes all women registered with an LMC. Data sourced from LMC claim forms includes details on registration with an LMC, as well as other antenatal and postnatal factors (eg, parity, smoking status, breastfeeding status).

DHB-funded primary maternity services data

Collection of this data set (from 2014 onwards) is under way and is expected to be available for future publications. This data set contains information (similar to LMC claims data) on women who access a DHB primary maternity provider, including DHB caseload midwives, DHB primary midwifery teams and shared care arrangements. Once complete, this data set will increase the scope of information the Ministry holds on women (and their babies) who access primary maternity services, including the level of service they receive and their trimester of registration with a DHB primary maternity provider.

Appendix 3: Technical notes

Ethnicity

This publication uses *prioritised ethnicity*, whereby each person represented in the data is allocated to a single ethnic group using the priority system Māori > Pacific peoples > Asian > European > Other. The aim of prioritisation is to ensure that where it is necessary to assign people to a single ethnic group, ethnic groups that are small or important in terms of policy are not swamped by the European ethnic group. This is also a more robust method of dealing with the low rate of multiple ethnicities in health sector data. Further information on ethnicity data protocols for the health and disability sector is available from the Ministry of Health ethnicity protocols.

In this publication, individuals of European and of Other ethnicities are often grouped together as the 'European or Other' ethnic group due to small numbers for the Other ethnic group. Information on individual ethnic groups that are aggregated in this publication can be made available on request (see Additional information section).

Deprivation

The New Zealand Deprivation Index (NZDep) is a measure of socioeconomic status calculated for small geographic areas. The calculation uses nine variables from the 2006 Census of Population and Dwellings and provides a summary deprivation score between 1 and 10 for each meshblock (small geographical unit containing a median of 90 people).

The Ministry of Health maps the meshblocks to domicile codes, which are built up to the relevant geographic scale using weighted average census usually resident population counts. Further information about socioeconomic deprivation in New Zealand is available on the University of Otago website.

This publication presents numbers and rates by deprivation quintile of residence, ranging from 1 (least deprived) to 5 (most deprived), according to the 2006 New Zealand Deprivation Index. Approximately equal numbers of the population reside in areas associated with each of the five deprivation quintile areas.

Type of birth

Information on the type of birth procedure is only available for women giving birth at a maternity facility. Women giving birth at home are assumed to have a spontaneous vertex birth.

Some women have more than one birth procedure for the birth of their baby, so a priority system is used in this publication to report one procedure type per woman giving birth. Table 6 shows the priority system and how each birth procedure is aggregated into a type of birth for reporting purposes.

Table 6: Priority for reporting birth procedures

Priority	Birth procedure	Type of birth (aggregated)
1	Emergency caesarean	Caesarean section
2	Elective caesarean	Caesarean section
3	Breech extraction	Assisted birth
4	Assisted breech	Assisted birth
5	Spontaneous breech	Spontaneous vaginal
6	Forceps and vacuum	Assisted birth
7	Forceps	Assisted birth
8	Vacuum	Assisted birth
9	Spontaneous vertex	Spontaneous vaginal
10	Not stated	Unknown

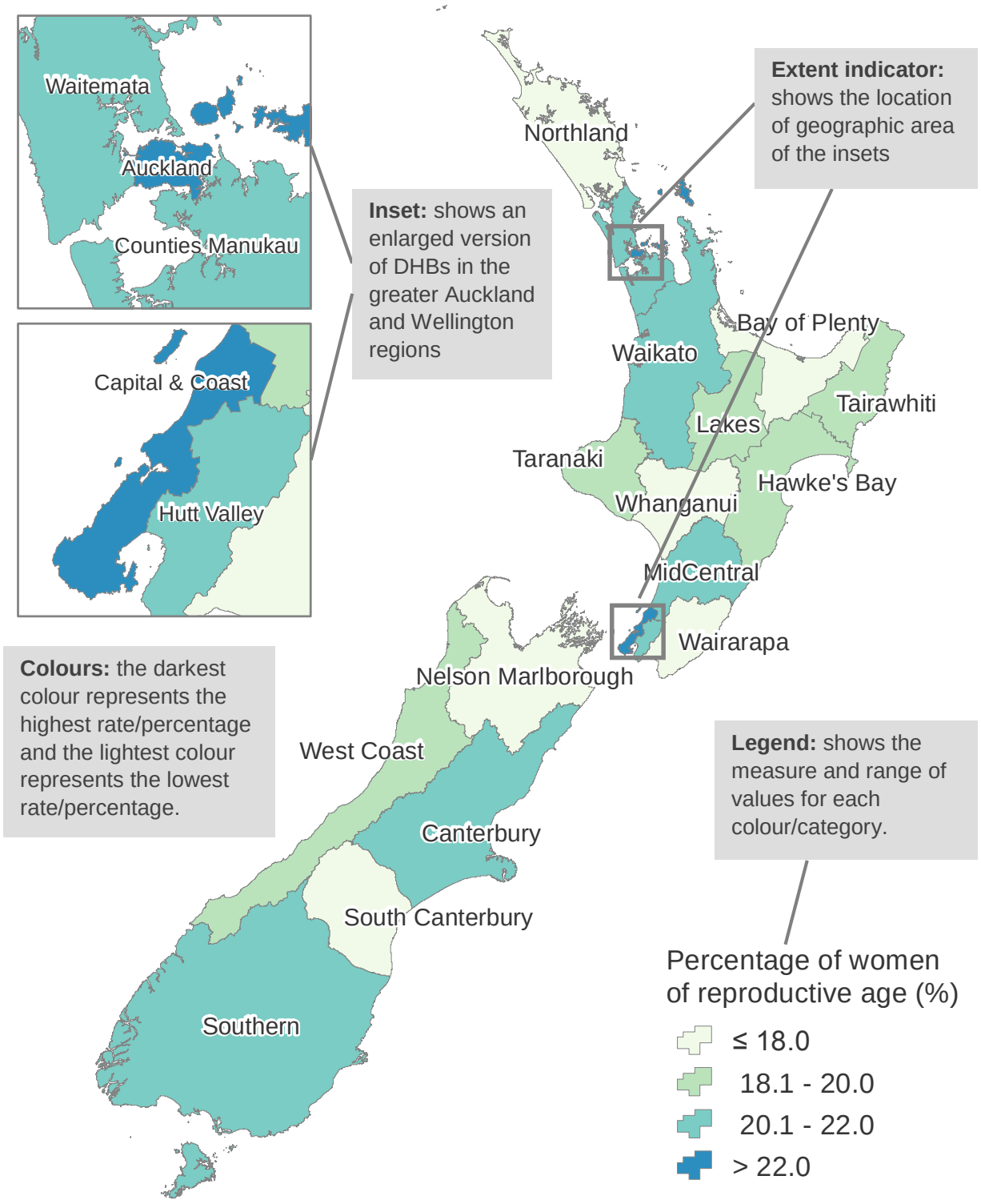
Population data

The data sets used to derive denominators that are used for calculating birth rates in this publication were:

- estimated resident population by prioritised ethnicity, age, sex and DHB as at 30 June (customised extract)
- population projections for females by prioritised ethnicity, age group and DHB, using the 2006 base population (customised extract)
- usually resident 2006 Census population by domicile (customised extract).

Further information about the methods used to prepare estimates and projections, as well as their limitations, is available on the Statistics New Zealand website.

Appendix 4: Guide to reading maps



Appendix 5: Catchment areas

The list of available primary, secondary and tertiary maternity facilities is provided, by DHB, in the table below. Their geographical locations are presented in Figure 55.

District Health Board	Tertiary facility[1]	Secondary facility[2]	Primary facility[3]
Northland	Auckland City	Whangarei	Bay of Islands Dargaville Hokianga Health Kaitaia
Waitemata		North Shore Waitakere	Helensville Warkworth Wellsford
Auckland			Birthcare Auckland
Counties Manukau	Middlemore		Botany Downs Papakura Pukekohe
Waikato	Waikato		Birthcare Huntly Matariki Pohlen Trust Rhoda Read River Ridge Taumarunui Te Kuiti Thames Tokoroa Waihi Waterford
Lakes		Rotorua	Taupo
Bay of Plenty		Tauranga Whakatane	Murupara Opotiki
Tairawhiti		Gisborne	Ngati Porou Hauora
Taranaki		Taranaki Base	Elizabeth R Hawera
Hawke's Bay	Wellington	Hawke's Bay Regional	Wairoa
MidCentral		Palmerston North	Dannevirke Horowhenua
Whanganui		Whanganui	Otaihape Waimarino
Capital & Coast			Kapiti Kenepuru
Hutt Valley		Hutt	
Wairarapa		Wairarapa	
Nelson Marlborough		Wairau Nelson	Golden Bay Motueka

District Health Board	Tertiary facility[1]	Secondary facility[2]	Primary facility[3]
West Coast	Christchurch	Grey Base	Buller
Canterbury			Akaroa* Ashburton Burwood Darfield Kaikoura Lincoln Rangiora St George's* Waikari*
South Canterbury		Timaru	
Southern	Dunedin	Southland	Charlotte Jean Clutha Dunstan Gore Lakes District Lumsden Maniototo Oamaru Tuatapere Winton

1 A hospital that provides care for women with high-risk, complex pregnancies by specialised multidisciplinary teams. Tertiary maternity care includes an obstetric specialist or registrar immediately available on site 24 hours a day, and an on-site, level 3 neonatal service.

2 A hospital that provides care for normal births, complicated pregnancies and births, including operative births and caesarean sections, plus specialist adjunct services including anaesthetics and paediatrics. As a minimum, secondary facilities include an obstetrician rostered on site during working hours and on call after hours, with access to support from an anaesthetist, paediatrician, radiological, laboratory and neonatal services.

3 A maternity unit that provides care for normal births with care provision from midwives. It is usually community-based and specifically for women assessed as being at low risk of complications for labour and birth care. Access to specialist secondary maternity services and care will require transfer to a secondary or tertiary facility. Primary facilities do not provide epidural analgesia or operative birth services. Birthing units are considered to be primary facilities.

* These facilities did not provide birth care in 2012.

Figure 55: Maternity facilities in New Zealand, by DHB region and facility type