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New Zealand Government

New Zealand Maternity Clinical Indicators

2014

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Executive summary

The New Zealand Maternity Clinical Indicators provide information on a series of maternity outcomes which relate to an optimal health outcome. For this report, as with previous reports in this series, the 'standard primipara' definition is used to identify a group of women who are considered to be 'low risk', for whom interventions and outcomes should be similar. Of the 21 indicators covered in this report:

- one applies to women who registered with a lead maternity carer (LMC)
- eight apply to standard primiparae
- eight apply to all women giving birth in New Zealand
- four apply to all babies born in New Zealand.

This is the sixth report in the New Zealand Maternity Clinical Indicators series. It presents data on women giving birth, and babies born in the 2014 calendar year.

From 2009 to 2014, there was:

- an increase in the proportion of women who registered with an LMC in the first trimester of pregnancy but variation between regions persists
- a decrease in the proportion of standard primiparae who had a spontaneous vaginal birth, and continued variation between regions
- an increase in the proportion of standard primiparae who had a caesarean section
- an increase in the proportion of standard primiparae who had an induction of labour
- a decrease in the proportion of standard primiparae who had an intact perineum and an increase in the proportion who had an episiotomy and/or a third- or fourth-degree tear, and continued variation between regions
- a decrease in the proportion of women having a general anaesthetic for caesarean section
- a decrease in the proportion of women who required a blood transfusion with a caesarean section, and an increase for women who required a blood transfusion with a vaginal birth
- a decrease in the proportion of women who smoked during the postnatal period
- an increase in the proportion of women with body mass index (BMI) of over 35 at registration
- a decrease in the proportion of term (37–42 weeks' gestation) babies who were born small
- a decrease in the proportion of small babies at term (37–42 weeks' gestation) who were born at 40–42 weeks' gestation
- an increase in the proportion of babies born at term who required respiratory support.

As the five previous reports demonstrated, reported maternity service delivery and outcomes for women and babies vary between district health boards (DHBs) and between individual secondary and tertiary facilities. These findings merit further investigation of data quality and integrity as well as variations in local clinical practice management.

Since 2012, DHBs and maternity stakeholders have used national benchmarked data in their local maternity quality and safety programmes to identify areas warranting further investigation at a local level. Using the data in this report, DHBs and local maternity stakeholders can expand the scope of their investigations and view trends over a six-year period.

Introduction

What is a clinical indicator?

A clinical indicator is a measure of the clinical management and outcome of health care received by an individual. For each clinical indicator, there should be evidence that confirms the underlying causal relationship between a particular process or intervention and a health outcome (WHA 2007). Clinical indicators can enable the quality of care and services to be measured and compared, by describing a performance or health outcome that should occur, and then evaluating whether it has occurred, in a standardised format that enables comparison between services or sites (Mainz 2003).

What are the New Zealand Maternity Clinical Indicators?

The New Zealand Maternity Clinical Indicators show key maternity outcomes for each DHB region and maternity facility.

The purpose of the New Zealand Maternity Clinical Indicators is to:

- highlight areas where quality and safety could be improved at a national level
- support quality improvement by helping DHBs to identify focus areas for local clinical review of maternity services
- provide a broader picture of maternity outcomes in New Zealand than that obtainable from maternal and perinatal mortality data alone
- provide standardised (benchmarked) data allowing DHBs to evaluate their maternity services over time and against the national average
- improve national consistency and quality in maternity data reporting.

The New Zealand Maternity Clinical Indicators are evidence-based and cover a range of procedures and outcomes for mothers and their babies. Where possible, the New Zealand Maternity Clinical Indicators are aligned with international maternity indicators to enable international comparison.

The Ministry of Health develops and publishes the New Zealand Maternity Clinical Indicators with support from the National Maternity Monitoring Group and the New Zealand Maternity Clinical Indicators Expert Working Group.

It is an expectation of the New Zealand Maternity Standards that the New Zealand Maternity Clinical Indicators are reviewed every three years.

Background

In 2010 the Minister of Health directed the Ministry of Health to develop a national quality and safety programme for maternity services, encompassing standards and clinical indicators.

The New Zealand Maternity Clinical Indicators are the result of collaboration between the Ministry of Health and maternity stakeholders representing consumer, midwifery, obstetric, general practice, paediatric and anaesthetic perspectives. In 2011 an expert working group established a set of 12 maternity clinical indicators that could be measured using the available data collections at that time.

Since then, data collections and data quality have improved. In 2013, the National Maternity Monitoring Group reviewed the original indicator set and recommended a range of changes to improve the quality, completeness and scope of the Maternity Clinical Indicators. The original expert working group further reviewed and developed these proposed changes to ensure the objectives of the Maternity Clinical Indicators were retained.

The changes were implemented in two phases:

- improving the quality and completeness of the original 12 indicators and introducing three new indicators in *New Zealand Maternity Clinical Indicators 2012*
- expanding the methodology to count outcomes for women giving birth outside a maternity facility more accurately and introducing six new indicators in *New Zealand Clinical Indicators 2013*.

This report, *New Zealand Maternity Clinical Indicators 2014*, presents data on the 21 indicators included in the 2013 report. The focus is on the 2014 calendar year.

In early 2015, the Minister of Health committed to the continuation of the Maternity Quality Initiative, under which the Ministry of Health has committed to continued annual publication of clinical indicators. The next review of the New Zealand Maternity Clinical Indicators will occur prior to the development of the report on 2015 data.

Overview

This report presents the third year of reporting on the revised indicators, and the sixth edition in the *New Zealand Maternity Clinical Indicators* series (see Table 1 for a list of indicators presented in this publication). The 21 indicators presented in this report are the same as those presented in the 2013 report, however new data and updated clinical codes are used. They were developed by the Ministry of Health in partnership with the New Zealand Maternity Clinical Indicators Expert Working Group.

The key changes to this year's report are as follows:

- **Updates to clinical codes used:** The eighth edition of the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM) was implemented for hospital discharges reported to the National Minimum Dataset from 1 July 2014 onwards. The clinical codes used in this report were reviewed and updated to incorporate new codes introduced in the eighth edition. These codes are listed in Appendix 2: Technical notes.

- **Additional data from DHB primary maternity services:** Following recent upgrades to the National Maternity Collection, some DHBs are now reporting data from their primary maternity services for parity, body mass index (BMI) and smoking status. These variables were previously sourced from Lead Maternity Carer (LMC) claim forms only. Not all DHBs who provide maternity primary services have reported data to the National Maternity Collection. Collection of this data is underway.

Table 1: New Zealand Maternity Clinical Indicators

Population	Indicator		Numerator	Denominator
Women registered with an LMC	1	Registration with an LMC in the first trimester of pregnancy	Total number of women who register with an LMC in the first trimester of their pregnancy	Total number of women who register with an LMC
Standard primiparae	2	Standard primiparae who have a spontaneous vaginal birth	Total number of standard primiparae who have a spontaneous vaginal birth at a maternity facility	Total number of standard primiparae
	3	Standard primiparae who undergo an instrumental vaginal birth	Total number of standard primiparae who undergo an instrumental vaginal birth	Total number of standard primiparae
	4	Standard primiparae who undergo caesarean section	Total number of standard primiparae who undergo caesarean section	Total number of standard primiparae
	5	Standard primiparae who undergo induction of labour	Total number of standard primiparae who undergo induction of labour	Total number of standard primiparae
	6	Standard primiparae with an intact lower genital tract (no 1st- to 4th-degree tear or episiotomy)	Total number of standard primiparae with an intact lower genital tract with vaginal birth	Total number of standard primiparae who give birth vaginally
	7	Standard primiparae undergoing episiotomy and no 3rd- or 4th-degree perineal tear	Total number of standard primiparae undergoing episiotomy and no 3rd- or 4th-degree perineal tear with vaginal birth	Total number of standard primiparae who give birth vaginally
	8	Standard primiparae sustaining a 3rd- or 4th-degree perineal tear and no episiotomy	Total number of standard primiparae sustaining a 3rd- or 4th-degree perineal tear and no episiotomy with vaginal birth	Total number of standard primiparae who give birth vaginally
	9	Standard primiparae undergoing episiotomy and sustaining a 3rd- or 4th-degree perineal tear	Total number of standard primiparae undergoing episiotomy and sustaining a 3rd- or 4th-degree perineal tear with vaginal birth	Total number of standard primiparae who give birth vaginally
Women giving birth	10	Women having a general anaesthetic for caesarean section	Total number of women having a general anaesthetic for caesarean section	Total number of women who undergo caesarean section
	11	Women requiring a blood transfusion with caesarean section	Total number of women requiring a blood transfusion with caesarean section	Total number of women who undergo caesarean section
	12	Women requiring a blood transfusion with vaginal birth	Total number of women requiring a blood transfusion with vaginal birth	Total number of women who give birth vaginally
	13	Diagnosis of eclampsia at birth admission	Total number of women diagnosed with eclampsia during birth admission	Total number of women giving birth
	14	Women having a peripartum hysterectomy	Total number of women having an abdominal hysterectomy within 6 weeks after birth	Total number of women giving birth

Population	Indicator		Numerator	Denominator
Women giving birth	15	Women admitted to ICU and requiring ventilation during the pregnancy or postnatal period	Total number of women admitted to ICU and requiring over 24 hours of mechanical ventilation during admission any time during the pregnancy or postnatal period	Total number of women giving birth
	16	Maternal tobacco use during postnatal period	Total number of women identified as smokers at 2 weeks after birth	Total number of women with smoking status at 2 weeks after birth reported
	17	Women with BMI over 35	Total number of women with BMI over 35	Total number of women with BMI recorded
Live-born babies	18	Preterm birth	Total number of babies born under 37 weeks' gestation	Total number of babies born (live births)
	19	Small babies at term (37–42 weeks' gestation)	Total number of babies born at 37–42 weeks' gestation with birthweight under the 10th centile for their gestation	Total number of babies born at 37–42 weeks' gestation
	20	Small babies at term born at 40–42 weeks' gestation	Total number of babies born at 40–42 weeks' gestation with birthweight under the 10th centile for their gestation	Total number of babies born at 37–42 weeks' gestation with birthweight under the 10th centile for their gestation
	21	Babies born at 37+ weeks' gestation requiring respiratory support	Total number of babies born at 37+ weeks' gestation requiring over 4 hours of respiratory support	Total number of babies born at 37+ weeks' gestation

A set of online tables was produced to accompany this report and is available from the Ministry of Health's webpage (www.health.govt.nz/publication/new-zealand-maternity-clinical-indicators-2014). These tables present numbers and rates by:

- indicator, ethnic group and DHB of residence, 2009–2014
- indicator and facility of birth (primary, secondary and tertiary), 2009–2014
- gestation in weeks for indicator 19, 2009–2014.

Maps showing rates for each indicator by DHB of residence will be available on the Health Quality & Safety Commission's Atlas of Healthcare Variation (www.hqsc.govt.nz/atlas) later this year. The Atlas displays easy-to-use maps, graphs, tables and commentaries that highlight variations by geographic area in the provision and use of specific health services and health outcomes.

About the data

Data for these indicators was extracted from all pregnancies and live-born babies recorded on the National Maternity Collection (MAT) on 16 November 2015. Additional hospital event data for each pregnancy and live-born baby recorded on MAT was extracted from the National Minimum Dataset (NMDS) to supplement the data set.

Records of babies born at a gestational age of less than 20 weeks and the corresponding records for their mothers have been excluded from this analysis. All efforts have been made to ensure that the data presented does not include duplicate events. Women giving birth at home are counted as having a spontaneous vaginal birth without an episiotomy.

Standard primiparae were identified using maternal age, gestational age and parity sourced from MAT, and clinical codes sourced from the current birth event, from antenatal events corresponding to the pregnancy, and from a search of historical maternity events held in the NMDS. See 'Appendix 2: Technical notes' for more detail on definitions and code ranges.

The data presented in this report primarily pertains to women recorded as having given birth and babies live-born in 2014 from MAT. Data from births occurring from 2009 to 2013 has been reanalysed using the same methods and criteria to provide a time-series view.

As the definitions and data sources used in this report have been revised and differ from previously published reports in this series, the data presented in this edition should not be compared to previous reports. See the accompanying spreadsheets for time-series analysis.

Data integrity

This report has been compiled from data supplied by DHBs and LMCs. District health boards and facilities are individually responsible for ensuring the completeness and quality of data they supply to national collections. Lead maternity carers are contractually responsible for ensuring the accuracy of data they supply on claims for payment. Data quality management has been applied at several points in the collection, extraction and reporting of the data presented here. However, errors can occur. Contact the Ministry of Health if you have concerns regarding any of the data or analyses presented here.

Interpretation notes

Data is presented in this report in two ways:

- by DHB of residence: this data is intended to provide DHBs with information relevant to their usually resident population
- by place of birth: this data is intended to allow monitoring of trends over time at the facility level. Data for births in secondary and tertiary facilities is presented graphically in the body of this document, and data for births in primary and private facilities and home births (where available) is presented in the accompanying online tables.

Numbers and rates

Rates are presented as raw percentages. Rates have not been standardised by age or ethnicity; denominators are chosen to group women into clinically similar cohorts that would be expected to experience similar birth outcomes (eg, standard primiparae).

Differences in rates by ethnicity or socioeconomic group could be an area of focus for analysis at the DHB level. Due to the design of the indicators, some rates are based on small numbers of events and should therefore be treated with caution.

Figures

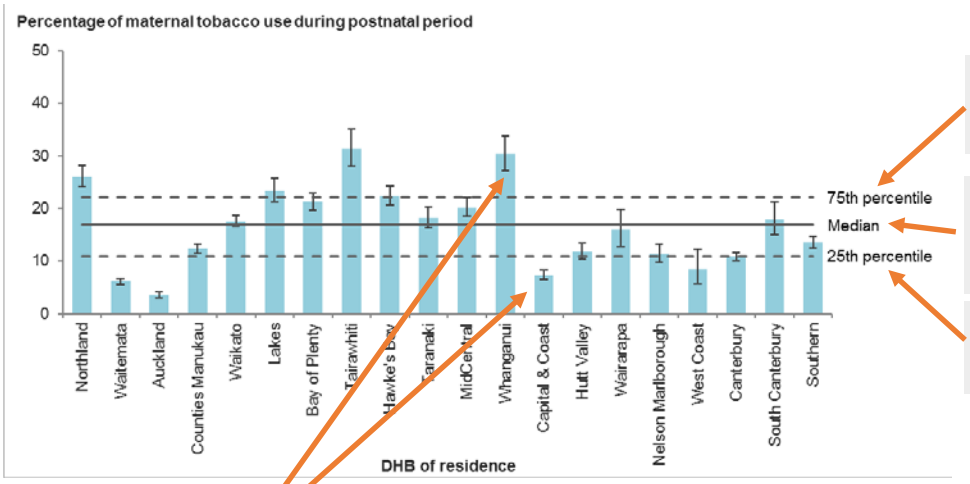
Graphs showing rates by DHB of residence and secondary/tertiary facility of birth are presented for each indicator, except indicators 13–15 due to very small numbers. The median, as well as the 25th and 75th percentiles, are displayed on the graphs to help compare rates between DHBs and facilities. The following diagram explains some components of the graphs presented in this report.

Graph below shows the range of values described in the notes. In this example, the lowest rate was for Auckland DHB at 3.6% and the highest was for Tairawhiti DHB at 31.4%

Notes on 2013 data

Rates of maternal tobacco use in the postnatal period (two weeks after birth) varied between DHBs and between secondary and tertiary facility of birth; DHB rates ranged from 3.6% to 31.4%, and facility rates ranged from 2.4% to 36.6%.

Figure 1: Percentage of women identified as smokers during postnatal period (2 weeks after birth), by DHB of residence, 2013



75% of DHBs (15 out of 20) have rates below the 75th percentile line

50% of DHBs (10 out of 20) have rates below the median (50th percentile) line

25% of DHBs (5 out of 20) have rates below the 25th percentile line

Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles. Error bars represent 95% confidence intervals.

95% confidence intervals (error bars) can be used to assist in comparing DHB rates. If the confidence intervals do not overlap, it is reasonable to assume that the difference is not due to chance. For example, the rate for Whanganui DHB can be considered as being significantly higher than the rate for Capital & Coast DHB.

Notes on national data

This section highlights how clinical indicator rates at a national level have changed from 2009 to 2014. See Table 2 for a summary of results, and Figure 2 for a graph showing rates for each indicator from 2009 to 2014. This figure is also available by DHB and by secondary or tertiary facility in the accompanying online tables. The following analysis is presented by the population considered.

Standard primiparae

A 'standard primipara' is a woman expected to have an uncomplicated pregnancy; intervention and complication rates for such women should be low and consistent across hospitals and DHBs. Comparing data about standard primiparae (rather than all women giving birth) controls for differences in case mix and increases the validity of inter-hospital comparisons of maternity care (adapted from Australian Council on Healthcare Standards 2008, p 29).

Approximately 15% of women giving birth in New Zealand are considered to be standard primiparae in this publication. These women are a sub-set of the general maternity population and are not representative of birthing women in New Zealand.

Standard primiparae in this publication are women aged 20–34 years old at the time of giving birth who are giving birth for the first time (parity = 0)[1] at term (37–41 weeks' gestation) where the outcome of the birth is a singleton baby, the presentation is cephalic and there have been no recorded obstetric complications that are indications for specific obstetric interventions.

Standard primiparae as a proportion of women giving birth varied across DHBs in 2014, ranging from 11.4% (West Coast DHB) to 17.2% (Auckland DHB). The highest proportion (26.4%) of standard primiparous women were aged between 20 and 24 years old. A higher proportion of standard primiparous women identified as Asian (20.5%); 10.7% identified as Māori and 11.4% as Pasifika. Almost 12% of women giving birth at home were standard primiparae, while 15% of women who gave birth at a maternity facility were standard primiparae (Figure 1).

From 2009 to 2014, there was a statistically significant increase in the proportion of standard primiparae who had:

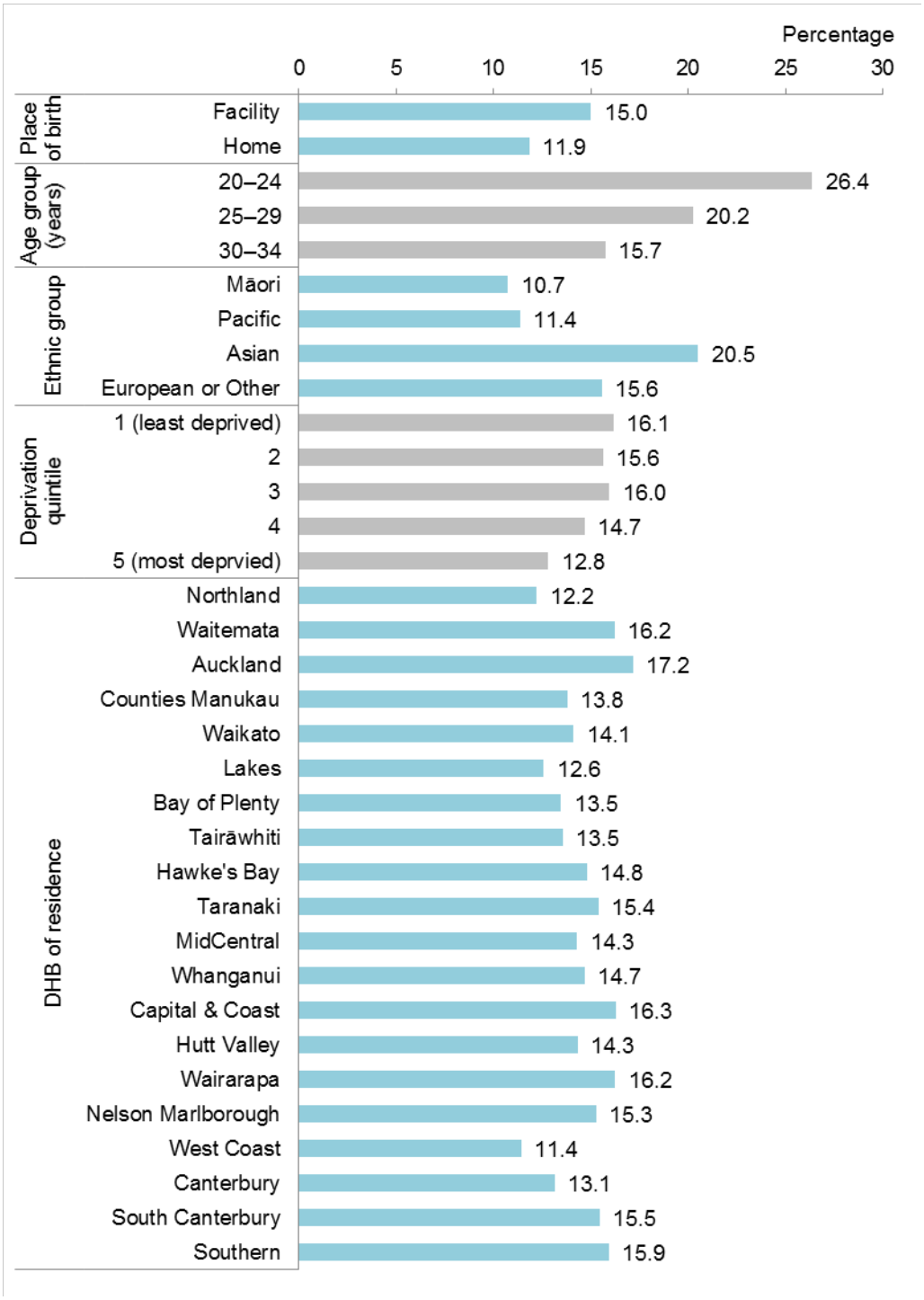
- a caesarean section (indicator 4)
- an induction of labour (indicator 5)
- an episiotomy without third- or fourth-degree perineal tear (indicator 7)
- a third- or fourth-degree tear and no episiotomy (indicator 8)
- an episiotomy and a third- or fourth-degree tear (indicator 9).

Conversely, there was a significant decrease in the proportion of standard primipare who had:

- a spontaneous vaginal birth (indicator 2)
- an intact lower genital tract (indicator 6).

1 The proportion of women giving birth for the first time (parity = 0) is approximately 40% (ranging from 33% to 48% by DHB of residence). This proportion is lower among women giving birth at home, as 19% of women giving birth at home had their first baby (ranging from 11% to 26% by DHB of residence).

Figure 1: Proportion of women giving birth in 2014 who were standard primiparae by place of birth, age group, ethnic group, deprivation quintile and DHB of residence



Note: The number by each bar is the proportion of women giving birth in that group who were standard primiparae.

Women registered with an LMC

The vast majority of women giving birth in New Zealand first register with an LMC for their primary maternity care. This increased from 83% of women giving birth in 2009 to 91% of women giving birth in 2014.

Women are also registering earlier with an LMC, with a statistically significant increase in women registering within the first trimester of pregnancy (<13 weeks) from 2009 to 2014.

All women giving birth

Among all women giving birth in 2014, there was a statistically significant increase from 2009 to 2014 in the proportion of women:

- requiring a blood transfusion with a vaginal birth (indicator 12)
- with BMI over 35 (indicator 17).

In contrast, there was a significant decrease from 2009 to 2014 in the proportion of women:

- having a general anaesthetic for caesarean section (indicator 10)
- requiring a blood transfusion with a caesarean section (indicator 11)
- who smoked during the postnatal period (indicator 16).

Babies

From 2009 to 2014, there was a significant decrease in the proportion of:

- term (37–42 weeks' gestation) babies who were born small
- small babies at term (37–42 weeks' gestation) who were born at 40–42 weeks' gestation.

The proportion of term babies requiring respiratory support increased significantly from 2009 to 2014.

International comparisons

International comparisons are often problematic, due to differing methodology, definitions and availability of national data. When compared to Australia, New Zealand appears to have markedly lower rates of obstetric intervention, including among lower-risk women, although definitions of low risk differ. Other indicators among the total birthing population, including general anaesthetic for caesarean section (indicator 10) and maternal tobacco use (indicator 16), appear similar to Australian counterparts.

Table 2: New Zealand Maternity Clinical Indicator national rates by year, 2009–2014

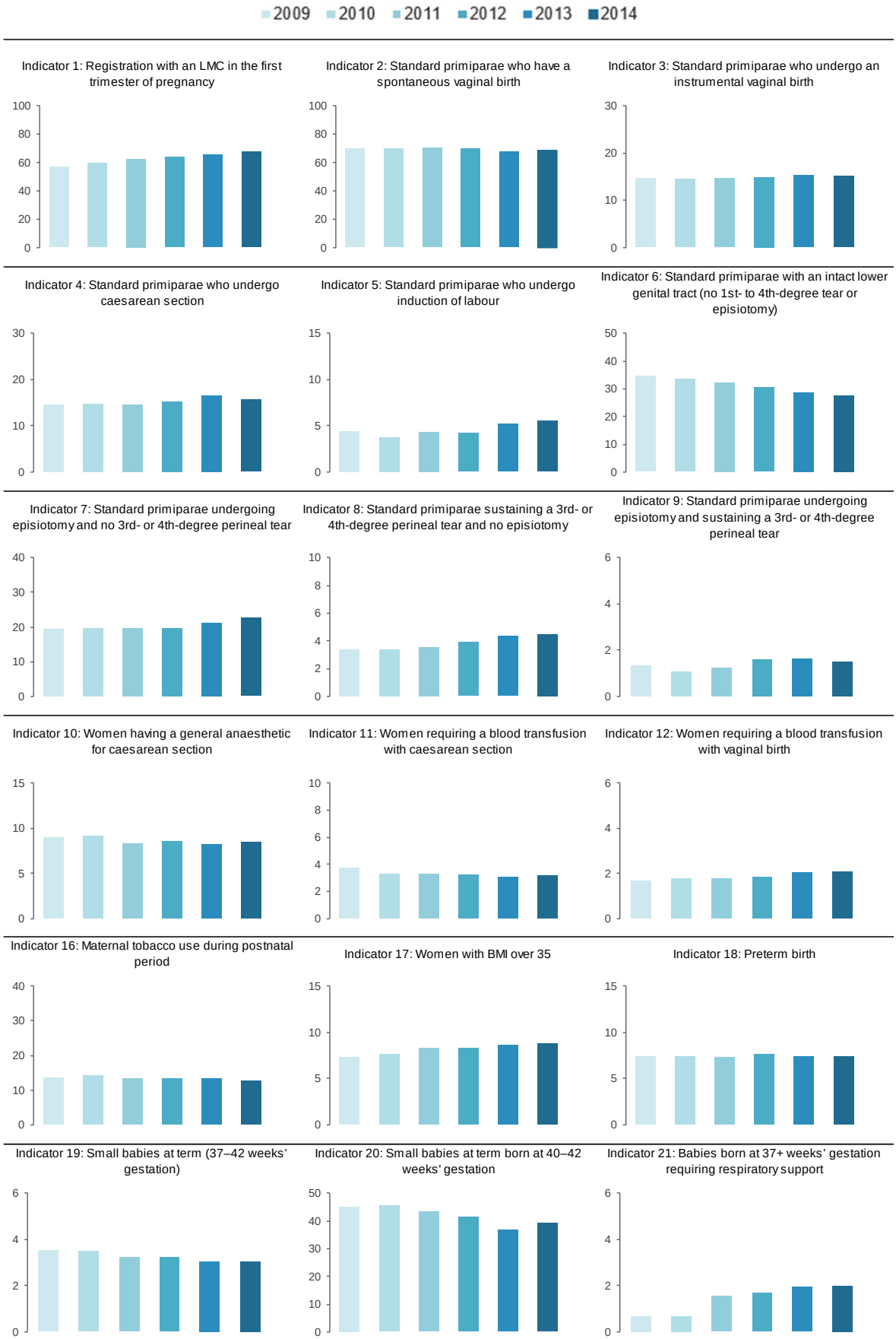
Population	Indicator		2009	2010	2011	2012	2013	2014	From 2009 to 2014 (p-value)[1]
Women registered with an LMC	1	Registration with an LMC in the first trimester of pregnancy (%)	57.2	59.3	62.3	63.7	65.3	67.7	↑ (<0.001)
Standard primiparae	2	Standard primiparae who have a spontaneous vaginal birth (%)	69.7	70.0	70.1	69.8	67.6	68.9	↓ (0.01)
	3	Standard primiparae who undergo an instrumental vaginal birth (%)	14.7	14.5	14.8	14.9	15.3	15.2	– (0.13)
	4	Standard primiparae who undergo caesarean section (%)	14.6	14.8	14.5	15.2	16.6	15.6	↑ (<0.001)
	5	Standard primiparae who undergo induction of labour (%)	4.4	3.8	4.4	4.2	5.2	5.6	↑ (<0.001)

Population	Indicator		2009	2010	2011	2012	2013	2014	From 2009 to 2014 (p-value)[1]
	6	Standard primiparae with an intact lower genital tract (no 1st- to 4th-degree tear or episiotomy) (%)	34.7	33.4	32.2	30.3	28.8	27.7	↓ (<0.001)
Standard primiparae	7	Standard primiparae undergoing episiotomy and no 3rd- or 4th-degree perineal tear (%)	19.5	19.8	19.8	19.7	21.1	22.7	↑ (<0.001)
	8	Standard primiparae sustaining a 3rd- or 4th-degree perineal tear and no episiotomy (%)	3.4	3.4	3.5	3.9	4.3	4.5	↑ (<0.001)
	9	Standard primiparae undergoing episiotomy and sustaining a 3rd- or 4th-degree perineal tear (%)	1.3	1.1	1.2	1.6	1.6	1.5	↑ (0.01)
Women giving birth	10	Women having a general anaesthetic for caesarean section (%)	9.0	9.1	8.4	8.6	8.3	8.4	↓ (0.01)
	11	Women requiring a blood transfusion with caesarean section (%)	3.8	3.3	3.3	3.2	3.1	3.2	↓ (<0.001)
	12	Women requiring a blood transfusion with vaginal birth (%)	1.7	1.8	1.8	1.9	2.0	2.1	↑ (<0.001)
	13	Women with eclampsia at birth admission (numerator)[2]	27	22	17	12	18	18	N/A
	14	Women having a peripartum hysterectomy (numerator)[2]	51	29	39	49	21	37	N/A
	15	Women admitted to ICU and requiring ventilation during the pregnancy or postnatal period (numerator)[2]	19	18	21	12	17	13	N/A
	16	Maternal tobacco use during postnatal period (%)	13.4	14.1	13.3	13.3	13.2	12.8	↓ (<0.001)
	17	Women with BMI over 35 (%)	7.2	7.6	8.2	8.2	8.6	8.8	↑ (<0.001)
Babies	18	Preterm birth (%)	7.4	7.4	7.3	7.6	7.4	7.4	– (0.57)
	19	Small babies at term (37–42 weeks' gestation) (%)	3.5	3.5	3.2	3.2	3.0	3.0	↓ (<0.001)
	20	Small babies at term born at 40–42 weeks' gestation (%)	45.1	45.4	43.2	41.4	36.9	39.4	↓ (<0.001)
	21	Babies born at 37+ weeks' gestation requiring respiratory support	0.7	0.7	1.6	1.7	1.9	2.0	↑ (<0.001)

1 Shows whether there was a statistically significant increase (↑), or decrease (↓), or no statistically significant change (–) in rates from 2009 to 2014. Statistical significance was derived using a chi-squared test for trend in proportions, at a 95% significance level for all indicators, except indicators 13–15 due to small numbers.

2 Rates are not presented due to small numbers for these indicators. The numbers presented are the numerator values each year for the indicator.

Figure 2: New Zealand Maternity Clinical Indicator rates by year, 2009–2014



Note: Indicators 13–15 (showing severe maternal morbidity) are not presented as graphs due to very small numbers (see Table 2).

Indicator 1: Registration with an LMC

Rationale and purpose

The Perinatal and Maternal Mortality Review Committee (2012), the National Maternity Monitoring Group (2013), and the Health Committee Inquiry into improving child health outcomes and preventing child abuse with a focus on preconception to three years of age (2013) all recommend early engagement with maternity care. The National Institute for Health and Care Excellence (2008) recommends that antenatal care be started in the first trimester and ideally by 10 weeks' gestation.

Early engagement with an LMC enables opportunities for screening, education and referral, and begins the primary maternity continuity of care relationship between a woman and her LMC. The National Maternity Monitoring Group recommended in their 2013 annual report that DHBs develop new ways to improve access to LMC services in the first trimester, and profiled a range of activities under way in DHBs.

This indicator monitors the number of women who registered with an LMC in the first trimester of their pregnancy, out of all women who gave birth and had an LMC providing their primary maternity care.[2] This indicator supports national and local monitoring of the effectiveness of activities to improve timely registration with an LMC.

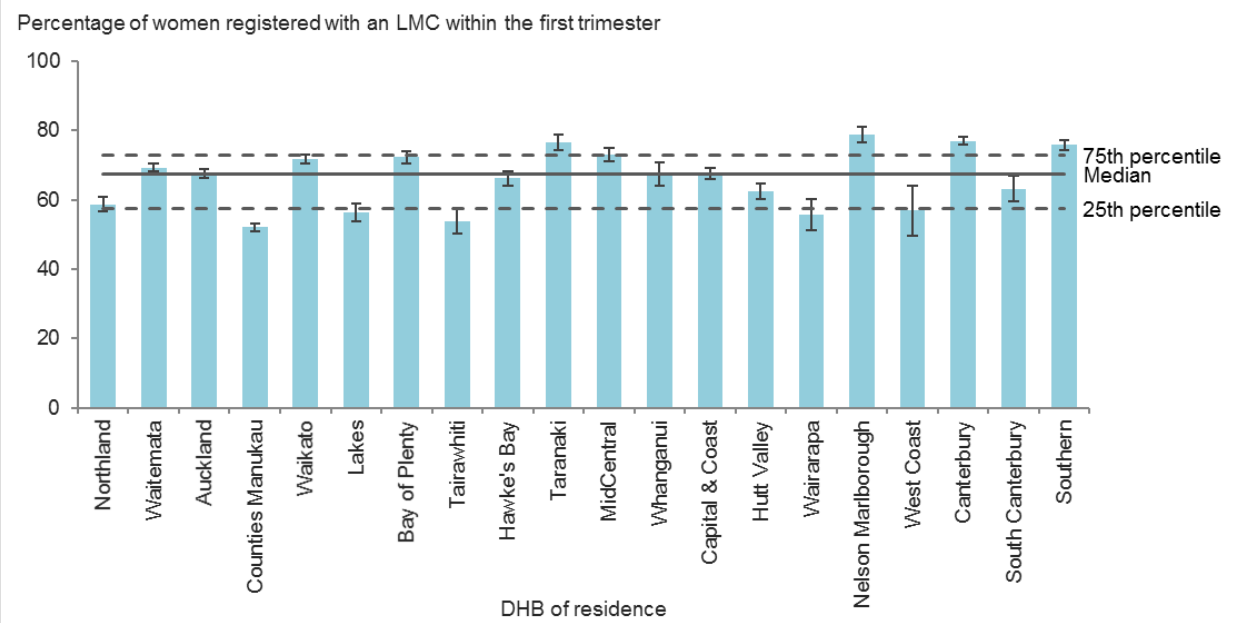
Notes on 2014 data

Rates of registration with an LMC in the first trimester varied between DHBs and between secondary and tertiary facility of birth; rates by DHB of residence ranged from 52.1% to 78.8%, and rates by facility of birth ranged from 44.9% to 81.0%. New initiatives in this area, such as the introduction of the Find Your Midwife website (www.findyourmidwife.co.nz) in 2013, are expected to increase the rate of women engaging with an LMC in the first trimester of their pregnancy. The effects of these initiatives will become apparent in future reports.

2 Women who register with a DHB primary maternity service are not counted in this indicator.

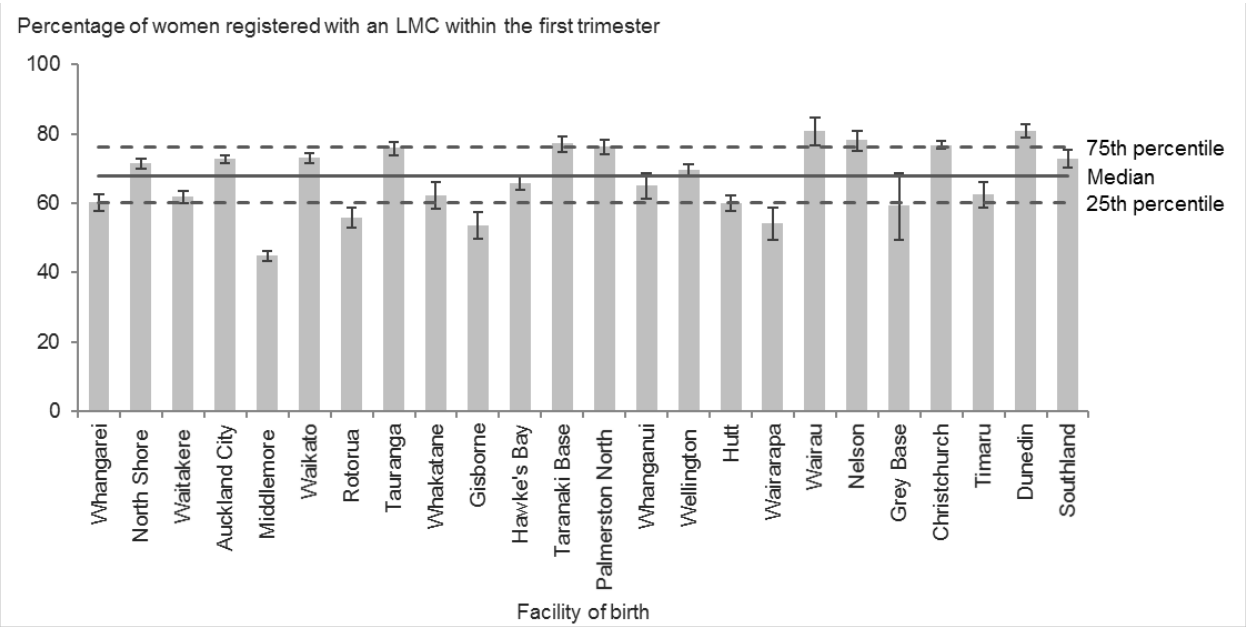
Indicator 1: Registration with an LMC in the first trimester of pregnancy, 2014

Figure 3: Percentage of women who register with an LMC in the first trimester of their pregnancy among all registered women giving birth, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 4: Percentage of women who register with an LMC in the first trimester of their pregnancy among all registered women giving birth, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary or tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 3: Number and percentage of women who register with an LMC in the first trimester of their pregnancy among all registered women, by DHB of residence, 2014

DHB of residence	Registered within the first trimester of pregnancy	All registered women	Rate (%)
Northland	1,178	2,005	58.8
Waitemata	5,166	7,449	69.4
Auckland	3,276	4,851	67.5
Counties Manukau	3,294	6,324	52.1
Waikato	3,611	5,036	71.7
Lakes	774	1,372	56.4
Bay of Plenty	2,005	2,773	72.3
Tairāwhiti	370	686	53.9
Hawke's Bay	1,286	1,940	66.3
Taranaki	1,158	1,510	76.7
MidCentral	1,482	2,026	73.1
Whanganui	524	776	67.5
Capital & Coast	2,249	3,323	67.7
Hutt Valley	1,108	1,771	62.6
Wairarapa	263	471	55.8
Nelson Marlborough	1,016	1,289	78.8
West Coast	98	172	57.0
Canterbury	4,602	5,976	77.0
South Canterbury	412	651	63.3
Southern	2,479	3,269	75.8
Unknown	191	336	-
New Zealand	**36,542**	**54,006**	**67.7**

Table 4: Number and percentage of women who register with an LMC in the first trimester of their pregnancy among all registered women, by facility of birth, 2014

Place of birth	Registered within the first trimester of pregnancy	All registered women	Rate (%)
Whangarei	855	1,420	60.2
North Shore	2,733	3,826	71.4
Waitakere	1,733	2,803	61.8
Auckland City	4,166	5,727	72.7
Middlemore	2,033	4,531	44.9
Waikato	2,429	3,324	73.1
Rotorua	679	1,216	55.8
Tauranga	1,455	1,917	75.9
Whakatane	370	594	62.3
Gisborne	333	621	53.6
Hawke's Bay	1,210	1,836	65.9
Taranaki Base	1,001	1,297	77.2
Palmerston North	1,370	1,796	76.3
Whanganui	414	637	65.0
Wellington	2,107	3,026	69.6
Hutt	1,034	1,720	60.1
Wairarapa	229	423	54.1
Wairau	305	377	80.9
Nelson	594	760	78.2
Grey Base	57	96	59.4
Christchurch	3,906	5,088	76.8
Timaru	383	613	62.5
Dunedin	1,326	1,637	81.0
Southland	845	1,158	73.0
All secondary and tertiary facilities	**31,567**	**46,443**	**68.0**
All primary facilities	**3,286**	**5,059**	**65.0**
All home births	**1,401**	**1,959**	**71.5**
New Zealand[1]	**36,542**	**54,006**	**67.7**

1 Includes women where birth location was unspecified.

Indicators 2 to 5: Type of birth

Rationale and purpose

Indicators 2 to 5 present data on types of birth among standard primiparae. They compare rates of spontaneous vaginal birth and rates of medical interventions in a low-risk population.[3] Their purpose is to encourage maternity service providers to review the appropriateness of these interventions among low-risk women, with the long-term aim of supporting normal birth, improving maternal experience of maternity care, reducing maternal and perinatal morbidity, and supporting value for money for the health system. The following sections describe the rationale and purpose of the specific indicators.

Spontaneous vaginal birth (indicator 2)

This indicator measures the proportion of women having a spontaneous (non-instrumental) vaginal birth in a low-risk population. This measure includes births for which labour was augmented or induced. Maternity service providers should review, evaluate and make necessary changes to clinical practice aimed at supporting women to achieve a spontaneous vaginal birth, and may wish to consider further local measures that exclude other birth interventions.

Instrumental vaginal birth (indicator 3)

This indicator measures the use of instrumental interventions, including vacuum (ventouse) and forceps. The use of instruments is associated with both short-term and long-term complications for the mother and the baby, some of which can be serious. Judicious use of instrumental birth is needed (AIHW 2013). If a maternity service provider's rates of intervention are significantly higher than its peer group at a national level, it should examine the use of instrumental birth alongside other indicators that may be affected by instrumental birth, including maternal and perinatal morbidity.

Caesarean section (indicator 4)

The purpose of this indicator is to encourage maternity service providers to evaluate whether caesarean sections were performed on the right women at the right place and at the right time, and to reduce the harm associated with potentially avoidable caesarean sections among low-risk women. Caesarean birth is safer now than in the past and serious complications are uncommon, particularly for healthy women, but a small risk of serious morbidity and mortality for both the mother and the baby remains, and a primary caesarean section can complicate a subsequent pregnancy (AIHW 2013). If a provider's caesarean section rates are significantly different from their peer group at a national level, it should examine its use of caesarean sections among low-risk women.

3 Some indicators do not sum to 100% due to missing data codes for some events.

Induction of labour (indicator 5)

The purpose of this indicator is to benchmark rates of induction of labour in a low-risk population. Induction of labour is associated with risk of fetal distress, uterine hyper-stimulation and postpartum haemorrhage, and can be the start of a cascade of further medical interventions (AIHW 2013). Maternity service providers should use this indicator in further investigation of their policies and practices with respect to inducing labour in low-risk women. If a provider's rates of induction of labour are significantly higher than its peer group at a national level, it should review the appropriateness of inductions in this group as well as examine the results of other indicators that can be affected by induction, such as caesarean section and postpartum haemorrhage.

Notes on 2014 data

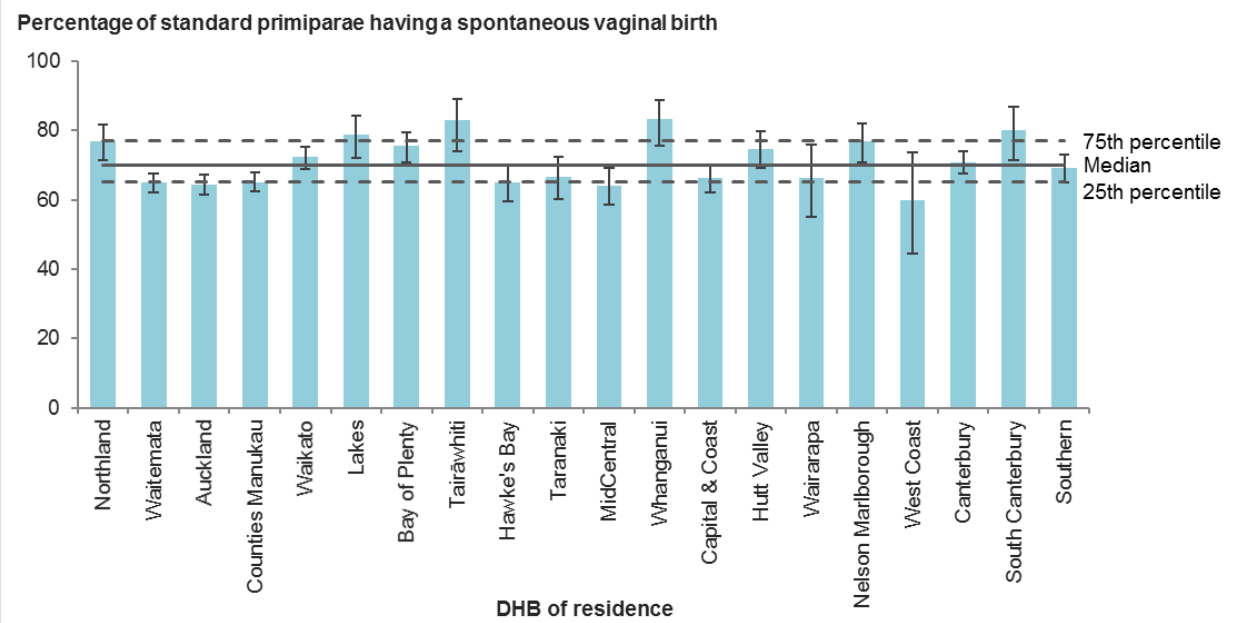
Rates of spontaneous vaginal birth among standard primiparae varied notably between DHBs and between secondary and tertiary facilities in 2014; DHB rates ranged from 60.0% to 83.3% and facility rates ranged from 53.6% to 84.5%. This variation merits further urgent investigation, as it represents significant variation in clinical practice among a clinically comparable cohort.

Rates of instrumental vaginal birth ranged from 4.4% to 29.9% between facilities. Caesarean section rates also varied by facility, from 8.5% to 25.7%, and by DHB, from 8.9% to 22.5%. These variations indicate a need for urgent detailed review. District health boards not already reviewing caesarean sections among low-risk women should do so.

Standard primiparae are unlikely to have indications for induction of labour, so rates of induction for this group should be low. District health boards and facilities with rates significantly above the national median should investigate reasons for high induction rates.

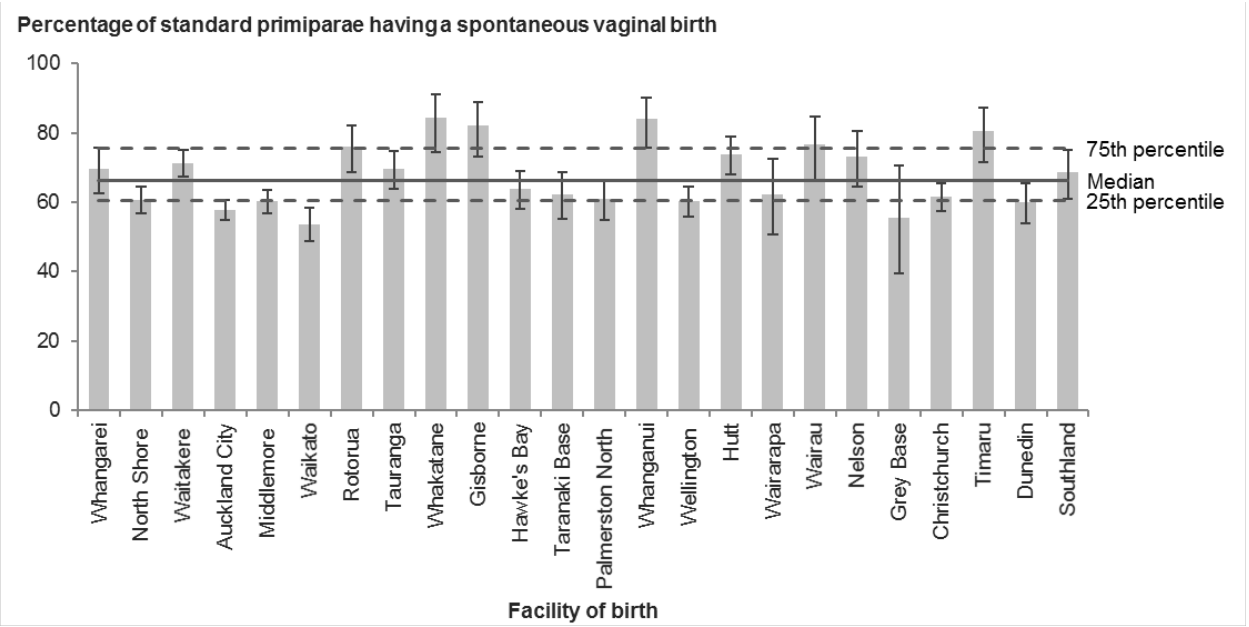
Indicator 2: Spontaneous vaginal birth among standard primiparae, 2014

Figure 5: Percentage of spontaneous vaginal births among standard primiparae, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 6: Percentage of spontaneous vaginal births among standard primiparae, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 5: Number and percentage of spontaneous vaginal births among standard primiparae, by DHB of residence, 2014

DHB of residence	Spontaneous vaginal births	Standard primiparae	Rate (%)
Northland	198	257	77.0
Waitemata	827	1,273	65.0
Auckland	697	1,081	64.5
Counties Manukau	744	1,142	65.1
Waikato	537	742	72.4
Lakes	138	175	78.9
Bay of Plenty	284	376	75.5
Tairāwhiti	78	94	83.0
Hawke's Bay	200	307	65.1
Taranaki	156	234	66.7
MidCentral	191	298	64.1
Whanganui	100	120	83.3
Capital & Coast	381	575	66.3
Hutt Valley	199	266	74.8
Wairarapa	51	77	66.2
Nelson Marlborough	167	217	77.0
West Coast	24	40	60.0
Canterbury	560	789	71.0
South Canterbury	81	101	80.2
Southern	363	524	69.3
Unknown	31	35	-
New Zealand	**6,007**	**8,723**	**68.9**

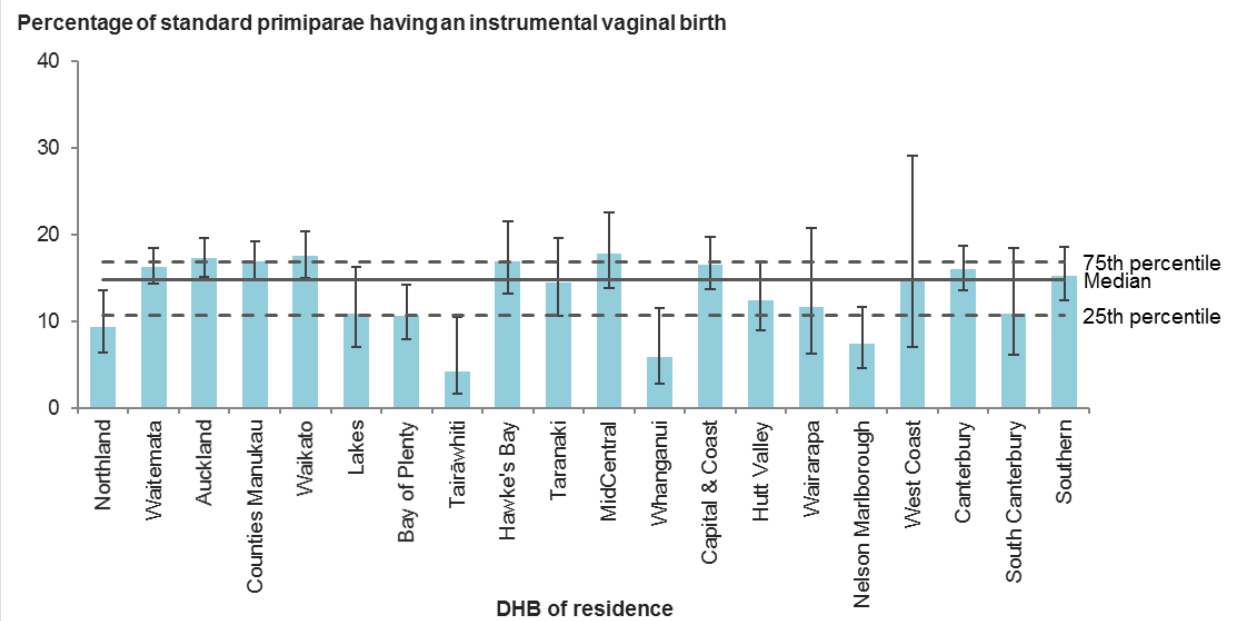
Table 6: Number and percentage of spontaneous vaginal births among standard primiparae, by place of birth, 2014

Place of birth	Spontaneous vaginal births	Standard primiparae	Rate (%)
Whangarei	132	190	69.5
North Shore	402	662	60.7
Waitakere	373	523	71.3
Auckland City	678	1,173	57.8
Middlemore	500	830	60.2
Waikato	226	422	53.6
Rotorua	115	151	76.2
Tauranga	192	276	69.6
Whakatane	60	71	84.5
Gisborne	74	90	82.2
Hawke's Bay	189	296	63.9
Taranaki Base	125	201	62.2
Palmerston North	168	276	60.9
Whanganui	85	101	84.2
Wellington	297	493	60.2
Hutt	189	256	73.8
Wairarapa	46	74	62.2
Wairau	59	77	76.6
Nelson	85	116	73.3
Grey Base	20	36	55.6
Christchurch	366	595	61.5
Timaru	79	98	80.6
Dunedin	164	274	59.9
Southland	111	162	68.5
All secondary and tertiary facilities	**4,735**	**7,443**	**63.6**
All primary facilities	**1,039**	**1,047**	**99.2**
All home births	**233**	**233**	**100.0**
New Zealand[1]	**6,007**	**8,723**	**68.9**

1 Includes women where birth location was unspecified.

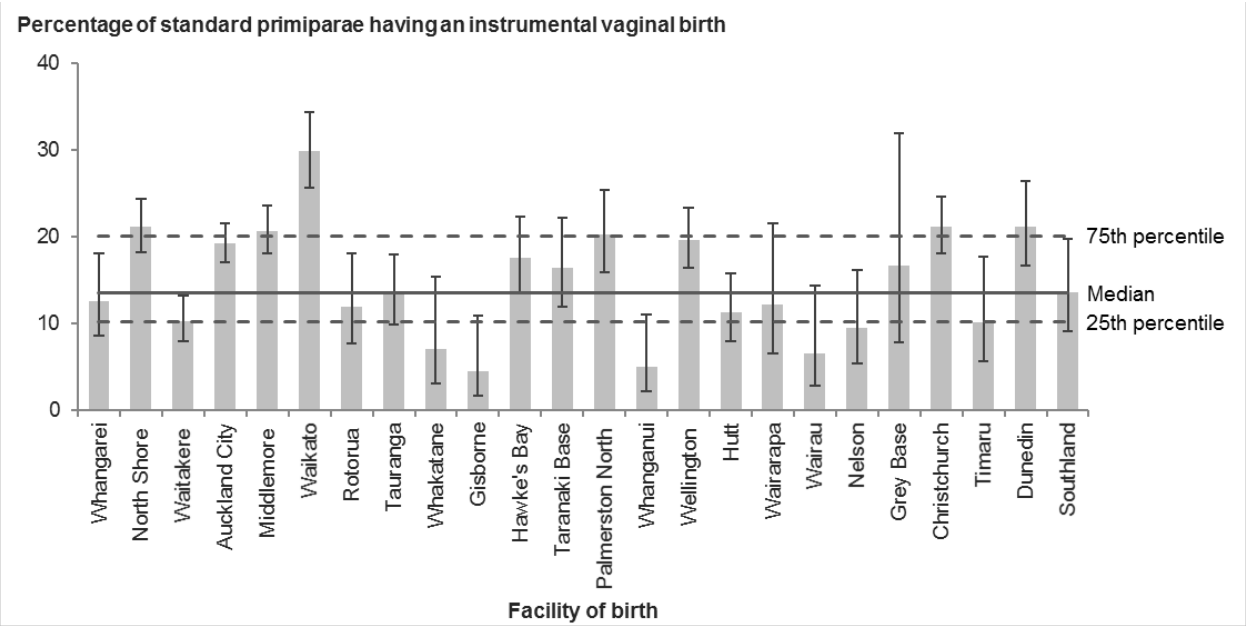
Indicator 3: Instrumental vaginal birth among standard primiparae, 2014

Figure 7: Percentage of instrumental vaginal births among standard primiparae, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 8: Percentage of instrumental vaginal births among standard primiparae, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 7: Number and percentage of instrumental vaginal births among standard primiparae, by DHB of residence, 2014

DHB of residence	Instrumental vaginal births	Standard primiparae	Rate (%)
Northland	24	257	9.3
Waitemata	207	1,273	16.3
Auckland	187	1,081	17.3
Counties Manukau	193	1,142	16.9
Waikato	130	742	17.5
Lakes	19	175	10.9
Bay of Plenty	40	376	10.6
Tairāwhiti	4	94	4.3
Hawke's Bay	52	307	16.9
Taranaki	34	234	14.5
MidCentral	53	298	17.8
Whanganui	7	120	5.8
Capital & Coast	95	575	16.5
Hutt Valley	33	266	12.4
Wairarapa	9	77	11.7
Nelson Marlborough	16	217	7.4
West Coast	6	40	15.0
Canterbury	126	789	16.0
South Canterbury	11	101	10.9
Southern	80	524	15.3
Unknown	1	35	-
New Zealand	**1,327**	**8,723**	**15.2**

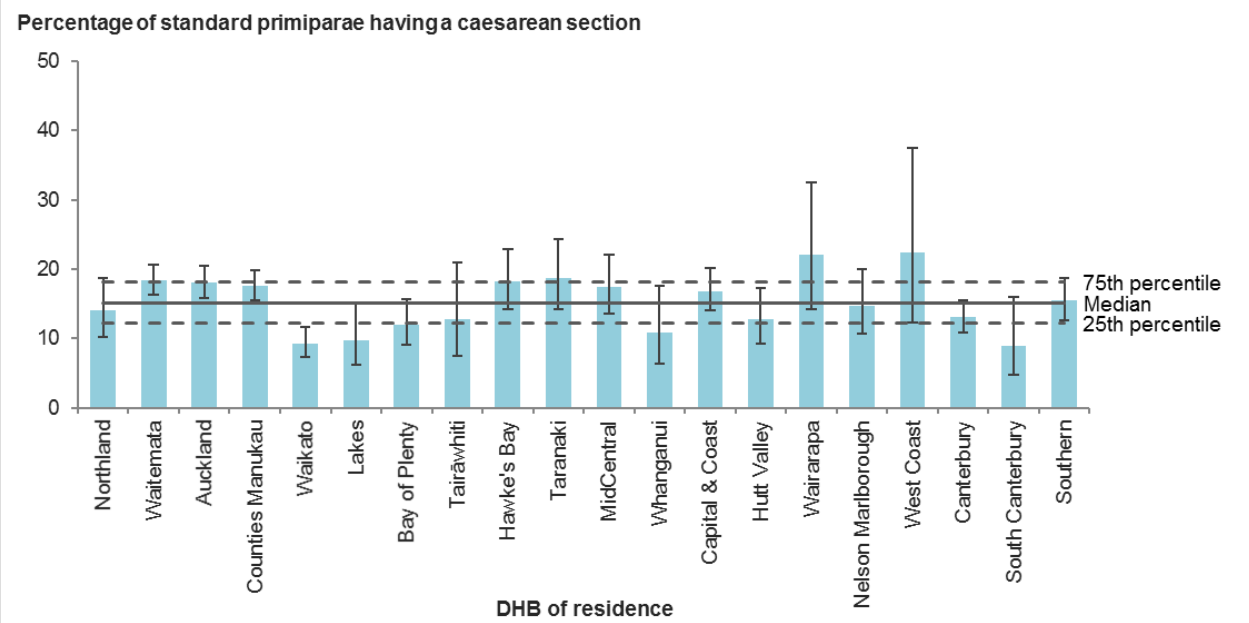
Table 8: Number and percentage of instrumental vaginal births among standard primiparae, by place of birth, 2014

Place of birth	Instrumental vaginal births	Standard primiparae	Rate (%)
Whangarei	24	190	12.6
North Shore	140	662	21.1
Waitakere	54	523	10.3
Auckland City	226	1,173	19.3
Middlemore	172	830	20.7
Waikato	126	422	29.9
Rotorua	18	151	11.9
Tauranga	37	276	13.4
Whakatane	5	71	7.0
Gisborne	4	90	4.4
Hawke's Bay	52	296	17.6
Taranaki Base	33	201	16.4
Palmerston North	56	276	20.3
Whanganui	5	101	5.0
Wellington	97	493	19.7
Hutt	29	256	11.3
Wairarapa	9	74	12.2
Wairau	5	77	6.5
Nelson	11	116	9.5
Grey Base	6	36	16.7
Christchurch	126	595	21.2
Timaru	10	98	10.2
Dunedin	58	274	21.2
Southland	22	162	13.6
All secondary and tertiary facilities	**1,325**	**7,443**	**17.8**
All primary facilities	**2**	**1,047**	**0.2**
All home births	**0**	**233**	**-**
New Zealand[1]	**1,327**	**8,723**	**15.2**

1 Includes women where birth location was unspecified.

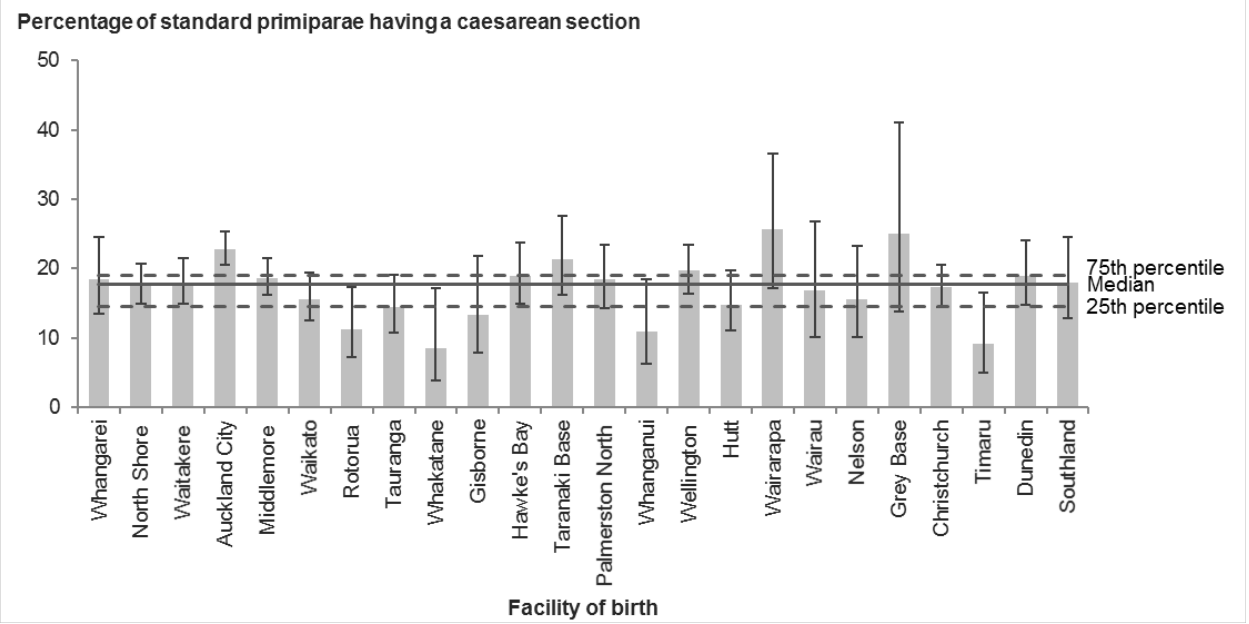
Indicator 4: Caesarean section among standard primiparae, 2014

Figure 9: Percentage of caesarean section deliveries among standard primiparae, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 10: Percentage of caesarean section deliveries among standard primiparae, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 9: Number and percentage of deliveries by caesarean section among standard primiparae, by DHB of residence, 2014

DHB of residence	Caesarean sections	Standard primiparae	Rate (%)
Northland	36	257	14.0
Waitemata	234	1,273	18.4
Auckland	195	1,081	18.0
Counties Manukau	201	1,142	17.6
Waikato	69	742	9.3
Lakes	17	175	9.7
Bay of Plenty	45	376	12.0
Tairāwhiti	12	94	12.8
Hawke's Bay	56	307	18.2
Taranaki	44	234	18.8
MidCentral	52	298	17.4
Whanganui	13	120	10.8
Capital & Coast	97	575	16.9
Hutt Valley	34	266	12.8
Wairarapa	17	77	22.1
Nelson Marlborough	32	217	14.7
West Coast	9	40	22.5
Canterbury	103	789	13.1
South Canterbury	9	101	8.9
Southern	81	524	15.5
Unknown	3	35	-
New Zealand	**1,359**	**8,723**	**15.6**

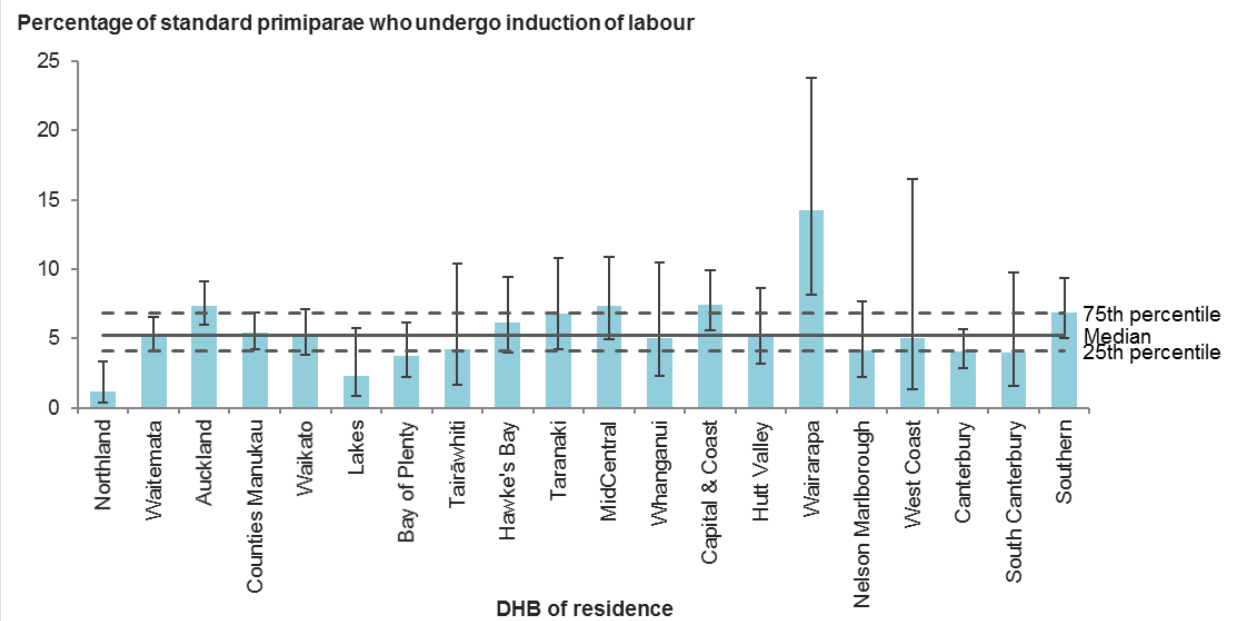
Table 10: Number and percentage of deliveries by caesarean section among standard primiparae, by place of birth, 2014

Place of birth	Caesarean sections	Standard primiparae	Rate (%)
Whangarei	35	190	18.4
North Shore	117	662	17.7
Waitakere	94	523	18.0
Auckland City	268	1,173	22.8
Middlemore	155	830	18.7
Waikato	66	422	15.6
Rotorua	17	151	11.3
Tauranga	40	276	14.5
Whakatane	6	71	8.5
Gisborne	12	90	13.3
Hawke's Bay	56	296	18.9
Taranaki Base	43	201	21.4
Palmerston North	51	276	18.5
Whanganui	11	101	10.9
Wellington	97	493	19.7
Hutt	38	256	14.8
Wairarapa	19	74	25.7
Wairau	13	77	16.9
Nelson	18	116	15.5
Grey Base	9	36	25.0
Christchurch	103	595	17.3
Timaru	9	98	9.2
Dunedin	52	274	19.0
Southland	29	162	17.9
All secondary and tertiary facilities	**1,358**	**7,443**	**18.2**
All primary facilities	**1**	**1,047**	**0.1**
All home births	**0**	**233**	**-**
New Zealand[1]	**1,359**	**8,723**	**15.6**

1 Includes women where birth location was unspecified.

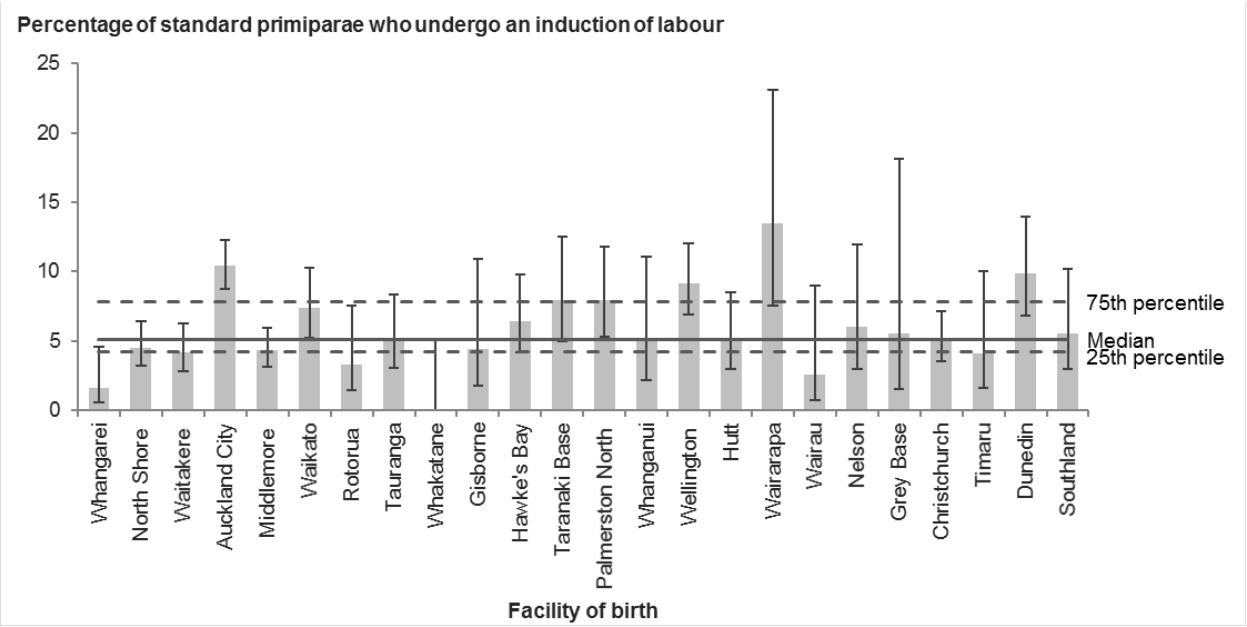
Indicator 5: Induction of labour among standard primiparae, 2014

Figure 11: Percentage of inductions of labour among standard primiparae, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 12: Percentage of inductions of labour among standard primiparae, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 11: Number and percentage of inductions of labour among standard primiparae, by DHB of residence, 2014

DHB of residence	Inductions of labour	Standard primiparae	Rate (%)
Northland	3	257	1.2
Waitemata	66	1,273	5.2
Auckland	80	1,081	7.4
Counties Manukau	62	1,142	5.4
Waikato	39	742	5.3
Lakes	4	175	2.3
Bay of Plenty	14	376	3.7
Tairāwhiti	4	94	4.3
Hawke's Bay	19	307	6.2
Taranaki	16	234	6.8
MidCentral	22	298	7.4
Whanganui	6	120	5.0
Capital & Coast	43	575	7.5
Hutt Valley	14	266	5.3
Wairarapa	11	77	14.3
Nelson Marlborough	9	217	4.1
West Coast	2	40	5.0
Canterbury	32	789	4.1
South Canterbury	4	101	4.0
Southern	36	524	6.9
Unknown	0	35	-
New Zealand	**486**	**8,723**	**5.6**

Table 12: Number and percentage of inductions of labour among standard primiparae, by facility of birth (secondary and tertiary facilities), 2014

Place of birth	Inductions of labour	Standard primiparae	Rate (%)
Whangarei	3	190	1.6
North Shore	30	662	4.5
Waitakere	22	523	4.2
Auckland City	122	1,173	10.4
Middlemore	36	830	4.3
Waikato	31	422	7.3
Rotorua	5	151	3.3
Tauranga	14	276	5.1
Whakatane	0	71	-
Gisborne	4	90	4.4
Hawke's Bay	19	296	6.4
Taranaki Base	16	201	8.0
Palmerston North	22	276	8.0
Whanganui	5	101	5.0
Wellington	45	493	9.1
Hutt	13	256	5.1
Wairarapa	10	74	13.5
Wairau	2	77	2.6
Nelson	7	116	6.0
Grey Base	2	36	5.6
Christchurch	30	595	5.0
Timaru	4	98	4.1
Dunedin	27	274	9.9
Southland	9	162	5.6
All secondary and tertiary facilities	**478**	**7,443**	**6.4**
All primary facilities	**8**	**1,047**	**0.8**
All home births	**0**	**233**	**-**
New Zealand[1]	**486**	**8,723**	**5.6**

1 Includes women where birth location was unspecified.

Indicators 6 to 9: Damage to the lower genital tract

Rationale and purpose

Indicators 6 to 9 cover the degree of damage to the lower genital tract from vaginal birth among standard primiparae. Perineal trauma remains one of the most common complications of childbirth, and is thought to affect between 60% and 85% of women who give birth vaginally (WHA 2007). Reasons for perineal trauma are varied, and may reflect either maternal or neonatal issues. Perineal damage can cause women pain and longer-term morbidity. The long-term aim of these indicators is to reduce such trauma and its associated maternal morbidity. This may improve maternal satisfaction and mother–infant bonding by reducing maternal exposure to pain and discomfort. The following sections describe the rationale and purpose of the specific indicators.

Intact lower genital tract (indicator 6)

The four categories of perineal tear classification enable a standardised description of perineal damage. Assessing and identifying degrees of perineal damage remains a complex process. A classification of first- or second-degree does not necessarily reflect the level of pain or long-term morbidity a woman experiences. This indicator provides a concise measure of all perineal trauma, and is intended to encourage further investigation to determine how maternity service providers can improve rates of intact lower genital tract.

Episiotomy (indicator 7)

This indicator aims to encourage further investigation among maternity service providers to ensure that they assess risks to the mother and infant appropriately before undertaking an episiotomy. Meta-analysis of randomised controlled trials confirms that judicious use of episiotomy is better practice than routine use of episiotomy (AIHW 2013). If a provider's rates of episiotomy, particularly among low-risk women, are significantly higher than its peer group at a national level, it should examine these results. Providers should also consider their rates alongside other indicators that can be affected by episiotomies, such as bleeding, infection and maternal morbidity rates, to ascertain whether there is any correlation.

Third- and fourth-degree tears (with and without episiotomy) (indicators 8 and 9)

The aim of these indicators is to encourage maternity service providers to consider the rate of tears in conjunction with episiotomy rates, and to undertake further investigation of labour management if rates are significantly different from their peer group at a national level. Labour management may include birth position, the use of induction, instrumental delivery and management of second-stage labour.

Notes on 2014 data

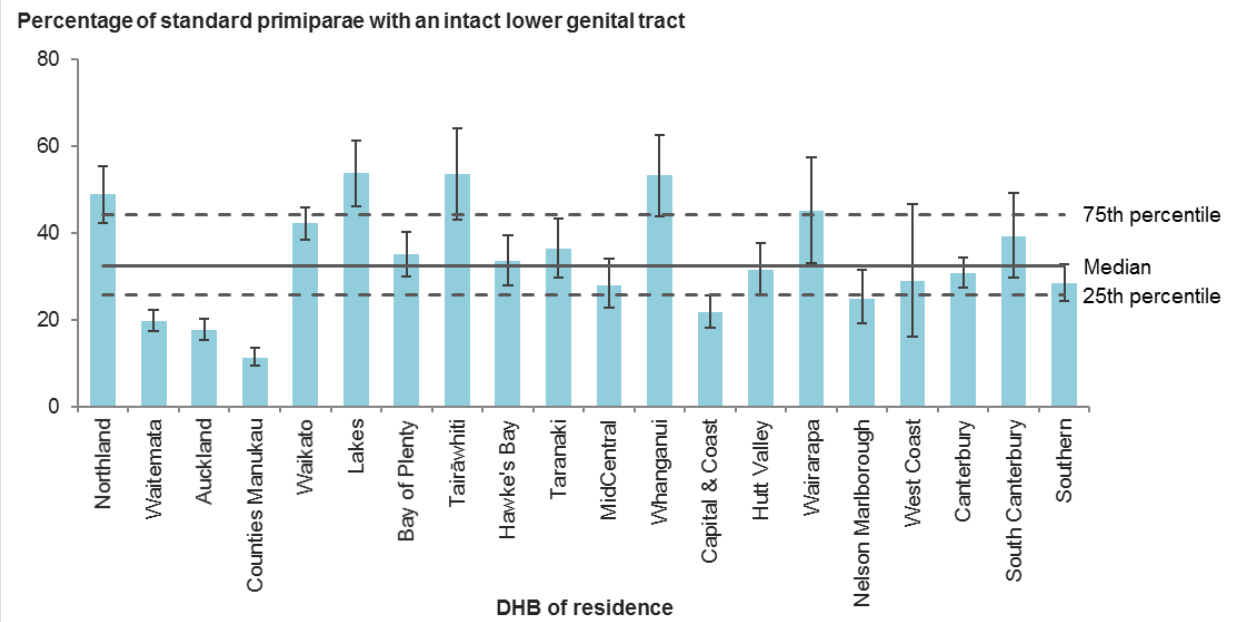
Rates of intact lower genital tract after vaginal birth among standard primiparae ranged from 11.3% to 53.8% across DHBs, and from 7.4% to 56.0% across secondary and tertiary facilities. This regional variation suggests that investigation of both data integrity and local clinical practice is required. Rates of intact lower genital tract appear to have decreased over time since 2009. Further investigation of the causes of this is required, including review of coding practices, particularly given there has been no statistically significant increase in the rates of instrumental birth among the same population over this time.

Rates of episiotomy without third- or fourth-degree tear also varied, from 3.7% to 33.6% across DHBs, and from 1.1% to 41.7% across secondary and tertiary facilities. Facilities and DHB's with rates significantly above the median should investigate the reasons for these differences, which could include review of the clinical indications given in specific cases, education and policy review as well as identifying the discipline and number of practitioners performing episiotomies.

All DHBs should undertake more detailed local analysis of the relationship between rates of intact perineum, episiotomies and third- and fourth-degree tears.

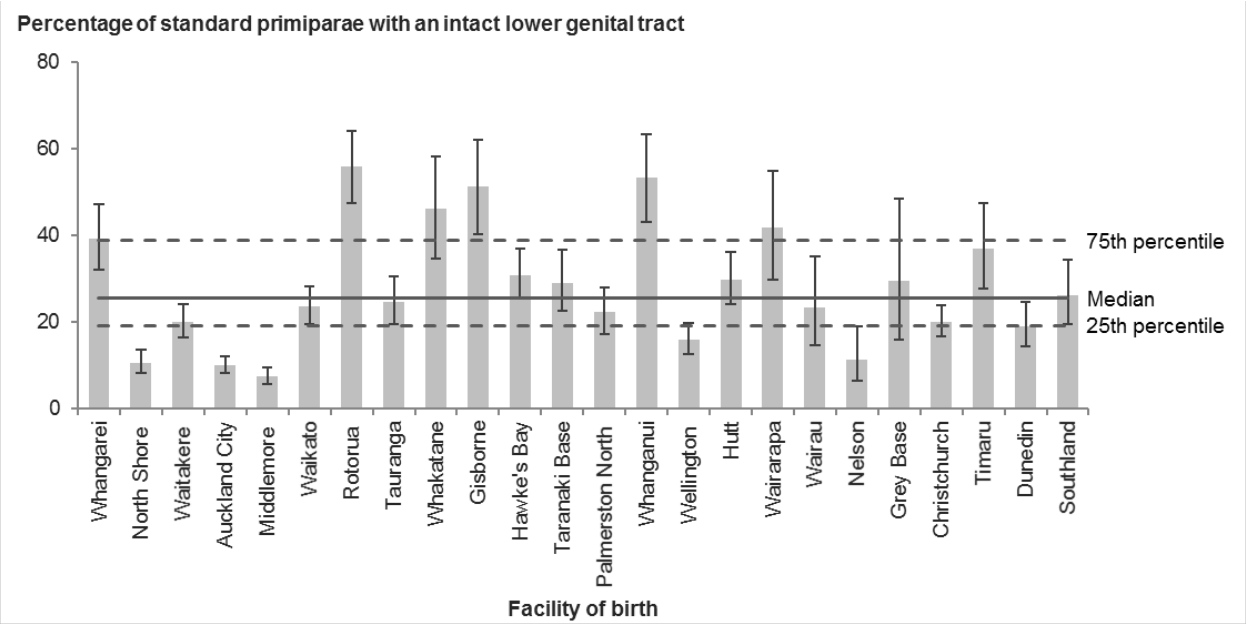
Indicator 6: Intact lower genital tract among standard primiparae giving birth vaginally, 2014

Figure 13: Percentage of standard primiparae giving birth vaginally with intact lower genital tract, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 14: Percentage of standard primiparae giving birth vaginally with intact lower genital tract, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 13: Number and percentage of standard primiparae giving birth vaginally with intact lower genital tract, by DHB of residence, 2014

DHB of residence	Intact lower genital tract	Standard primiparae giving birth vaginally	Rate (%)
Northland	108	221	48.9
Waitemata	204	1,039	19.6
Auckland	156	886	17.6
Counties Manukau	106	941	11.3
Waikato	284	673	42.2
Lakes	85	158	53.8
Bay of Plenty	116	331	35.0
Tairāwhiti	44	82	53.7
Hawke's Bay	84	251	33.5
Taranaki	69	190	36.3
MidCentral	69	246	28.0
Whanganui	57	107	53.3
Capital & Coast	104	478	21.8
Hutt Valley	73	232	31.5
Wairarapa	27	60	45.0
Nelson Marlborough	46	185	24.9
West Coast	9	31	29.0
Canterbury	211	686	30.8
South Canterbury	36	92	39.1
Southern	126	443	28.4
Unknown	24	32	-
New Zealand	**2,038**	**7,364**	**27.7**

Table 14: Number and percentage of standard primiparae giving birth vaginally with intact lower genital tract, by facility of birth (secondary and tertiary facilities), 2014

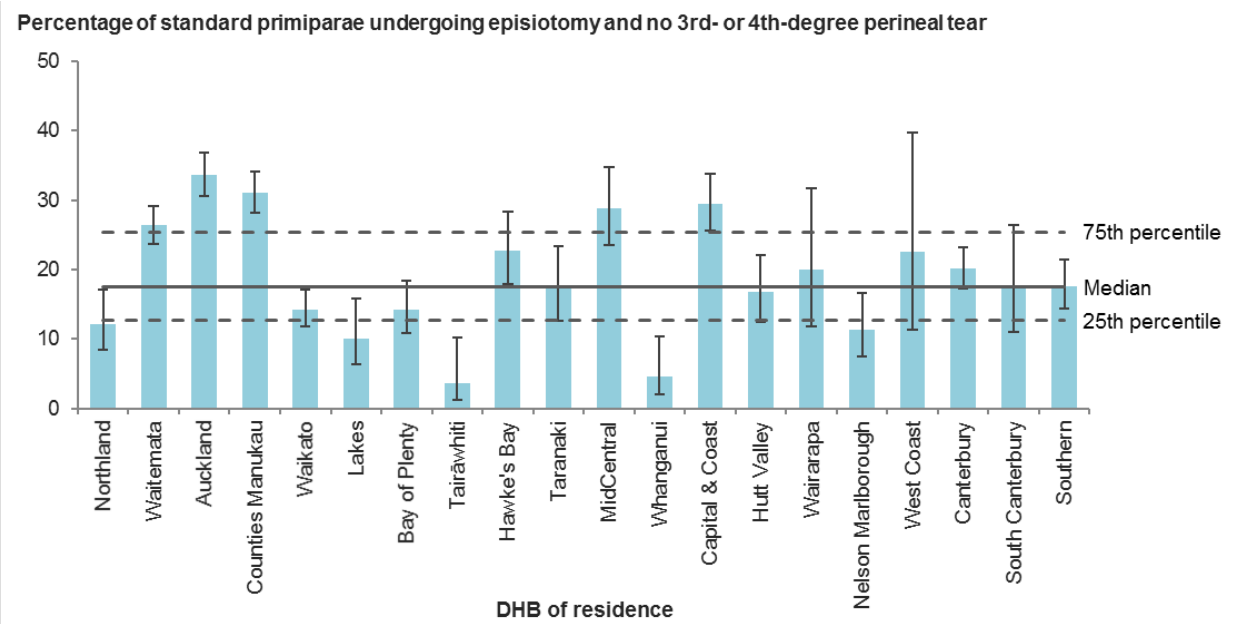
Place of birth	Intact lower genital tract	Standard primiparae giving birth vaginally	Rate (%)
Whangarei	61	155	39.4
North Shore	58	545	10.6
Waitakere	86	429	20.0
Auckland City	91	905	10.1
Middlemore	50	675	7.4
Waikato	84	356	23.6
Rotorua	75	134	56.0
Tauranga	58	236	24.6
Whakatane	30	65	46.2
Gisborne	40	78	51.3
Hawke's Bay	74	240	30.8
Taranaki Base	46	158	29.1
Palmerston North	50	225	22.2
Whanganui	48	90	53.3
Wellington	63	396	15.9
Hutt	65	218	29.8
Wairarapa	23	55	41.8
Wairau	15	64	23.4
Nelson	11	98	11.2
Grey Base	8	27	29.6
Christchurch	99	492	20.1
Timaru	33	89	37.1
Dunedin	42	222	18.9
Southland	35	133	26.3
All secondary and tertiary facilities	**1,245**	**6,085**	**20.5**
All primary facilities	**583**	**1,046**	**55.7**
All home births[1]	**210**	**233**	**90.1**
New Zealand[2]	**2,038**	**7,364**	**27.7**

1 The numerator is derived by subtracting the number of women who were admitted to a maternity facility with a diagnosis of perineal tear within three days of giving birth from the total number of women who gave birth at home. Women who received care for perineal trauma from non-maternity facilities may be included in the numerator. Therefore, the presented rate may be higher than the true rate.

2 Includes women where birth location was unspecified.

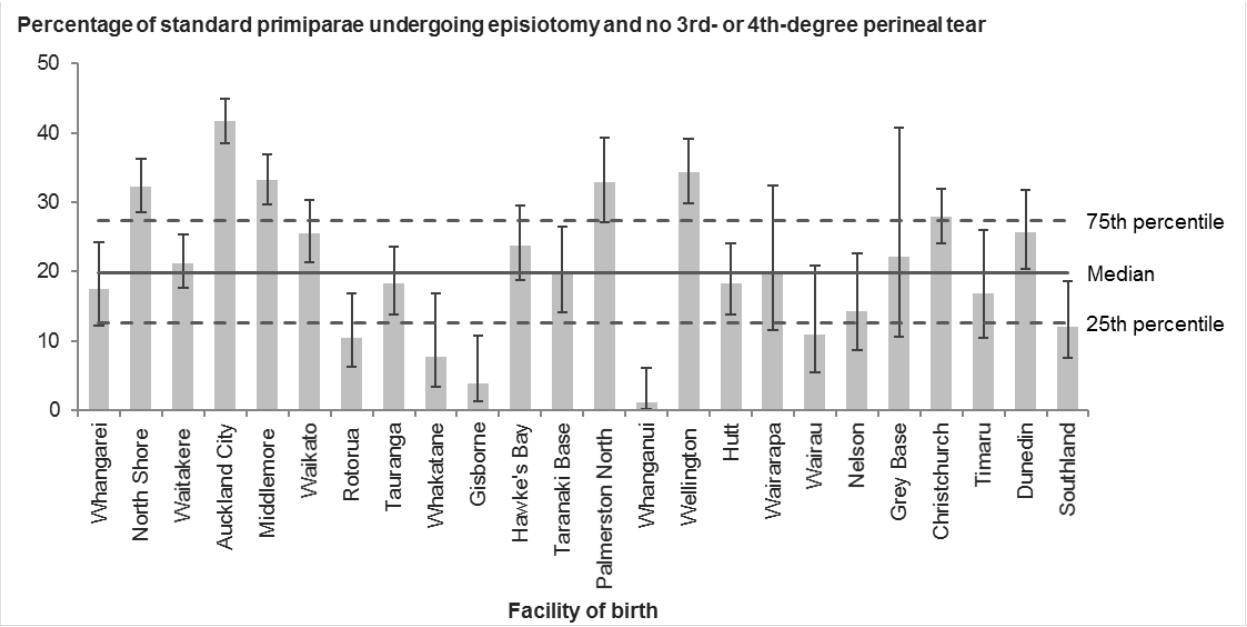
Indicator 7: Episiotomy and no third- or fourth-degree tear among standard primiparae giving birth vaginally, 2014

Figure 15: Percentage of standard primiparae giving birth vaginally and undergoing episiotomy without mention of third- or fourth-degree tear, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 16: Percentage of standard primiparae giving birth vaginally and undergoing episiotomy without mention of third- or fourth-degree tear, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 15: Number and percentage of standard primiparae giving birth vaginally and undergoing episiotomy without mention of third- or fourth-degree tear, by DHB of residence, 2014

DHB of residence	Episiotomy without 3rd- or 4th-degree tear	Standard primiparae giving birth vaginally	Rate (%)
Northland	27	221	12.2
Waitemata	274	1,039	26.4
Auckland	298	886	33.6
Counties Manukau	293	941	31.1
Waikato	96	673	14.3
Lakes	16	158	10.1
Bay of Plenty	47	331	14.2
Tairāwhiti	3	82	3.7
Hawke's Bay	57	251	22.7
Taranaki	33	190	17.4
MidCentral	71	246	28.9
Whanganui	5	107	4.7
Capital & Coast	141	478	29.5
Hutt Valley	39	232	16.8
Wairarapa	12	60	20.0
Nelson Marlborough	21	185	11.4
West Coast	7	31	22.6
Canterbury	138	686	20.1
South Canterbury	16	92	17.4
Southern	78	443	17.6
Unknown	1	32	-
New Zealand	**1,673**	**7,364**	**22.7**

Table 16: Number and percentage of standard primiparae giving birth vaginally and undergoing episiotomy without mention of third- or fourth-degree tear, by facility of birth (secondary and tertiary facilities), 2014

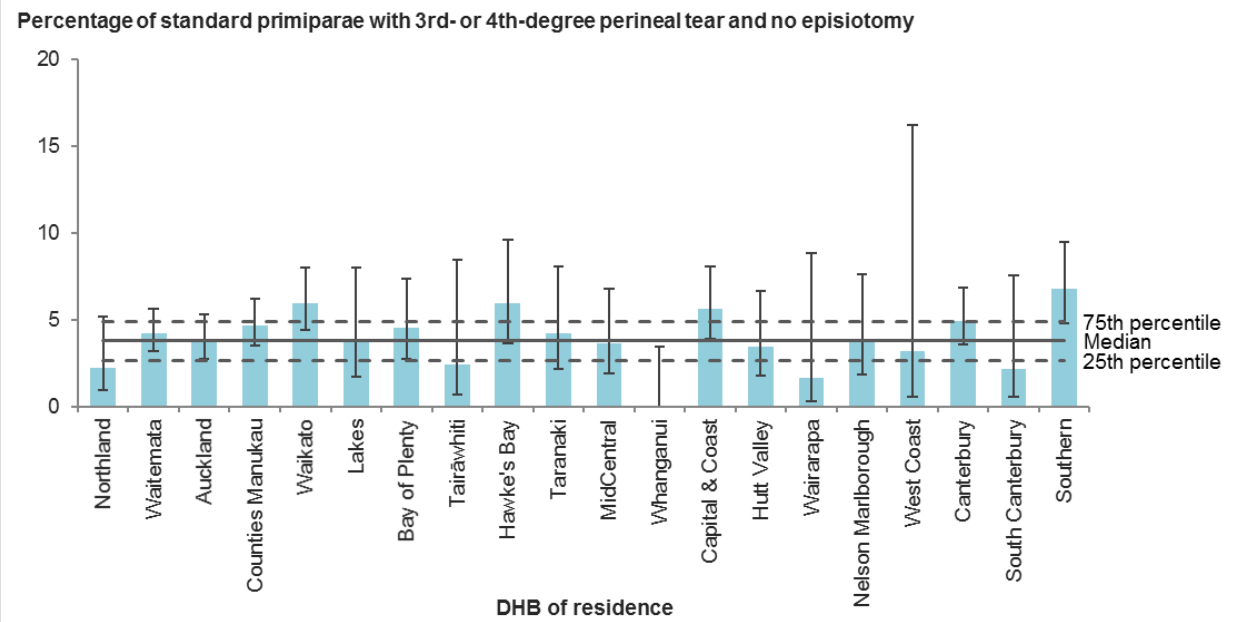
Place of birth	Episiotomy without 3rd- or 4th-degree tear	Standard primiparae giving birth vaginally	Rate (%)
Whangarei	27	155	17.4
North Shore	176	545	32.3
Waitakere	91	429	21.2
Auckland City	377	905	41.7
Middlemore	224	675	33.2
Waikato	91	356	25.6
Rotorua	14	134	10.4
Tauranga	43	236	18.2
Whakatane	5	65	7.7
Gisborne	3	78	3.8
Hawke's Bay	57	240	23.8
Taranaki Base	31	158	19.6
Palmerston North	74	225	32.9
Whanganui	1	90	1.1
Wellington	136	396	34.3
Hutt	40	218	18.3
Wairarapa	11	55	20.0
Wairau	7	64	10.9
Nelson	14	98	14.3
Grey Base	6	27	22.2
Christchurch	137	492	27.8
Timaru	15	89	16.9
Dunedin	57	222	25.7
Southland	16	133	12.0
All secondary and tertiary facilities	**1,653**	**6,085**	**27.2**
All primary facilities	**20**	**1,046**	**1.9**
All home births[1]	**0**	**233**	**-**
New Zealand[2]	**1,673**	**7,364**	**22.7**

1 For the purposes of this indicator, all women giving birth at home are counted as having had a spontaneous vaginal birth without an episiotomy. The rate presented may not reflect the true rate due to this assumption.

2 Includes women where birth location was unspecified.

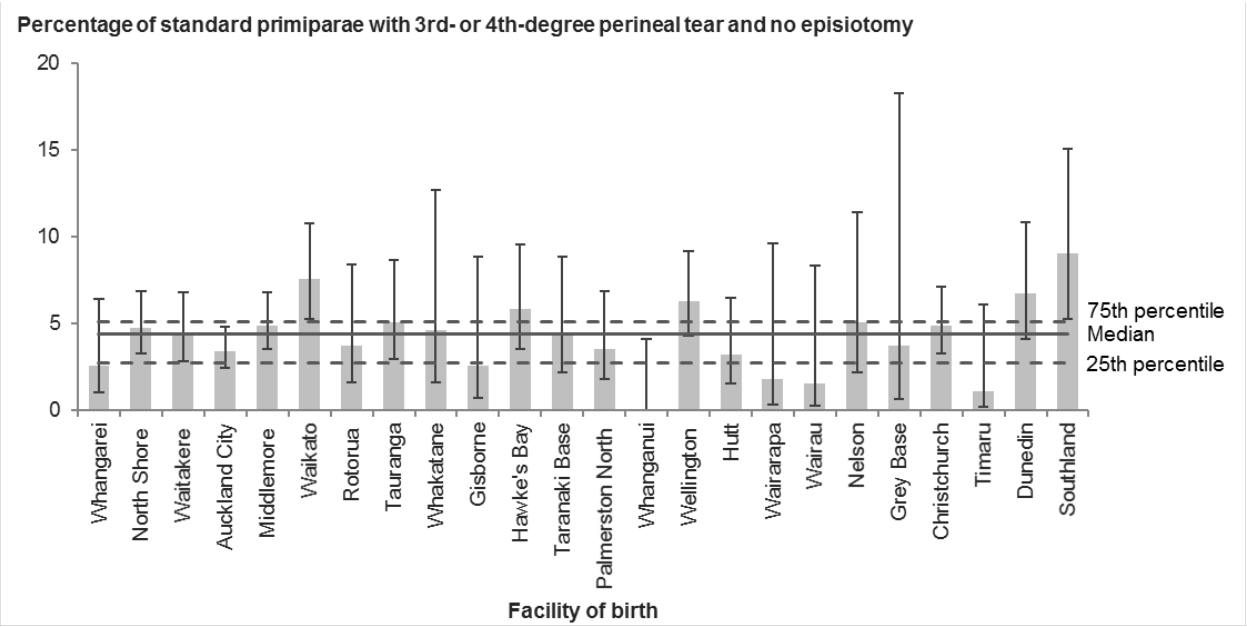
Indicator 8: Third- or fourth-degree tear and no episiotomy among standard primiparae giving birth vaginally, 2014

Figure 17: Percentage of standard primiparae giving birth vaginally sustaining a third- or fourth-degree tear and not undergoing episiotomy, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 18: Percentage of standard primiparae giving birth vaginally sustaining a third- or fourth-degree tear and not undergoing episiotomy, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 17: Number and percentage of standard primiparae giving birth vaginally sustaining a third- or fourth-degree tear and not undergoing episiotomy, by DHB of residence, 2014

DHB of residence	3rd- or 4th-degree tear without episiotomy	Standard primiparae giving birth vaginally	Rate (%)
Northland	5	221	2.3
Waitemata	44	1,039	4.2
Auckland	34	886	3.8
Counties Manukau	44	941	4.7
Waikato	40	673	5.9
Lakes	6	158	3.8
Bay of Plenty	15	331	4.5
Tairāwhiti	2	82	2.4
Hawke's Bay	15	251	6.0
Taranaki	8	190	4.2
MidCentral	9	246	3.7
Whanganui	0	107	-
Capital & Coast	27	478	5.6
Hutt Valley	8	232	3.4
Wairarapa	1	60	1.7
Nelson Marlborough	7	185	3.8
West Coast	1	31	3.2
Canterbury	34	686	5.0
South Canterbury	2	92	2.2
Southern	30	443	6.8
Unknown	0	32	-
New Zealand	**332**	**7,364**	**4.5**

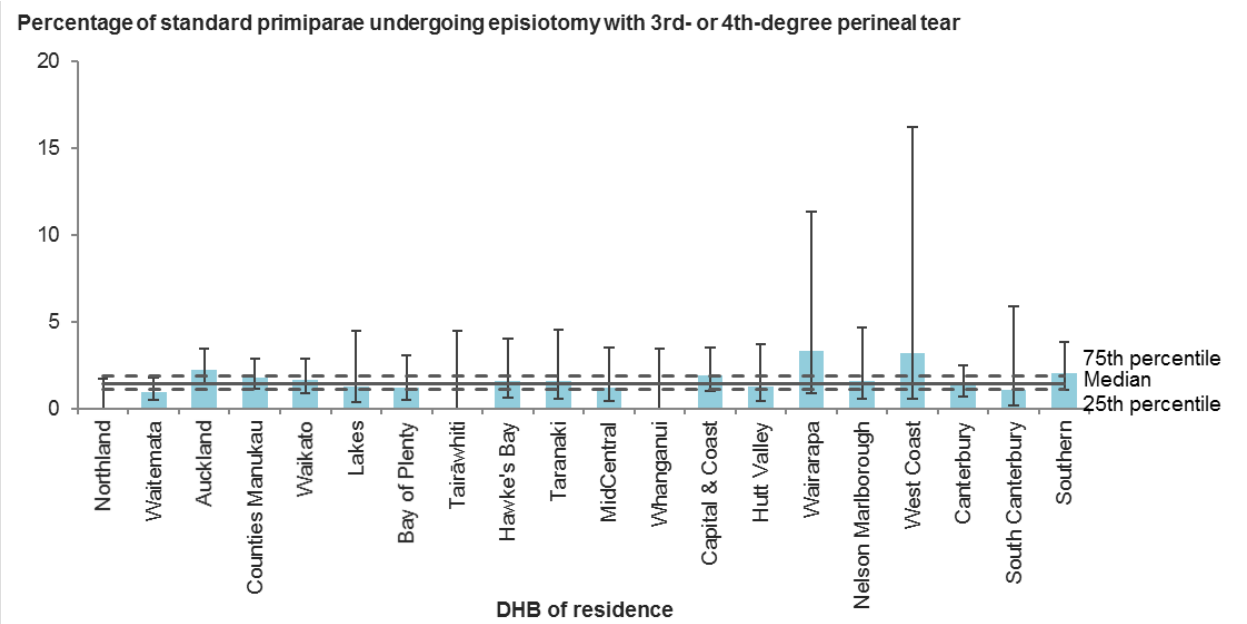
Table 18: Number and percentage of standard primiparae giving birth vaginally sustaining a third- or fourth-degree tear and not undergoing episiotomy, by facility of birth (secondary and tertiary facilities), 2014

Place of birth	3rd- or 4th-degree tear without episiotomy	Standard primiparae giving birth vaginally	Rate (%)
Whangarei	4	155	2.6
North Shore	26	545	4.8
Waitakere	19	429	4.4
Auckland City	31	905	3.4
Middlemore	33	675	4.9
Waikato	27	356	7.6
Rotorua	5	134	3.7
Tauranga	12	236	5.1
Whakatane	3	65	4.6
Gisborne	2	78	2.6
Hawke's Bay	14	240	5.8
Taranaki Base	7	158	4.4
Palmerston North	8	225	3.6
Whanganui	0	90	-
Wellington	25	396	6.3
Hutt	7	218	3.2
Wairarapa	1	55	1.8
Wairau	1	64	1.6
Nelson	5	98	5.1
Grey Base	1	27	3.7
Christchurch	24	492	4.9
Timaru	1	89	1.1
Dunedin	15	222	6.8
Southland	12	133	9.0
All secondary and tertiary facilities	**283**	**6,085**	**4.7**
All primary facilities	**43**	**1,046**	**4.1**
All home births	**6**	**233**	**2.6**
New Zealand[1]	**332**	**7,364**	**4.5**

1 Includes women where birth location was unspecified.

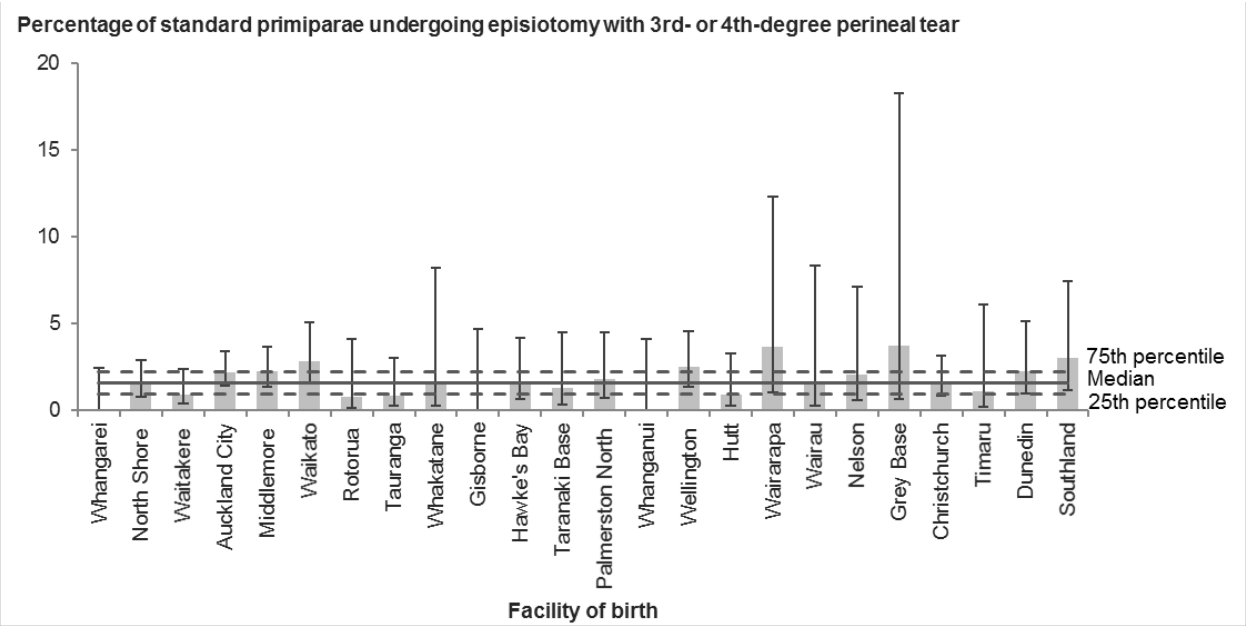
Indicator 9: Episiotomy and third- or fourth-degree tear among standard primiparae giving birth vaginally, 2014

Figure 19: Percentage of standard primiparae giving birth vaginally undergoing episiotomy and sustaining a third- or fourth-degree tear, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 20: Percentage of standard primiparae giving birth vaginally undergoing episiotomy and sustaining a third- or fourth-degree tear, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 19: Number and percentage of standard primiparae giving birth vaginally undergoing episiotomy and sustaining a third- or fourth-degree tear, by DHB of residence, 2014

DHB of residence	Episiotomy with 3rd- or 4th-degree tear	Standard primiparae giving birth vaginally	Rate (%)
Northland	0	221	-
Waitemata	10	1,039	1.0
Auckland	20	886	2.3
Counties Manukau	17	941	1.8
Waikato	11	673	1.6
Lakes	2	158	1.3
Bay of Plenty	4	331	1.2
Tairāwhiti	0	82	-
Hawke's Bay	4	251	1.6
Taranaki	3	190	1.6
MidCentral	3	246	1.2
Whanganui	0	107	-
Capital & Coast	9	478	1.9
Hutt Valley	3	232	1.3
Wairarapa	2	60	3.3
Nelson Marlborough	3	185	1.6
West Coast	1	31	3.2
Canterbury	9	686	1.3
South Canterbury	1	92	1.1
Southern	9	443	2.0
Unknown	0	32	-
New Zealand	**111**	**7,364**	**1.5**

Table 20: Number and percentage of standard primiparae giving birth vaginally undergoing episiotomy and sustaining a third- or fourth-degree tear, by facility of birth (secondary and tertiary facilities), 2014

Place of birth	Episiotomy with 3rd- or 4th-degree tear	Standard primiparae giving birth vaginally	Rate (%)
Whangarei	0	155	-
North Shore	8	545	1.5
Waitakere	4	429	0.9
Auckland City	20	905	2.2
Middlemore	15	675	2.2
Waikato	10	356	2.8
Rotorua	1	134	0.7
Tauranga	2	236	0.8
Whakatane	1	65	1.5
Gisborne	0	78	-
Hawke's Bay	4	240	1.7
Taranaki Base	2	158	1.3
Palmerston North	4	225	1.8
Whanganui	0	90	-
Wellington	10	396	2.5
Hutt	2	218	0.9
Wairarapa	2	55	3.6
Wairau	1	64	1.6
Nelson	2	98	2.0
Grey Base	1	27	3.7
Christchurch	8	492	1.6
Timaru	1	89	1.1
Dunedin	5	222	2.3
Southland	4	133	3.0
All secondary and tertiary facilities	**107**	**6,085**	**1.8**
All primary facilities	**4**	**1,046**	**0.4**
All home births	**0**	**233**	**-**
New Zealand[1]	**111**	**7,364**	**1.5**

1 Includes women where birth location was unspecified.

Indicator 10: General anaesthetic for women giving birth by caesarean section

Rationale and purpose

Although the risks of general anaesthetic for caesarean section have reduced greatly in recent decades, regional anaesthetic is still safer than general anaesthetic because it results in less maternal and neonatal morbidity (Australian Council on Healthcare Standards 2008, p 474).

A proportion of caesarean sections will continue to be done under general anaesthetic because of factors such as patient preference, as well as in some high-risk cases (such as if a woman has pre-eclampsia) when only general anaesthetic can be used. General anaesthetic is more likely to be used when caesarean sections are done urgently; factors affecting this can include the configuration and organisation of obstetric and anaesthetic services (for example, whether a specialist anaesthetist is on site) and the level of antenatal care a woman has received.

The objective of this indicator is to encourage services that have higher-than-average rates of general anaesthetic for caesarean sections to undertake further investigation to determine the causes of these higher rates and evaluate whether they are justified.

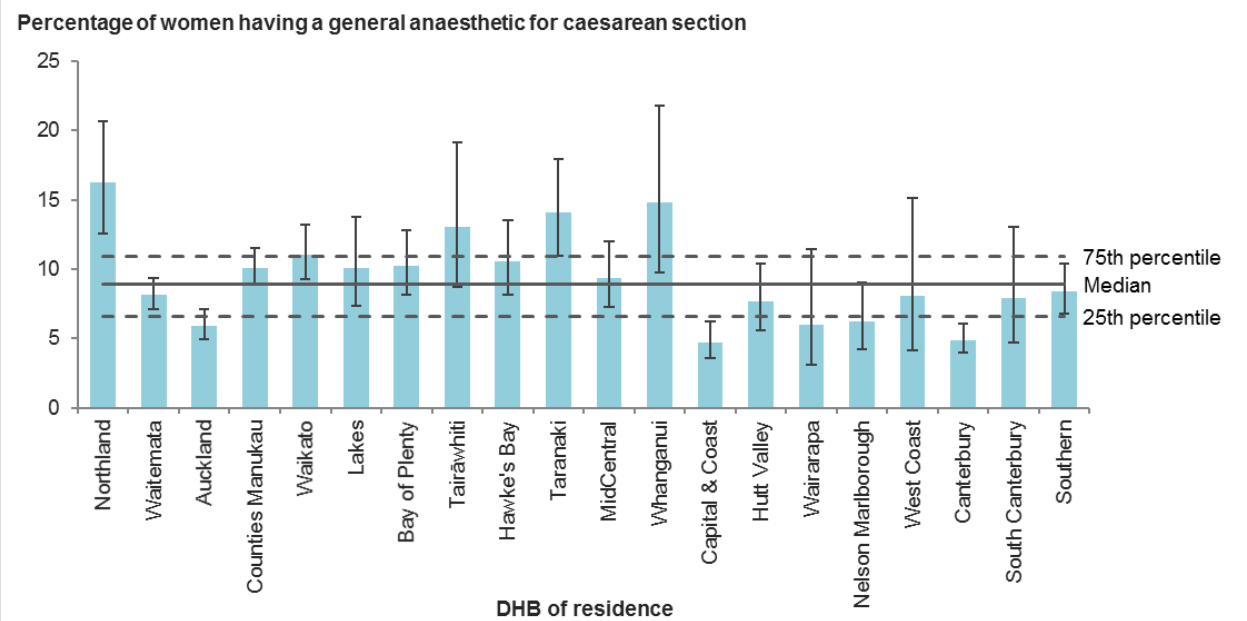
Notes on 2014 data

Rates of general anaesthetic use in caesarean section deliveries ranged from 4.7% to 16.3% across DHBs, and from 4.6%to 16.2% across secondary and tertiary facilities. These rates are based on small numbers, so caution must be used when making comparisons.

All maternity service providers who are outliers should review their rates of general anaesthetic for caesarean sections and consider the impact of the ratio between emergency and elective caesarean section rates. Providers should further investigate the reasons for higher rates of general anaesthetic for emergency caesarean sections to ensure this represents best possible quality of care for the woman and her baby.

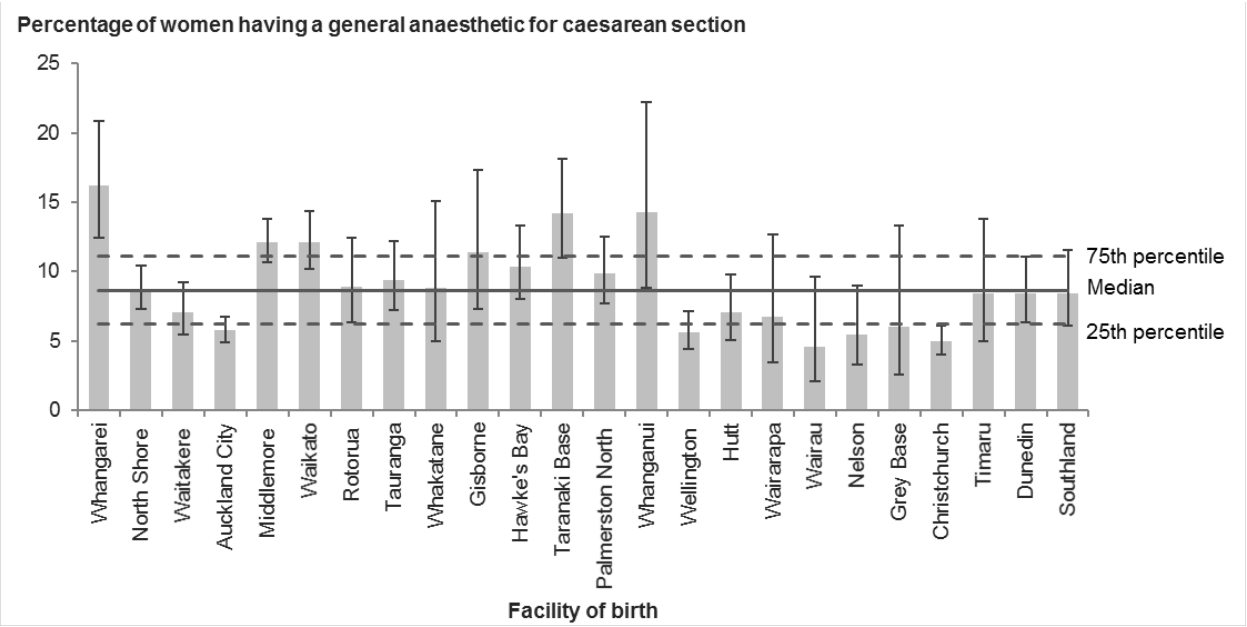
Indicator 10: General anaesthetic for women giving birth by caesarean section, 2014

Figure 21: Percentage of women undergoing a caesarean section under general anaesthetic, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 22: Percentage of women undergoing a caesarean section under general anaesthetic, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 21: Number and percentage of women undergoing a caesarean section under general anaesthetic, by DHB of residence, 2014

DHB of residence	Caesarean sections under general anaesthetic	All caesarean sections	Rate (%)
Northland	52	320	16.3
Waitemata	192	2,347	8.2
Auckland	108	1,819	5.9
Counties Manukau	204	2,014	10.1
Waikato	108	975	11.1
Lakes	35	346	10.1
Bay of Plenty	67	653	10.3
Tairāwhiti	21	161	13.0
Hawke's Bay	54	511	10.6
Taranaki	53	376	14.1
MidCentral	55	587	9.4
Whanganui	20	135	14.8
Capital & Coast	49	1,032	4.7
Hutt Valley	37	481	7.7
Wairarapa	8	133	6.0
Nelson Marlborough	25	400	6.3
West Coast	8	99	8.1
Canterbury	78	1,587	4.9
South Canterbury	13	164	7.9
Southern	78	925	8.4
Unknown	3	29	-
New Zealand	**1,268**	**15,094**	**8.4**

Table 22: Number and percentage of women undergoing a caesarean section under general anaesthetic, by facility of birth (secondary and tertiary facilities), 2014

Place of birth	Caesarean sections under general anaesthetic	All caesarean sections	Rate (%)
Whangarei	48	296	16.2
North Shore	113	1,291	8.8
Waitakere	50	704	7.1
Auckland City	147	2,555	5.8
Middlemore	206	1,696	12.1
Waikato	115	948	12.1
Rotorua	31	347	8.9
Tauranga	50	533	9.4
Whakatane	11	125	8.8
Gisborne	18	158	11.4
Hawke's Bay	52	502	10.4
Taranaki Base	52	366	14.2
Palmerston North	57	579	9.8
Whanganui	15	105	14.3
Wellington	64	1,139	5.6
Hutt	33	467	7.1
Wairarapa	8	119	6.7
Wairau	6	131	4.6
Nelson	14	256	5.5
Grey Base	5	83	6.0
Christchurch	79	1,593	5.0
Timaru	13	155	8.4
Dunedin	45	534	8.4
Southland	34	403	8.4
All secondary and tertiary facilities	**1,266**	**15,085**	**8.4**
All primary facilities	**2**	**5**	**40.0**
All home births	**0**	**0**	**-**
New Zealand[1]	**1,268**	**15,094**	**8.4**

1 Includes women where birth location was unspecified.

Indicators 11 and 12: Blood transfusion during birth admission

Rationale and purpose

According to the Australian Council on Healthcare Standards (2008), 'postpartum haemorrhage (PPH) is a potentially life-threatening complication of birth that occurs in about 3–5% of vaginal births [and globally] remains a leading cause of maternal morbidity and mortality' (p 480). Excessive blood loss is often defined as an amount in excess of 1000 mL, although accuracy of measurement at this level is questionable, especially as the blood loss is often cumulative. A different and (some suggest) more objective measure is whether there is a requirement for blood transfusion due to excessive blood loss during or following birth. This measurement is also not without difficulties; for example, decisions to perform blood transfusions depend on individual levels of patient tolerance, facilities may have differing guidelines regarding transfusion and some patients refuse a transfusion for religious or other beliefs. However, as a broad measure of excessive blood loss and potential long-term morbidity due to that blood loss, this indicator is a useful measure of severe, life-threatening PPH.

This indicator aims to provide maternity service providers with an indicator of significant blood loss that will stimulate further investigation of clinical management and intervention. All maternity service providers should be familiar with the national consensus guideline for treatment of PPH (Ministry of Health 2013).

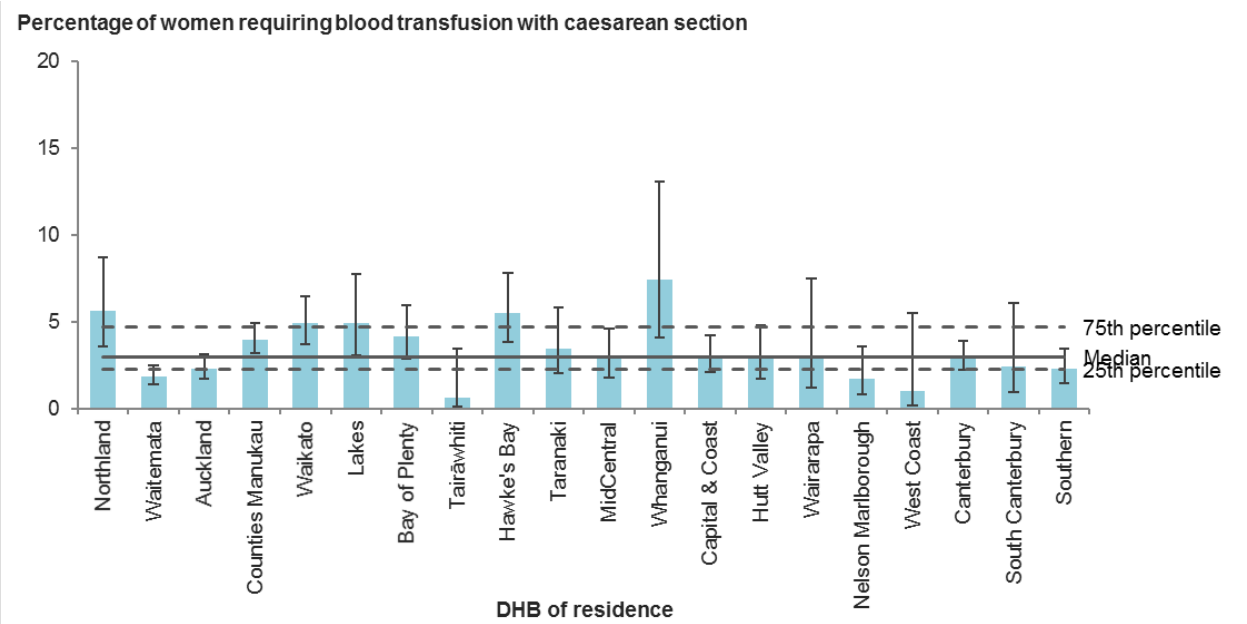
Notes on 2014 data

Overall, rates of blood transfusion for 2014 were low, although the rate and range was greater in the case of caesarean section births than vaginal births. These rates data were based on small numbers, so caution must be used when making comparisons.

District health boards should investigate the reasons behind the greater variation in rates of blood transfusion with caesarean sections. Because this indicator is a marker for PPH, the focus should be on understanding and addressing underlying causes, rather than addressing the indicator in isolation. All DHBs should ensure local practice aligns with the national consensus guideline for treatment of PPH (Ministry of Health 2013).

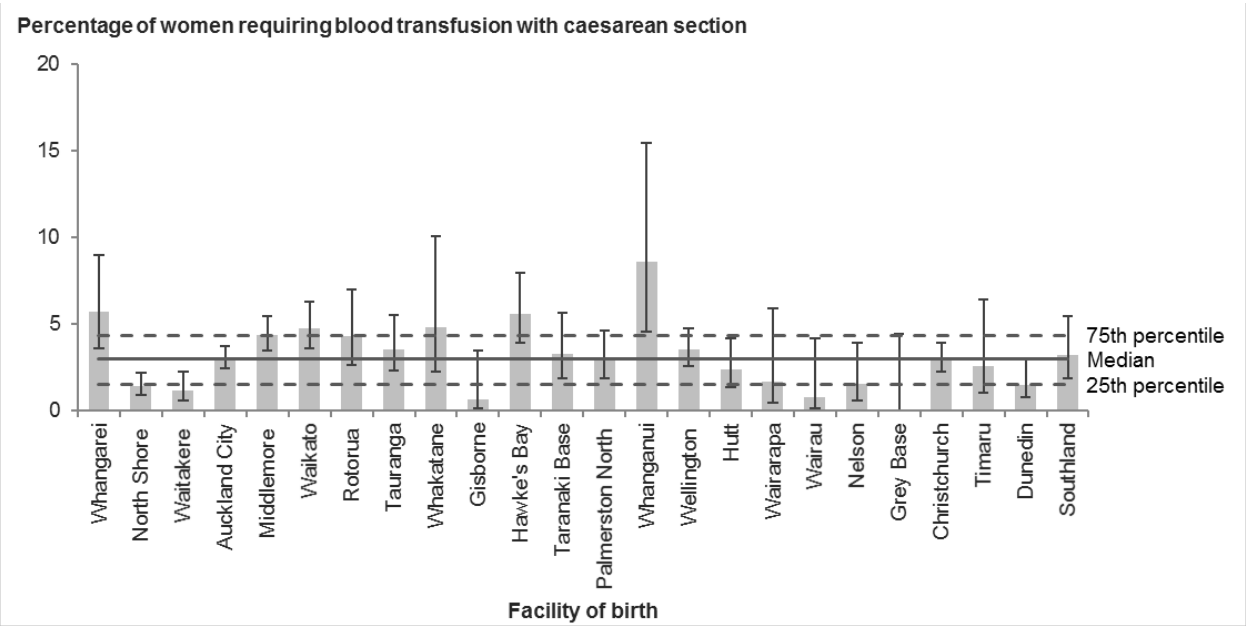
Indicator 11: Blood transfusion during birth admission for caesarean section delivery, 2014

Figure 23: Percentage of women giving birth by caesarean section and undergoing blood transfusion during birth admission, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 24: Percentage of women giving birth by caesarean section and undergoing blood transfusion during birth admission, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 23: Number and percentage of women giving birth by caesarean section and undergoing blood transfusion during birth admission, by DHB of residence, 2014

DHB of residence	Caesarean sections with blood transfusion	All caesarean sections	Rate (%)
Northland	18	320	5.6
Waitemata	44	2,347	1.9
Auckland	42	1,819	2.3
Counties Manukau	80	2,014	4.0
Waikato	48	975	4.9
Lakes	17	346	4.9
Bay of Plenty	27	653	4.1
Tairāwhiti	1	161	0.6
Hawke's Bay	28	511	5.5
Taranaki	13	376	3.5
MidCentral	17	587	2.9
Whanganui	10	135	7.4
Capital & Coast	31	1,032	3.0
Hutt Valley	14	481	2.9
Wairarapa	4	133	3.0
Nelson Marlborough	7	400	1.8
West Coast	1	99	1.0
Canterbury	47	1,587	3.0
South Canterbury	4	164	2.4
Southern	21	925	2.3
Unknown	2	29	-
New Zealand	**476**	**15,094**	**3.2**

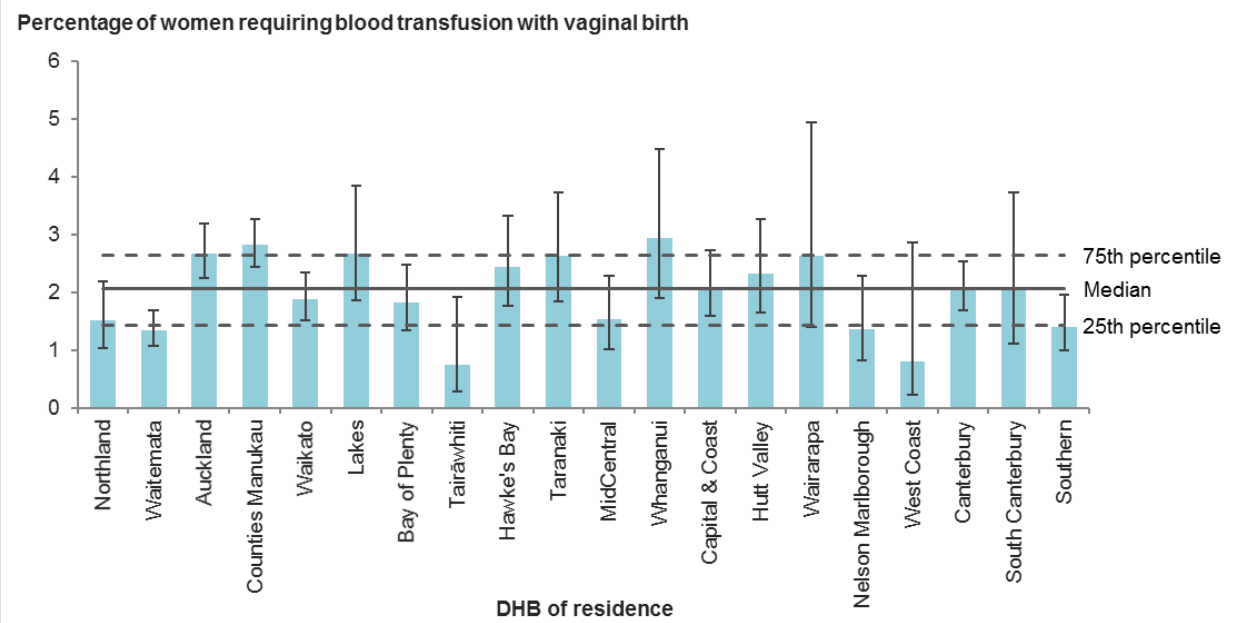
Table 24: Number and percentage of women giving birth by caesarean section and undergoing blood transfusion during birth admission, by facility of birth (secondary and tertiary facilities), 2014

Place of birth	Caesarean sections with blood transfusion	All caesarean sections	Rate (%)
Whangarei	17	296	5.7
North Shore	18	1,291	1.4
Waitakere	8	704	1.1
Auckland City	77	2,555	3.0
Middlemore	74	1,696	4.4
Waikato	45	948	4.7
Rotorua	15	347	4.3
Tauranga	19	533	3.6
Whakatane	6	125	4.8
Gisborne	1	158	0.6
Hawke's Bay	28	502	5.6
Taranaki Base	12	366	3.3
Palmerston North	17	579	2.9
Whanganui	9	105	8.6
Wellington	40	1,139	3.5
Hutt	11	467	2.4
Wairarapa	2	119	1.7
Wairau	1	131	0.8
Nelson	4	256	1.6
Grey Base	0	83	-
Christchurch	47	1,593	3.0
Timaru	4	155	2.6
Dunedin	8	534	1.5
Southland	13	403	3.2
All secondary and tertiary facilities	**476**	**15,085**	**3.2**
All primary facilities	**0**	**5**	**-**
All home births	**0**	**0**	**-**
New Zealand[1]	**476**	**15,094**	**3.2**

1 Includes women where birth location was unspecified.

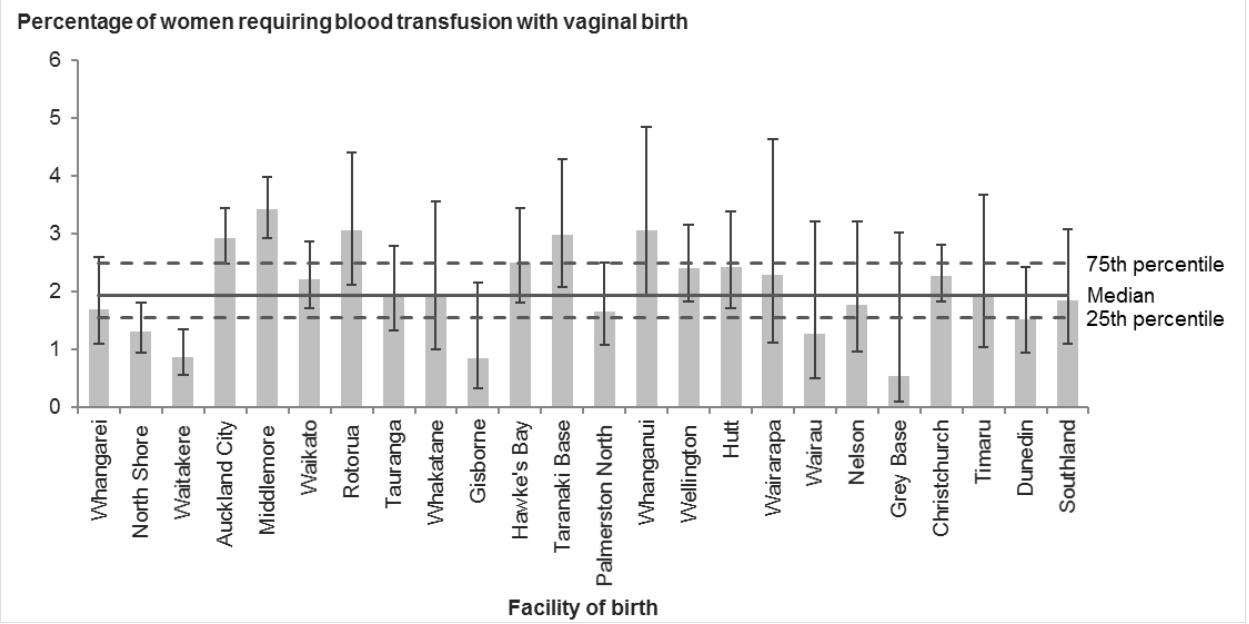
Indicator 12: Blood transfusion during birth admission for vaginal birth, 2014

Figure 25: Percentage of women giving birth vaginally and undergoing blood transfusion during birth admission, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 26: Percentage of women giving birth vaginally and undergoing blood transfusion during birth admission, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 25: Number and percentage of women giving birth vaginally and undergoing blood transfusion during birth admission, by DHB of residence, 2014

DHB of residence	Vaginal births with blood transfusion	All vaginal births	Rate (%)
Northland	27	1,781	1.5
Waitemata	74	5,504	1.3
Auckland	120	4,483	2.7
Counties Manukau	177	6,271	2.8
Waikato	81	4,283	1.9
Lakes	28	1,045	2.7
Bay of Plenty	39	2,139	1.8
Tairāwhiti	4	533	0.8
Hawke's Bay	38	1,563	2.4
Taranaki	30	1,143	2.6
MidCentral	23	1,497	1.5
Whanganui	20	682	2.9
Capital & Coast	52	2,497	2.1
Hutt Valley	32	1,375	2.3
Wairarapa	9	341	2.6
Nelson Marlborough	14	1,020	1.4
West Coast	2	251	0.8
Canterbury	92	4,423	2.1
South Canterbury	10	489	2.0
Southern	33	2,362	1.4
Unknown	3	420	-
New Zealand	**908**	**44,102**	**2.1**

Table 26: Number and percentage of women giving birth vaginally and undergoing blood transfusion during birth admission, by facility of birth (secondary and tertiary facilities), 2014

Place of birth	Vaginal births with blood transfusion	All vaginal births	Rate (%)
Whangarei	20	1,183	1.7
North Shore	35	2,668	1.3
Waitakere	19	2,192	0.9
Auckland City	140	4,788	2.9
Middlemore	161	4,711	3.4
Waikato	56	2,520	2.2
Rotorua	27	882	3.1
Tauranga	27	1,398	1.9
Whakatane	9	474	1.9
Gisborne	4	471	0.8
Hawke's Bay	36	1,435	2.5
Taranaki Base	28	936	3.0
Palmerston North	21	1,275	1.6
Whanganui	17	554	3.1
Wellington	51	2,116	2.4
Hutt	32	1,322	2.4
Wairarapa	7	306	2.3
Wairau	4	315	1.3
Nelson	10	567	1.8
Grey Base	1	183	0.5
Christchurch	80	3,535	2.3
Timaru	9	460	2.0
Dunedin	17	1,116	1.5
Southland	14	758	1.8
All secondary and tertiary facilities	**825**	**36,165**	**2.3**
All primary facilities	**64**	**5,297**	**1.2**
All home births	**14**	**1,966**	**0.7**
New Zealand[1]	**908**	**44,102**	**2.1**

1 Includes women where birth location was unspecified.

Indicators 13 to 15: Severe maternal morbidity

Rationale and purpose

Maternal mortality has long been monitored as an indicator of maternity system safety and quality. However, the number of maternal deaths in any given year is low. Impact of severe morbidity is significant and long term, of high personal cost to a woman and her family and of high financial cost to the health system. Monitoring severe morbidity allows a view of a larger, but still limited, set of cases that might provide a broader picture of the true impact of adverse outcomes in maternity in New Zealand and allow individual units to benchmark whether their rates of severe morbidity are consistent with those in other units. Cases of severe maternal morbidity should be subject to local multidisciplinary review for quality improvement purposes.

Eclampsia (indicator 13)

Pre-eclampsia is a disorder of pregnancy characterised by high blood pressure and protein in the urine. Pre-eclampsia affects between 2% and 8% of pregnancies worldwide. Eclampsia is a serious complication of pre-eclampsia and results in high rates of perinatal and maternal morbidity and mortality (WHO 2011). Eclampsia is considered preventable through early detection and management of pre-eclampsia. The purpose of this indicator is to drive local investigation, including case review, into the appropriate diagnosis and management of pre-eclampsia with a view to decreasing the incidence of eclampsia.

Peripartum hysterectomy (indicator 14)

Peripartum hysterectomy is a surgical intervention usually only performed to save a woman's life, and usually when uncontrollable obstetric haemorrhage or extensive uterine rupture complicates birth. It is a marker of severe maternal morbidity, and may indicate the failure of upstream interventions to prevent and manage antecedents such as haemorrhage or prolonged obstructed labour. The purpose of this indicator is to drive local investigation including case review to reduce the need for this significant surgery.

Mechanical ventilation (indicator 15)

Mechanical ventilation for greater than 24 hours of a pregnant or postpartum woman is a marker of severe maternal morbidity that does not distinguish by cause. It denotes a high degree of severity, and its measurement is more sensitive than measurement of intensive/special care unit admissions, as it is not dependent on local layout of facilities. The purpose of this indicator is to drive local investigation including case review of the reasons for mechanical ventilation of a pregnant or postpartum woman to identify opportunities to prevent or reduce severe maternal and perinatal morbidity.

Notes on 2014 data

Of women giving birth in 2014:

- 18 were diagnosed with eclampsia during the birth admission
- 37 had a peripartum hysterectomy
- 13 were admitted to an intensive care unit (ICU) and required over 24 hours of mechanical ventilation at some time during their pregnancy or postnatal period.

District health boards with cases should investigate each case to determine if there were opportunities for prevention.

Indicator 13: Diagnosis of eclampsia during birth admission, 2014

Table 27: Number and percentage of women diagnosed with eclampsia during birth admission, by DHB of residence, 2014

DHB of residence	Diagnosis of eclampsia during birth admission	All women giving birth
Northland	1	2,101
Waitemata	4	7,851
Auckland	3	6,302
Counties Manukau	0	8,285
Waikato	2	5,258
Lakes	1	1,391
Bay of Plenty	0	2,792
Tairāwhiti	1	694
Hawke's Bay	0	2,074
Taranaki	2	1,519
MidCentral	0	2,084
Whanganui	0	817
Capital & Coast	0	3,529
Hutt Valley	0	1,856
Wairarapa	0	474
Nelson Marlborough	1	1,420
West Coast	0	350
Canterbury	3	6,010
South Canterbury	0	653
Southern	0	3,287
Unknown	0	449
New Zealand	**18**	**59,196**

Table 28: Number and percentage of women diagnosed with eclampsia during birth admission, by facility of birth (secondary and tertiary facilities), 2014

Place of birth	Diagnosis of eclampsia during birth admission	All women giving birth
Whangarei	1	1,479
North Shore	4	3,959
Waitakere	0	2,896
Auckland City	3	7,343
Middlemore	0	6,407
Waikato	1	3,468
Rotorua	2	1,229
Tauranga	0	1,931
Whakatane	0	599
Gisborne	1	629
Hawke's Bay	0	1,937
Taranaki Base	2	1,302
Palmerston North	0	1,854
Whanganui	0	659
Wellington	0	3,255
Hutt	0	1,789
Wairarapa	0	425
Wairau	0	446
Nelson	1	823
Grey Base	0	266
Christchurch	3	5,128
Timaru	0	615
Dunedin	0	1,650
Southland	0	1,161
All secondary and tertiary facilities	**18**	**51,250**
All primary facilities	**0**	**5,302**
All home births	**0**	**1,966**
New Zealand[1]	**18**	**59,196**

1 Includes women where birth location was unspecified.

Indicator 14: Peripartum hysterectomy, 2014

Table 29: Number and percentage of women having a peripartum hysterectomy, by DHB of residence, 2014

DHB of residence	Peripartum hysterectomy	All women giving birth
Northland	1	2,101
Waitemata	5	7,851
Auckland	5	6,302
Counties Manukau	2	8,285
Waikato	5	5,258
Lakes	3	1,391
Bay of Plenty	1	2,792
Tairāwhiti	0	694
Hawke's Bay	2	2,074
Taranaki	2	1,519
MidCentral	1	2,084
Whanganui	1	817
Capital & Coast	4	3,529
Hutt Valley	0	1,856
Wairarapa	0	474
Nelson Marlborough	1	1,420
West Coast	0	350
Canterbury	0	6,010
South Canterbury	0	653
Southern	4	3,287
Unknown	0	449
New Zealand	**37**	**59,196**

Table 30: Number and percentage of women having a peripartum hysterectomy, by facility of birth (secondary and tertiary facilities), 2014

Place of birth	Abdominal hysterectomy within 6 weeks of birth	All women giving birth
Whangarei	0	1,479
North Shore	0	3,959
Waitakere	1	2,896
Auckland City	10	7,343
Middlemore	3	6,407
Waikato	4	3,468
Rotorua	3	1,229
Tauranga	1	1,931
Whakatane	0	599
Gisborne	0	629
Hawke's Bay	2	1,937
Taranaki Base	2	1,302
Palmerston North	1	1,854
Whanganui	1	659
Wellington	4	3,255
Hutt	0	1,789
Wairarapa	0	425
Wairau	0	446
Nelson	1	823
Grey Base	0	266
Christchurch	0	5,128
Timaru	0	615
Dunedin	4	1,650
Southland	0	1,161
All secondary and tertiary facilities	**37**	**51,250**
All primary facilities	**0**	**5,302**
All home births	**0**	**1,966**
New Zealand[1]	**37**	**59,196**

1 Includes women where birth location was unspecified.

Indicator 15: Mechanical ventilation during pregnancy or postnatal period, 2014

Table 31: Number and percentage of women admitted to ICU and requiring over 24 hours of mechanical ventilation any time during the pregnancy or postnatal period, by DHB of residence, 2014

DHB of residence	ICU admission with over 24 hours of mechanical ventilation	All women giving birth
Northland	1	2,101
Waitemata	2	7,851
Auckland	1	6,302
Counties Manukau	2	8,285
Waikato	3	5,258
Lakes	0	1,391
Bay of Plenty	0	2,792
Tairāwhiti	0	694
Hawke's Bay	0	2,074
Taranaki	1	1,519
MidCentral	0	2,084
Whanganui	0	817
Capital & Coast	1	3,529
Hutt Valley	0	1,856
Wairarapa	0	474
Nelson Marlborough	0	1,420
West Coast	0	350
Canterbury	1	6,010
South Canterbury	0	653
Southern	1	3,287
Unknown	0	449
New Zealand	**13**	**59,196**

Table 32: Number and percentage of women admitted to ICU and requiring over 24 hours of mechanical ventilation any time during the pregnancy or postnatal period, by facility of birth (secondary and tertiary facilities), 2014

Place of birth	ICU admission with over 24 hours of mechanical ventilation	All women giving birth
Whangarei	2	1,479
North Shore	0	3,959
Waitakere	2	2,896
Auckland City	1	7,343
Middlemore	1	6,407
Waikato	3	3,468
Rotorua	0	1,229
Tauranga	0	1,931
Whakatane	0	599
Gisborne	0	629
Hawke's Bay	0	1,937
Taranaki Base	1	1,302
Palmerston North	0	1,854
Whanganui	0	659
Wellington	1	3,255
Hutt	0	1,789
Wairarapa	0	425
Wairau	0	446
Nelson	0	823
Grey Base	0	266
Christchurch	1	5,128
Timaru	0	615
Dunedin	1	1,650
Southland	0	1,161
All secondary and tertiary facilities	**13**	**51,250**
All primary facilities	**0**	**5,302**
All home births	**0**	**1,966**
New Zealand[1]	**13**	**59,196**

1 Includes women where birth location was unspecified.

Indicator 16: Maternal tobacco use during postnatal period

Rationale and purpose

Smoking during pregnancy leads to increased carbon monoxide concentration in the blood of both the mother and her baby, resulting in reduced oxygen and nourishment available to the baby. This increases the risk of babies being born with a low birth weight and increases the risk of neonatal mortality, sudden and unexpected death in infancy and long-term respiratory problems for the child (The Quit Group 2004).

This indicator monitors tobacco use at two weeks postnatal, which potentially identifies the number of women who have continued to smoke during pregnancy and following the birth as well as those who have re-commenced smoking following the birth. This indicator can be used to identify support needs of women and families in terms of support to stop smoking.

Improving this indicator will require providers to ensure they offer coordinated tobacco cessation support during pregnancy and into the postnatal period that meets the needs of local populations. It will require tobacco cessation services to work closely with LMCs and DHB maternity services.

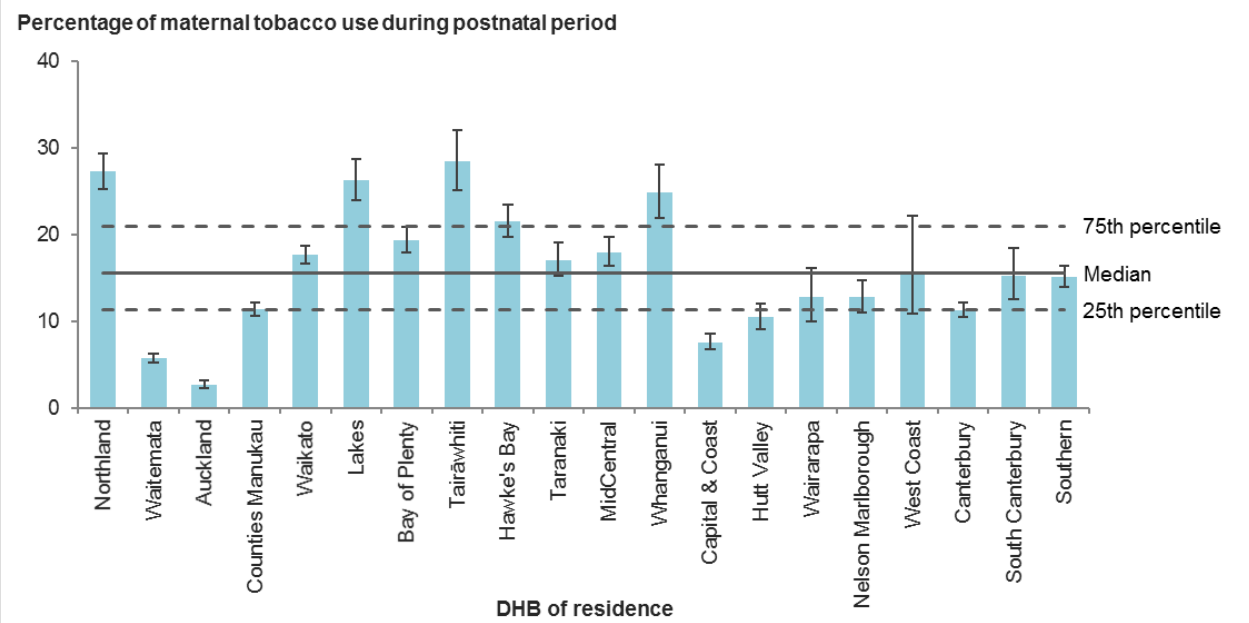
Notes on 2014 data

Rates of maternal tobacco use in the postnatal period (two weeks after birth) varied between DHBs and between secondary and tertiary facility of birth; DHB rates ranged from 2.7% to 28.5%, and facility rates ranged from 1.8% to 33.3%. District health boards and facilities with higher rates should undertake further investigation into their provision of appropriate smoking cessation services and development of new initiatives to support smoking cessation among pregnant and postpartum women, particularly among population groups known to have high rates of tobacco use.

This indicator currently presents tobacco use information from women registered with an LMC or a DHB primary maternity service. Completeness of this data varies between DHBs, ranging from 45% to 98% of all women giving birth (over 90% complete for 14 DHBs).

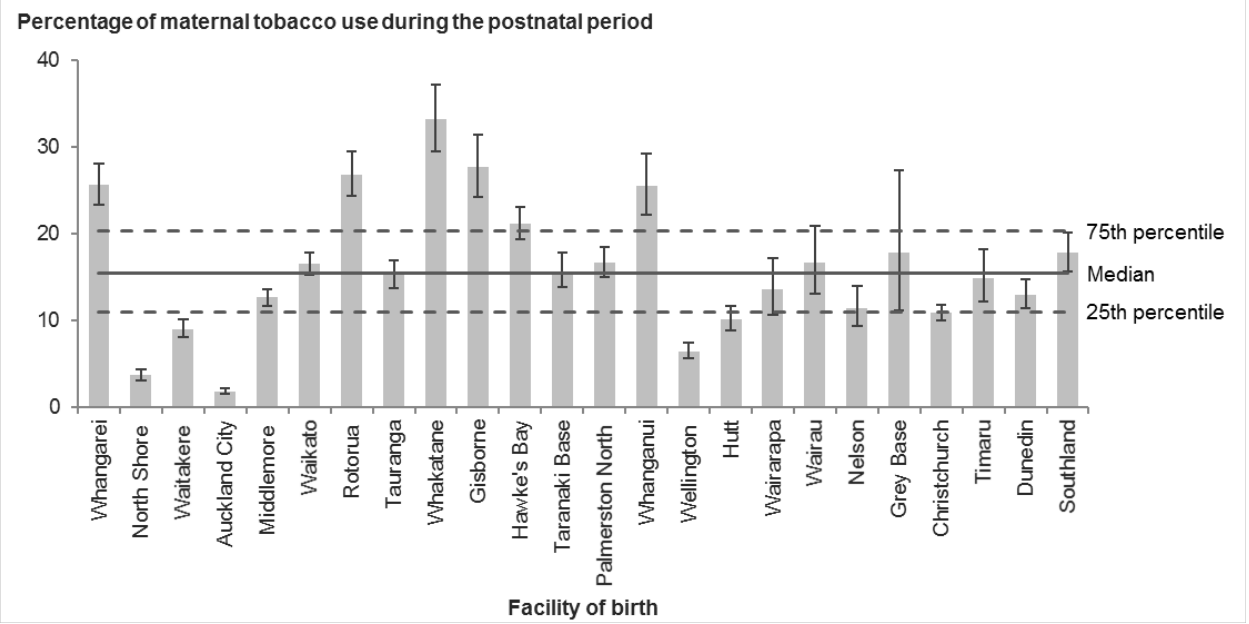
Indicator 16: Maternal tobacco use during postnatal period, 2014

Figure 27: Percentage of women identified as smokers during postnatal period (2 weeks after birth), by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 28: Percentage of women identified as smokers during postnatal period (2 weeks after birth), by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 33: Number and percentage of women identified as smokers during postnatal period (2 weeks after birth), by DHB of residence, 2014

DHB of residence	Women identified as smokers at 2 weeks after birth	All women with reported smoking status at 2 weeks after birth	Rate (%)
Northland	501	1,836	27.3
Waitemata	431	7,494	5.8
Auckland	160	5,858	2.7
Counties Manukau	754	6,644	11.3
Waikato	867	4,907	17.7
Lakes	346	1,315	26.3
Bay of Plenty	523	2,697	19.4
Tairāwhiti	187	656	28.5
Hawke's Bay	422	1,958	21.6
Taranaki	250	1,468	17.0
MidCentral	349	1,940	18.0
Whanganui	182	732	24.9
Capital & Coast	243	3,206	7.6
Hutt Valley	180	1,722	10.5
Wairarapa	59	463	12.7
Nelson Marlborough	158	1,237	12.8
West Coast	25	159	15.7
Canterbury	660	5,849	11.3
South Canterbury	87	569	15.3
Southern	487	3,221	15.1
Unknown	56	307	-
New Zealand	**6,927**	**54,238**	**12.8**

Table 34: Number and percentage of women identified as smokers during postnatal period (2 weeks after birth), by facility of birth (secondary and tertiary facilities), 2014

Place of birth	Women identified as smokers at 2 weeks after birth	All women with reported smoking status at 2 weeks after birth	Rate (%)
Whangarei	330	1,288	25.6
North Shore	140	3,802	3.7
Waitakere	252	2,785	9.0
Auckland City	123	6,836	1.8
Middlemore	613	4,845	12.7
Waikato	529	3,206	16.5
Rotorua	313	1,165	26.9
Tauranga	286	1,878	15.2
Whakatane	189	568	33.3
Gisborne	166	599	27.7
Hawke's Bay	387	1,830	21.1
Taranaki Base	198	1,260	15.7
Palmerston North	286	1,717	16.7
Whanganui	155	606	25.6
Wellington	185	2,865	6.5
Hutt	172	1,686	10.2
Wairarapa	57	418	13.6
Wairau	59	354	16.7
Nelson	85	740	11.5
Grey Base	15	84	17.9
Christchurch	541	4,976	10.9
Timaru	80	535	15.0
Dunedin	209	1,611	13.0
Southland	203	1,141	17.8
All secondary and tertiary facilities	**5,573**	**46,795**	**11.9**
All primary facilities	**1,005**	**4,980**	**20.2**
All home births	**235**	**1,927**	**12.2**
New Zealand[1]	**6,927**	**54,238**	**12.8**

1 Includes women where birth location was unspecified.

Indicator 17: Maternal obesity

Rationale and purpose

Maternal obesity (where obesity is defined as a BMI of 30+) can result in negative outcomes for both women and fetuses. The maternal risks during pregnancy include gestational diabetes and pre-eclampsia. The fetus is at risk for stillbirth and congenital anomalies. Obesity in pregnancy can also affect health later in life for both mother and child. For women, these risks include heart disease and hypertension. Offspring have increased risks of future obesity and heart disease. Women and their offspring are also at increased risk for diabetes (Leddy et al 2008).

A BMI of 35+ in early pregnancy is associated with a number of pregnancy complications and perinatal conditions. The risk of complications and perinatal conditions increases further for women with a BMI of 40+ (Cedergen 2004).

The *Guidelines for Consultation with Obstetric and Related Medical Services (Referral Guidelines)* (Ministry of Health 2012) recommend providers refer for consultation all women with a BMI over 35 and transfer clinical responsibility to specialist services for all women with a BMI over 40.

District health boards with high rates of women with obesity, and in particular with a BMI over 35, should consider strategies for prevention and reduction of obesity within their population and provide sufficient resources to ensure that high-quality services are available for women who are obese during pregnancy.

Notes on 2014 data

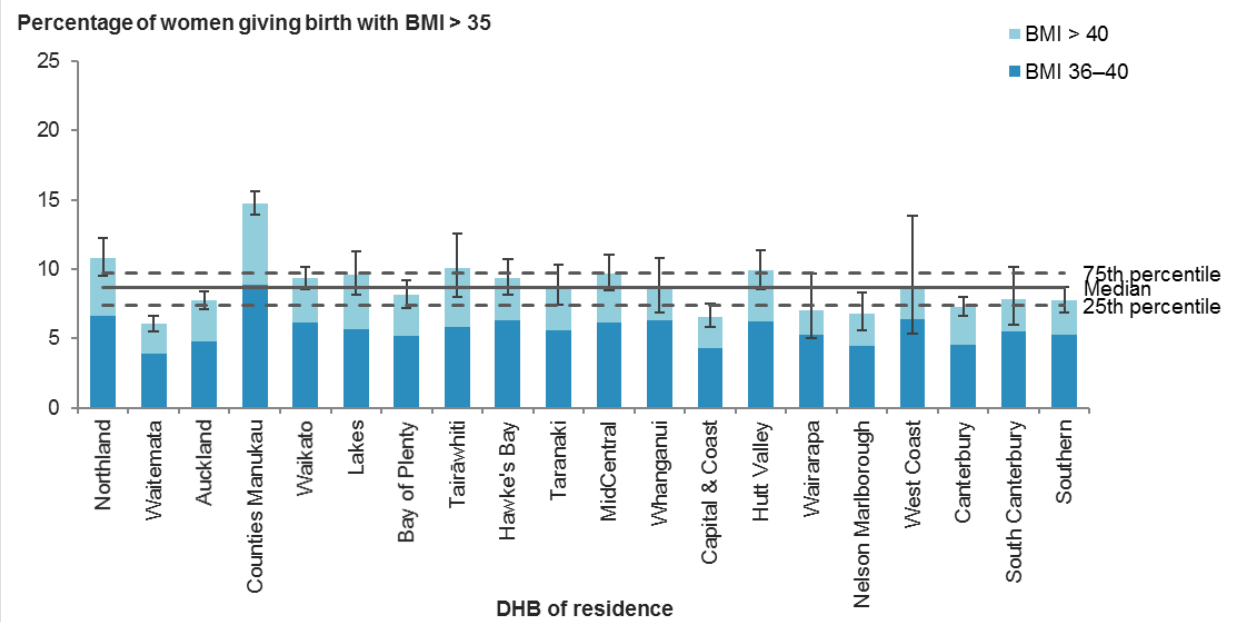
Rates of women giving birth with BMI over 35 at registration varied between DHBs, ranging from 6.1% to 14.8%.

Data presented for this indicator may reflect variation in practices regarding measurement and recording of maternal height and weight.

This indicator currently presents BMI data collected from women registered with an LMC or a DHB primary maternity service. Completeness of this data varies between DHBs, ranging from 49% to 99% of all women giving birth (over 95% complete for 14 DHBs).

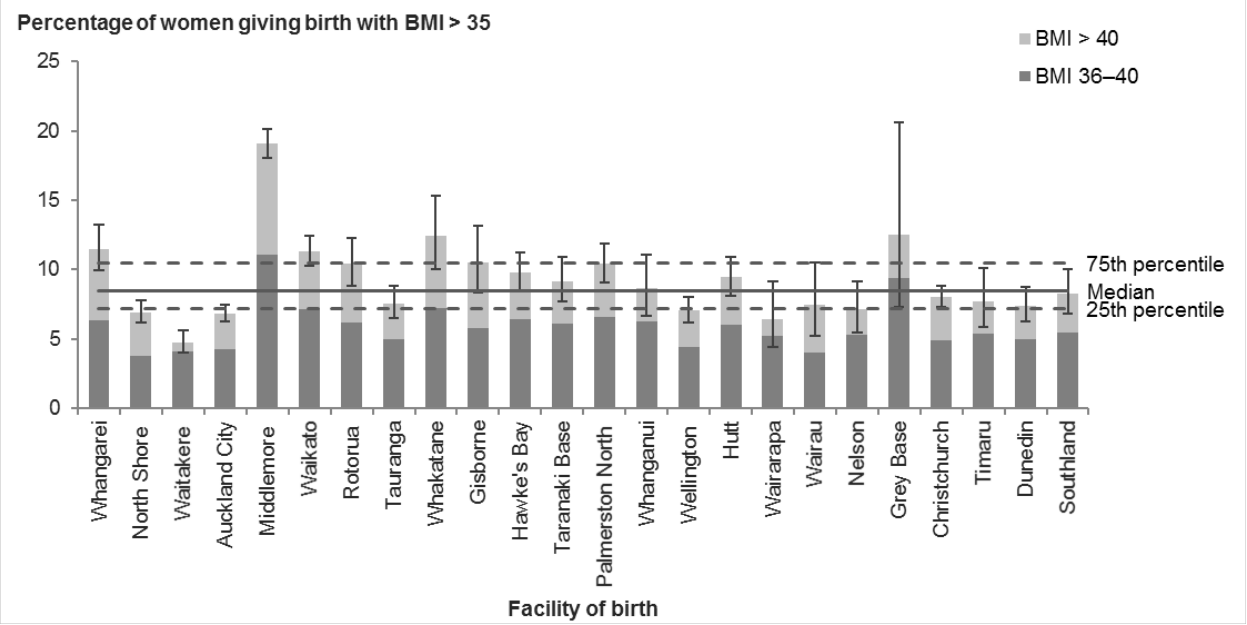
Indicator 17: Women with BMI over 35, 2014

Figure 29: Percentage of women giving birth with BMI over 35 at registration, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 30: Percentage of women giving birth with BMI over 35 at registration, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 35: Number and percentage of women giving birth with BMI over 35 at registration, by DHB of residence, 2014

DHB of residence	Women with BMI > 35 at registration			All women with reported BMI	Rate (%)
	36–40	> 40	Total		
Northland	133	84	217	2,011	10.8
Waitemata	301	168	469	7,727	6.1
Auckland	293	180	473	6,112	7.7
Counties Manukau	625	413	1,038	7,031	14.8
Waikato	312	158	470	5,036	9.3
Lakes	78	54	132	1,376	9.6
Bay of Plenty	144	82	226	2,770	8.2
Tairāwhiti	40	29	69	685	10.1
Hawke's Bay	124	60	184	1,968	9.3
Taranaki	85	48	133	1,511	8.8
MidCentral	124	73	197	2,026	9.7
Whanganui	49	18	67	776	8.6
Capital & Coast	143	76	219	3,321	6.6
Hutt Valley	111	64	175	1,769	9.9
Wairarapa	25	8	33	471	7.0
Nelson Marlborough	58	30	88	1,289	6.8
West Coast	11	4	15	172	8.7
Canterbury	271	165	436	5,971	7.3
South Canterbury	36	15	51	649	7.9
Southern	173	81	254	3,269	7.8
Unknown	13	6	19	321	-
New Zealand	**3,149**	**1,816**	**4,965**	**56,261**	**8.8**

Table 36: Number and percentage of women giving birth with BMI over 35 at registration, by facility of birth (secondary and tertiary facilities), 2014

Place of birth	Women with BMI > 35 at registration			All women with reported BMI	Rate (%)
	36–40	> 40	Total		
Whangarei	90	73	163	1,421	11.5
North Shore	147	122	269	3,878	6.9
Waitakere	117	19	136	2,856	4.8
Auckland City	305	190	495	7,234	6.8
Middlemore	568	409	977	5,123	19.1
Waikato	236	139	375	3,322	11.3
Rotorua	75	52	127	1,216	10.4
Tauranga	96	49	145	1,914	7.6
Whakatane	43	31	74	594	12.5
Gisborne	36	29	65	620	10.5
Hawke's Bay	118	62	180	1,845	9.8
Taranaki Base	79	40	119	1,296	9.2
Palmerston North	118	69	187	1,796	10.4
Whanganui	40	15	55	637	8.6
Wellington	133	81	214	3,025	7.1
Hutt	103	59	162	1,718	9.4
Wairarapa	22	5	27	423	6.4
Wairau	15	13	28	377	7.4
Nelson	40	14	54	760	7.1
Grey Base	9	3	12	96	12.5
Christchurch	248	160	408	5,083	8.0
Timaru	33	14	47	611	7.7
Dunedin	81	40	121	1,637	7.4
Southland	63	33	96	1,158	8.3
All secondary and tertiary facilities	**2,815**	**1,721**	**4,536**	**48,640**	**9.3**
All primary facilities	**233**	**58**	**291**	**5,109**	**5.7**
All home births	**73**	**26**	**99**	**1,959**	**5.1**
New Zealand[1]	**3,149**	**1,816**	**4,965**	**56,261**	**8.8**

1 Includes women where birth location was unspecified.

Indicator 18: Preterm birth

Rationale and purpose

Preterm birth is a significant contributor to perinatal mortality and neonatal morbidity, especially for babies born under 32 weeks' gestation. Preterm birth is among the top causes of death in infants worldwide (WHO 2013).

Preterm birth may have a number of consequences, including:

- higher neonatal mortality and morbidity
- long-term health effects on babies such as poorer neurodevelopmental and educational outcomes, more hospital admissions and increased general disease burden in childhood
- greater use of health resources
- long-term effects on disease risk through to adulthood, such as hypertension and diabetes.

Spontaneous onset of labour, premature rupture of membranes, multiple pregnancy and pregnancy-induced hypertension are the most common causes of preterm birth.

Management of maternal hypertension and tobacco use may reduce rates of early preterm birth. Clinical decision-making regarding timing of induction and elective caesarean section affects rates of late preterm birth.

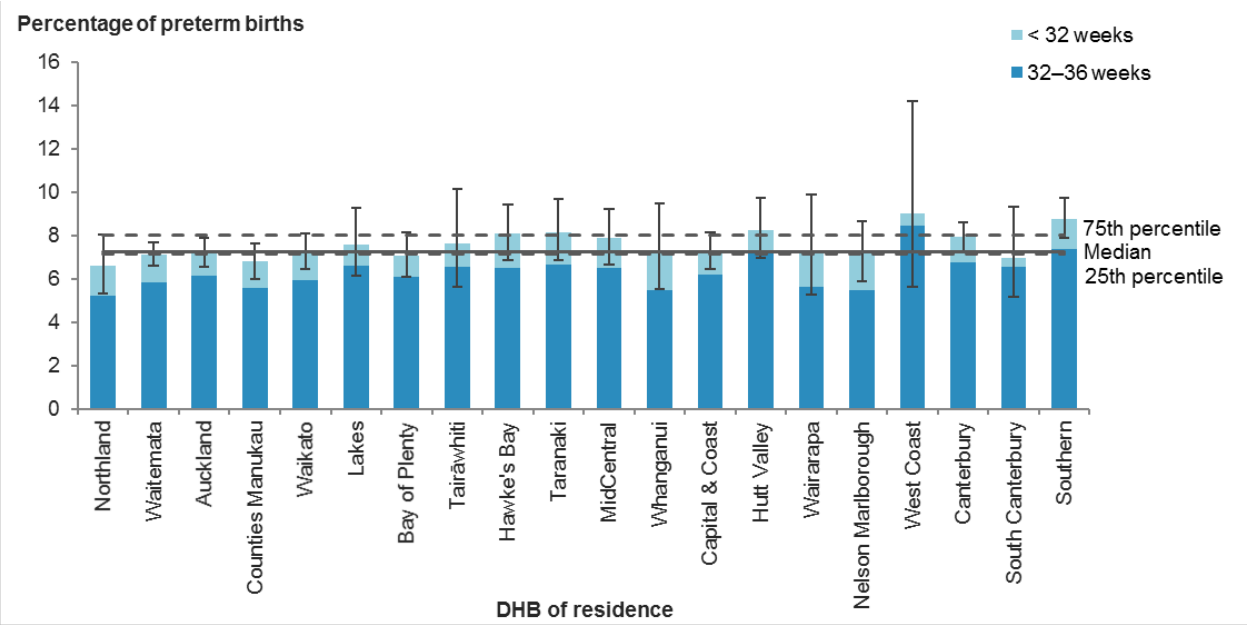
Recent investigation by the National Maternity Monitoring Group found that rates of preterm birth at 34 and 35 weeks' gestation remained fairly constant over the four years from 2008 to 2011. However, preterm births at 36 weeks' gestation may be increasing. This may represent changes in planned preterm births. The National Maternity Monitoring Group recommends that all DHBs should audit preterm births in their region; particularly births at 34, 35 and 36 weeks.

Notes on 2014 data

Overall rates of preterm birth (< 37 weeks' gestation) varied between DHBs, ranging from 6.6% to 9.0%, and varied more widely between secondary and tertiary facilities, ranging from 4.3% to 11.6%. The latter variation is likely to reflect clinical decision-making on place of birth for women in preterm labour and at risk of iatrogenic preterm birth.

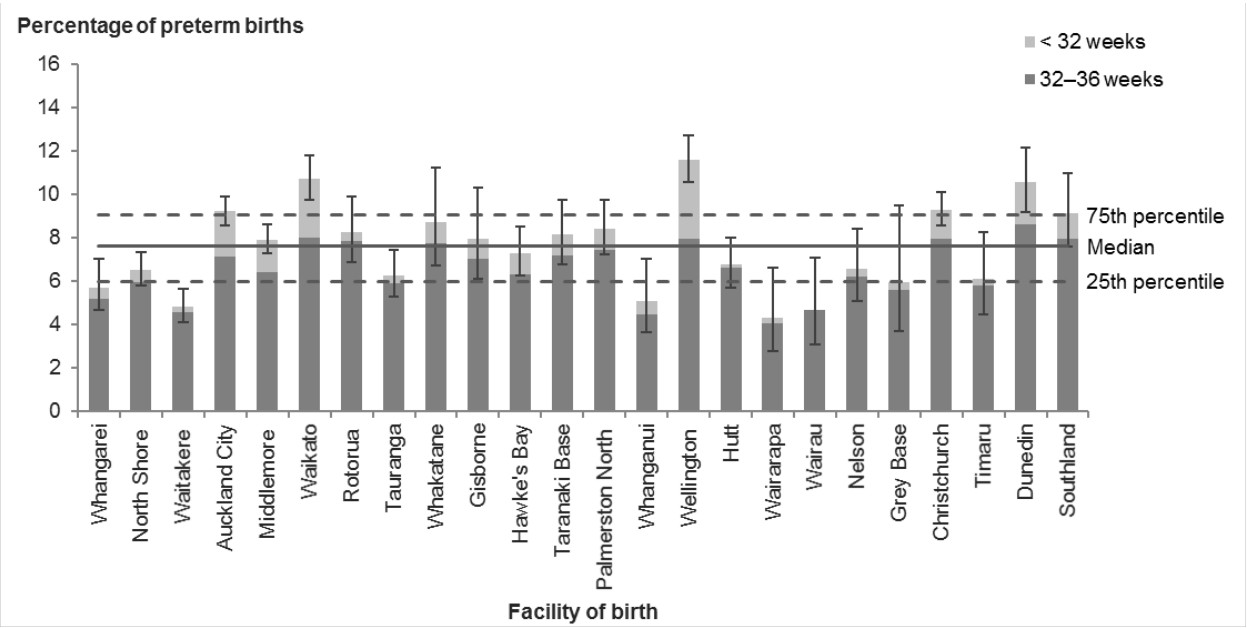
Indicator 18: Preterm births, 2014

Figure 31: Percentage of preterm births, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 32: Percentage of preterm births, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 37: Number and percentage of preterm births, by DHB of residence, 2014

DHB of residence	Babies born under 37 weeks' gestation			All babies born (live births)	Rate (%)
	< 32 weeks	32–36 weeks	Total		
Northland	29	110	139	2,098	6.6
Waitemata	103	462	565	7,907	7.1
Auckland	67	391	458	6,369	7.2
Counties Manukau	100	463	563	8,276	6.8
Waikato	70	316	386	5,321	7.3
Lakes	14	92	106	1,393	7.6
Bay of Plenty	27	170	197	2,790	7.1
Tairāwhiti	8	47	55	719	7.6
Hawke's Bay	33	136	169	2,093	8.1
Taranaki	23	102	125	1,530	8.2
MidCentral	29	137	166	2,106	7.9
Whanganui	15	45	60	822	7.3
Capital & Coast	38	221	259	3,569	7.3
Hutt Valley	18	136	154	1,862	8.3
Wairarapa	7	25	32	442	7.2
Nelson Marlborough	24	79	103	1,438	7.2
West Coast	2	30	32	355	9.0
Canterbury	70	409	479	6,041	7.9
South Canterbury	3	43	46	658	7.0
Southern	46	243	289	3,299	8.8
Unknown	12	16	28	402	-
New Zealand	**738**	**3,673**	**4,411**	**59,490**	**7.4**

Table 38: Number and percentage of preterm births, by facility of birth (secondary and tertiary facilities), 2014

Place of birth	Babies born under 37 weeks' gestation			All babies born (live births)	Rate (%)
	< 32 weeks	32–36 weeks	Total		
Whangarei	8	78	86	1,502	5.7
North Shore	23	239	262	4,013	6.5
Waitakere	7	134	141	2,925	4.8
Auckland City	156	536	692	7,495	9.2
Middlemore	96	417	513	6,474	7.9
Waikato	96	283	379	3,525	10.8
Rotorua	5	98	103	1,246	8.3
Tauranga	7	116	123	1,961	6.3
Whakatane	6	47	53	608	8.7
Gisborne	6	45	51	640	8.0
Hawke's Bay	20	124	144	1,970	7.3
Taranaki Base	13	95	108	1,326	8.1
Palmerston North	18	139	157	1,866	8.4
Whanganui	4	30	34	668	5.1
Wellington	121	265	386	3,323	11.6
Hutt	3	120	123	1,816	6.8
Wairarapa	1	18	19	443	4.3
Wairau	0	21	21	447	4.7
Nelson	3	52	55	840	6.5
Grey Base	1	15	16	268	6.0
Christchurch	70	412	482	5,175	9.3
Timaru	2	36	38	621	6.1
Dunedin	32	142	174	1,643	10.6
Southland	14	91	105	1,147	9.2
All secondary and tertiary facilities	**712**	**3,553**	**4,265**	**51,942**	**8.2**
All primary facilities	**8**	**57**	**65**	**5,358**	**1.2**
All home births	**5**	**52**	**57**	**1,916**	**3.0**
New Zealand[1]	**738**	**3,673**	**4,411**	**59,490**	**7.4**

1 Includes babies without a birth location recorded.

Indicators 19 and 20: Small for gestational age at term

Rationale and purpose

Infants who are born small for gestational age (SGA) are at increased risk of neonatal morbidity and mortality, reduced growth through childhood, lower childhood neurodevelopmental scores, reduced educational attainment and increased lifetime risk for impaired glucose tolerance, including type 2 diabetes, and cardiovascular disease (Arcangeli et al 2012; Lawn et al 2014).

Placental disease (including that associated with pre-eclampsia) and smoking are common causes of poor fetal growth leading to SGA babies. Appropriate management of women at increased risk of SGA (those with a past history of SGA, hypertension or obesity, and those who smoke) may reduce the risk. Timely detection of poor fetal growth in those women with or without risk factors for SGA may reduce the risk of stillbirth by presenting the opportunity for enhanced surveillance and iatrogenic preterm birth.

Small babies at term (indicator 19)

This indicator measures the proportion of all babies born at term gestation who are small for their gestational age. This is defined as less than the 10th percentile for birthweight on the INTERGROWTH-21 growth charts for gestational ages 37 to 42 weeks. INTERGROWTH-21, an international consortium on issues concerning fetal growth, recently developed and published these growth standards, using the same methodology as the WHO childhood growth standards (www.health.govt.nz/system/files/documents/pages/factsheet-2-growth-charts-well-child.pdf) recommended for use in New Zealand. The percentage of babies within New Zealand that fall above or below a given percentile on these charts may be different from population charts.

There is extensive evidence for maternal factors leading to SGA, including smoking, hypertension, pre-eclampsia, poorly controlled diabetes, obesity and poor nutrition. This indicator is intended to drive multidisciplinary review of the prevention and management of poor fetal growth at a population level, with the potential for reducing risk of both SGA and stillbirth.

Small babies at term born at 40–42 weeks' gestation (indicator 20)

This indicator measures the proportion of SGA babies at term gestation (37–42 weeks) that were born at 40–42 weeks' gestation.

This indicator is intended to drive review of clinical practice management for the identification and management of poor fetal growth at term. Evidence/best practice recommends the expedited birth of babies identified as SGA once they reach term, and ideally before 40 weeks; therefore, this indicator represents the proportion of unrecognised or sub-optimally managed cases.

Notes on 2014 data

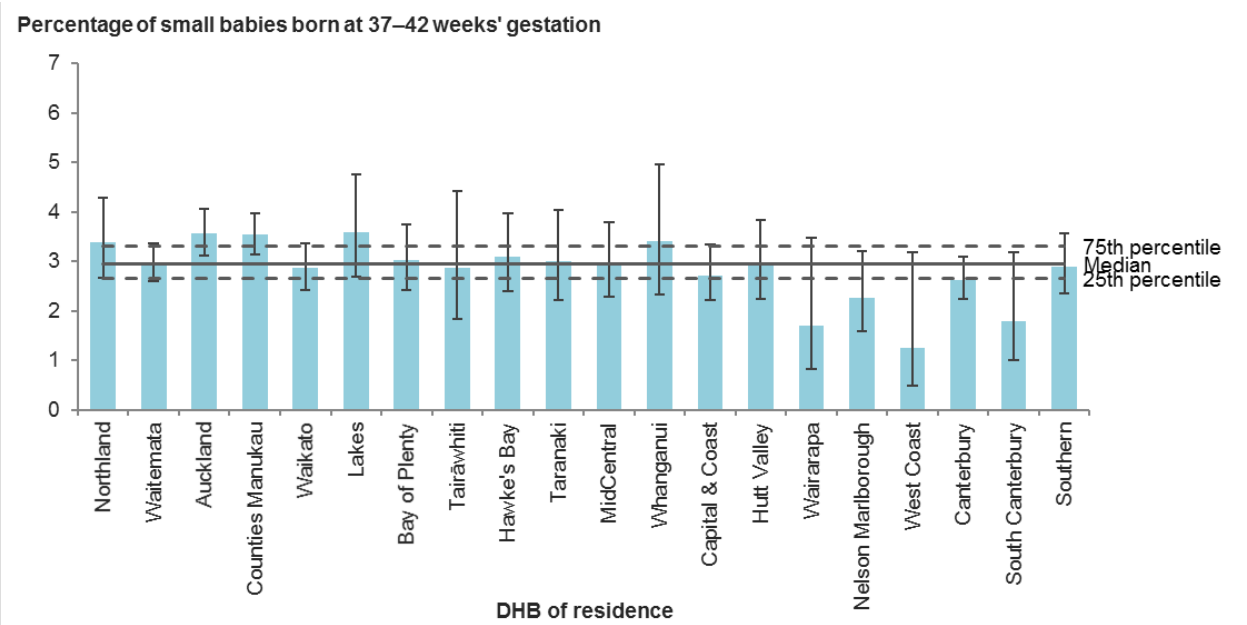
Of all babies born at 37–42 weeks' gestation, the proportion of SGA babies was generally low, but varied almost three-fold across the DHBs, ranging from 1.3% to 3.6%, and from 0.4% to 4.3% across secondary and tertiary facilities.

Of all SGA babies who were born at 37–42 weeks' gestation, the proportion of those who were born at 40–42 weeks' gestation ranged widely from 0% to 61.9% between DHBs, and from 0% to 65.8% across secondary and tertiary facilities. These rates were based on small numbers (in both numerator and denominator), so caution must be used when making comparisons.

The rate of SGA babies at term born at 40–42 weeks' gestation ranged very widely from 0% to 61.9% between DHBs, and from 0% to 65.8% across secondary and tertiary facilities. These rates were based on small numbers, so caution must be used when making comparisons. Nevertheless, DHBs with high rates of SGA babies born at 40-42 weeks' gestation should consider whether investigation may lead to earlier detection of these babies that are at significantly increased risk of stillbirth and perinatal compromise.

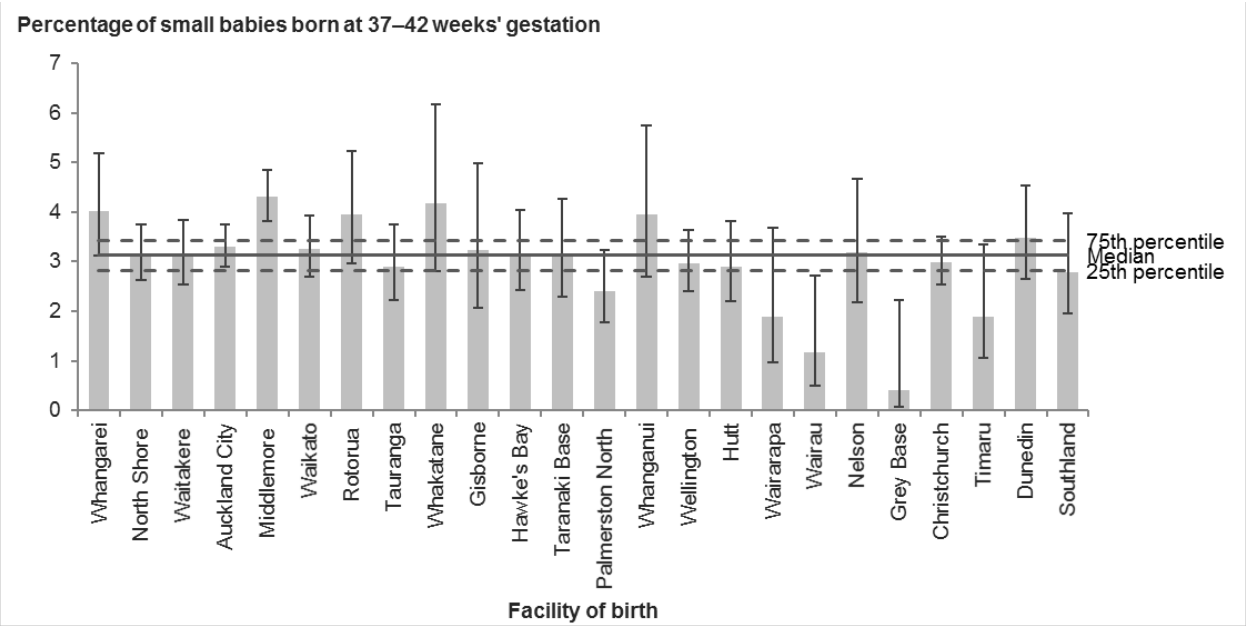
Indicator 19: Small babies at term (37–42 weeks' gestation), 2014

Figure 33: Percentage of small babies at term (37–42 weeks' gestation), by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 34: Percentage 0f small babies at term (37–42 weeks' gestation), by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 39: Number and percentage of small babies at term (37–42 weeks' gestation), by DHB of residence, 2014

DHB of residence	Babies born at 37–42 weeks' gestation with birthweight under the 10th centile for their gestation	Babies born at 37–42 weeks' gestation	Rate (%)
Northland	66	1,950	3.4
Waitemata	217	7,331	3.0
Auckland	210	5,906	3.6
Counties Manukau	272	7,698	3.5
Waikato	140	4,893	2.9
Lakes	46	1,283	3.6
Bay of Plenty	78	2,581	3.0
Tairāwhiti	19	664	2.9
Hawke's Bay	59	1,912	3.1
Taranaki	42	1,401	3.0
MidCentral	57	1,935	2.9
Whanganui	26	761	3.4
Capital & Coast	90	3,307	2.7
Hutt Valley	50	1,706	2.9
Wairarapa	7	410	1.7
Nelson Marlborough	30	1,331	2.3
West Coast	4	319	1.3
Canterbury	146	5,552	2.6
South Canterbury	11	612	1.8
Southern	87	3,005	2.9
Unknown	7	323	-
New Zealand	**1,664**	**54,880**	**3.0**

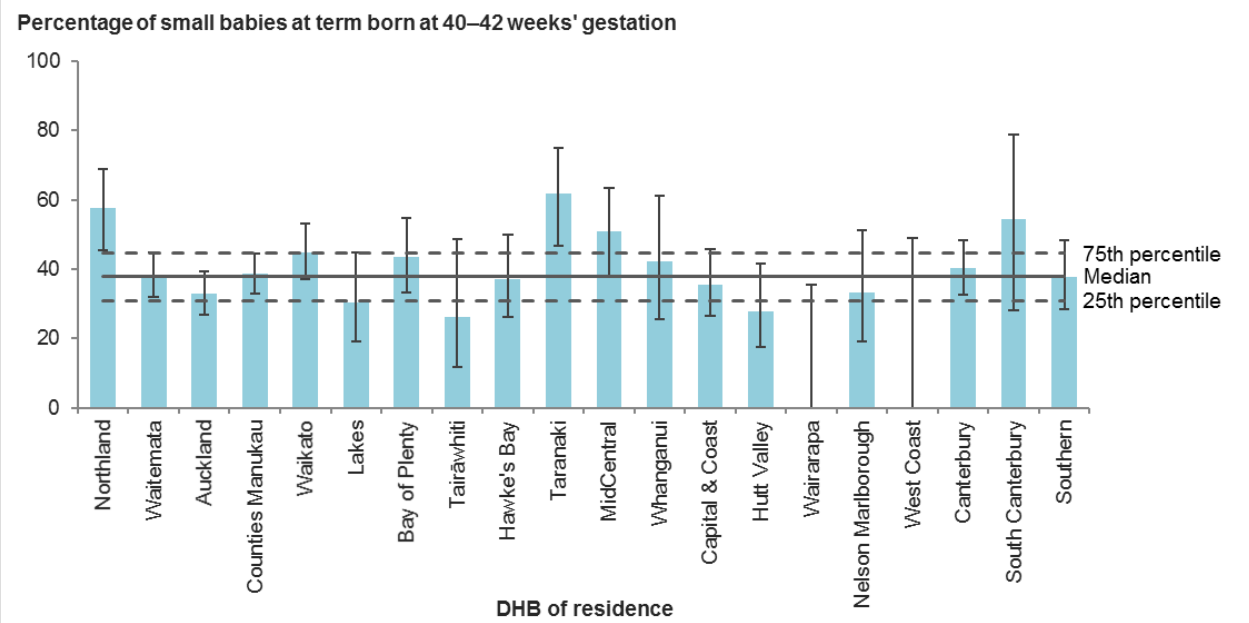
Table 40: Number and percentage of small babies at term (37–42 weeks' gestation), by facility of birth (secondary and tertiary facilities), 2014

Place of birth	Babies born at 37–42 weeks' gestation with birthweight under the 10th centile for their gestation	Babies born at 37–42 weeks' gestation	Rate (%)
Whangarei	57	1,415	4.0
North Shore	118	3,749	3.1
Waitakere	87	2,782	3.1
Auckland City	224	6,799	3.3
Middlemore	256	5,949	4.3
Waikato	102	3,132	3.3
Rotorua	45	1,141	3.9
Tauranga	53	1,835	2.9
Whakatane	23	551	4.2
Gisborne	19	589	3.2
Hawke's Bay	57	1,818	3.1
Taranaki Base	38	1,215	3.1
Palmerston North	41	1,708	2.4
Whanganui	25	634	3.9
Wellington	87	2,936	3.0
Hutt	49	1,692	2.9
Wairarapa	8	424	1.9
Wairau	5	426	1.2
Nelson	25	783	3.2
Grey Base	1	250	0.4
Christchurch	140	4,693	3.0
Timaru	11	583	1.9
Dunedin	51	1,469	3.5
Southland	29	1,041	2.8
All secondary and tertiary facilities	**1,551**	**47,614**	**3.3**
All primary facilities	**113**	**5,272**	**2.1**
All home births	**0**	**1,797**	**-**
New Zealand[1]	**1,664**	**54,880**	**3.0**

1 Includes babies where birth location was unspecified.

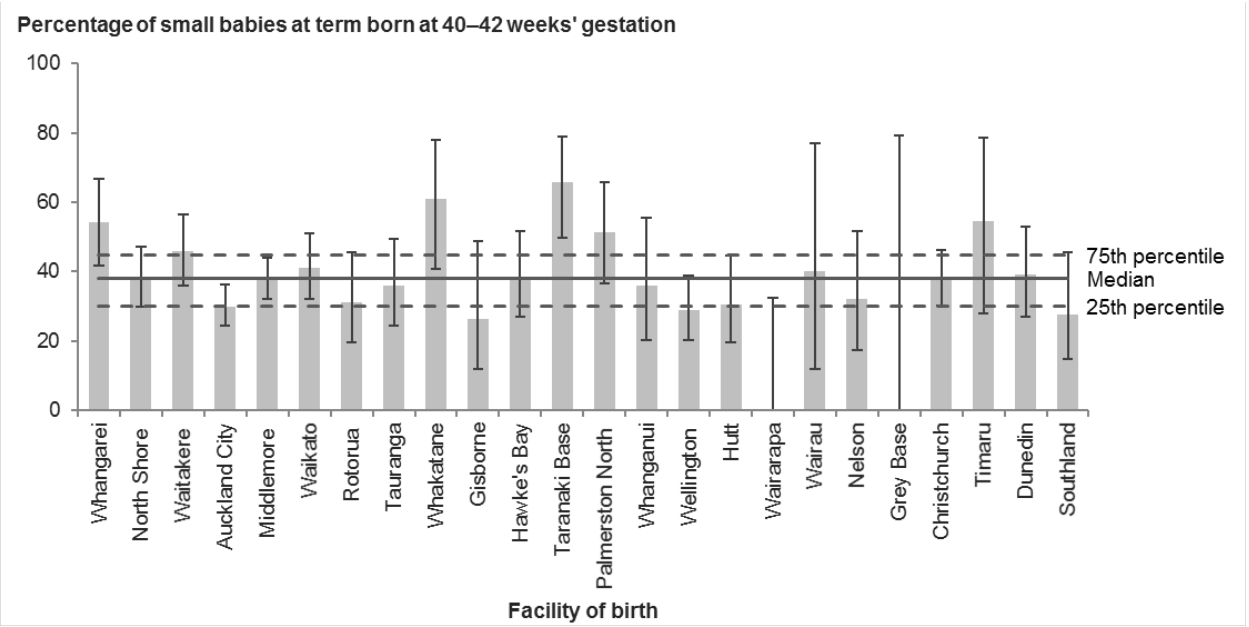
Indicator 20: Small babies at term born at 40–42 weeks' gestation, 2014

Figure 35: Percentage of small babies at term born at 40–42 weeks' gestation, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 36: Percentage of small babies at term born at 40–42 weeks' gestation, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 41: Number and percentage of small babies at term born at 40–42 weeks' gestation, by DHB of residence, 2014

DHB of residence	Babies born at 40–42 weeks' gestation with birthweight under the 10th centile for their gestation	Babies born at 37–42 weeks' gestation with birthweight under the 10th centile for their gestation	Rate (%)
Northland	38	66	57.6
Waitemata	83	217	38.2
Auckland	69	210	32.9
Counties Manukau	105	272	38.6
Waikato	63	140	45.0
Lakes	14	46	30.4
Bay of Plenty	34	78	43.6
Tairāwhiti	5	19	26.3
Hawke's Bay	22	59	37.3
Taranaki	26	42	61.9
MidCentral	29	57	50.9
Whanganui	11	26	42.3
Capital & Coast	32	90	35.6
Hutt Valley	14	50	28.0
Wairarapa	0	7	-
Nelson Marlborough	10	30	33.3
West Coast	0	4	-
Canterbury	59	146	40.4
South Canterbury	6	11	54.5
Southern	33	87	37.9
Unknown	2	7	-
New Zealand	**655**	**1,664**	**39.4**

Table 42: Number and percentage of small babies at term born at 40–42 weeks' gestation, by facility of birth (secondary and tertiary facilities), 2014

Place of birth	Babies born at 40–42 weeks' gestation with birthweight under the 10th centile for their gestation	Babies born at 37–42 weeks' gestation with birthweight under the 10th centile for their gestation	Rate (%)
Whangarei	31	57	54.4
North Shore	45	118	38.1
Waitakere	40	87	46.0
Auckland City	67	224	29.9
Middlemore	97	256	37.9
Waikato	42	102	41.2
Rotorua	14	45	31.1
Tauranga	19	53	35.8
Whakatane	14	23	60.9
Gisborne	5	19	26.3
Hawke's Bay	22	57	38.6
Taranaki Base	25	38	65.8
Palmerston North	21	41	51.2
Whanganui	9	25	36.0
Wellington	25	87	28.7
Hutt	15	49	30.6
Wairarapa	0	8	-
Wairau	2	5	40.0
Nelson	8	25	32.0
Grey Base	0	1	-
Christchurch	53	140	37.9
Timaru	6	11	54.5
Dunedin	20	51	39.2
Southland	8	29	27.6
All secondary and tertiary facilities	**588**	**1,551**	**37.9**
All primary facilities	**67**	**113**	**59.3**
All home births	**0**	**0**	**-**
New Zealand[1]	**655**	**1,664**	**39.4**

1 Includes babies where birth location was unspecified.

Indicator 21: Term babies requiring respiratory support

Rationale and purpose

Respiratory support for a baby born at term is a marker of severe morbidity that does not distinguish by cause and denotes a high degree of severity. It is a more specific measure of severity than measurement of neonatal intensive/special care unit admissions, as it is not dependent on variations in local layout of facilities and in clinical practice. The underlying factors driving the need for respiratory support at term may be more amenable than those driving respiratory support of the preterm infant, where prematurity is the largest driver. Respiratory support in this indicator includes both mechanical and non-invasive ventilation where the sum of both is greater than four hours.

The purpose of this indicator is to drive local investigation, including case review, of the reasons for the need for respiratory support of term babies to identify opportunities to prevent or reduce perinatal morbidity.

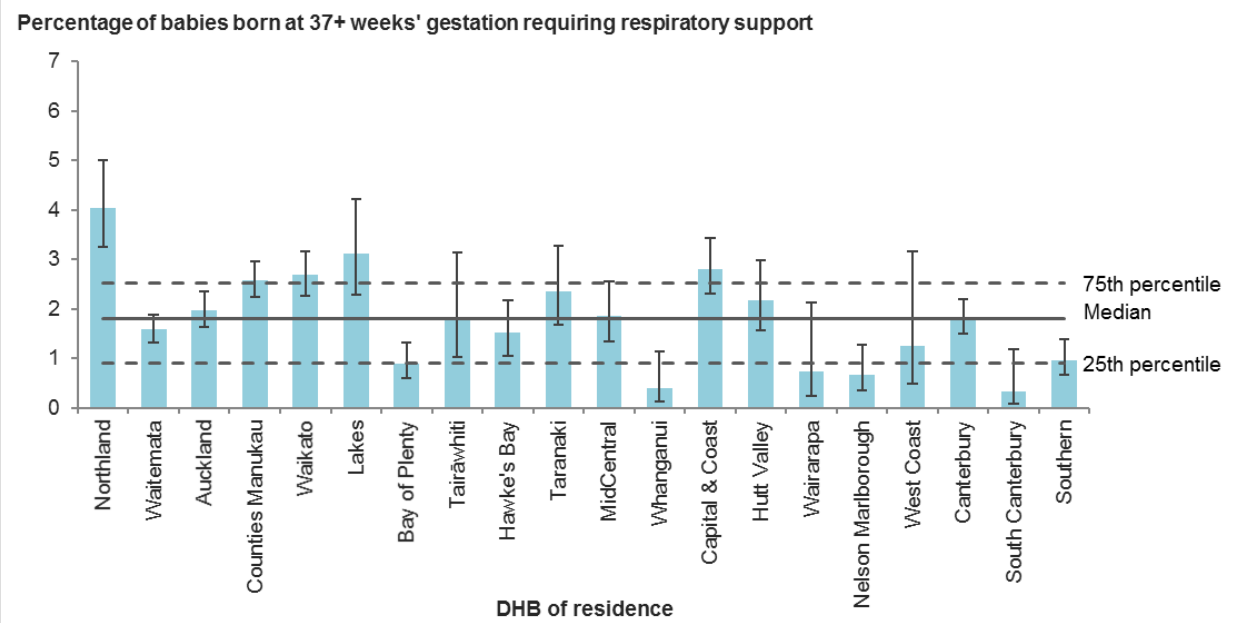
Data presented for this indicator may reflect variation in reporting practices regarding respiratory support for babies. This should be addressed locally; all DHBs should ensure data they report to the national collections is accurate and complete.

Notes on 2014 data

There was considerable variation in the rate of babies born at term (37+ weeks' gestation) requiring respiratory support, ranging from 0.3% to 4.0% across the DHBs, and from 0.2% to 5.0% across secondary and tertiary facilities.

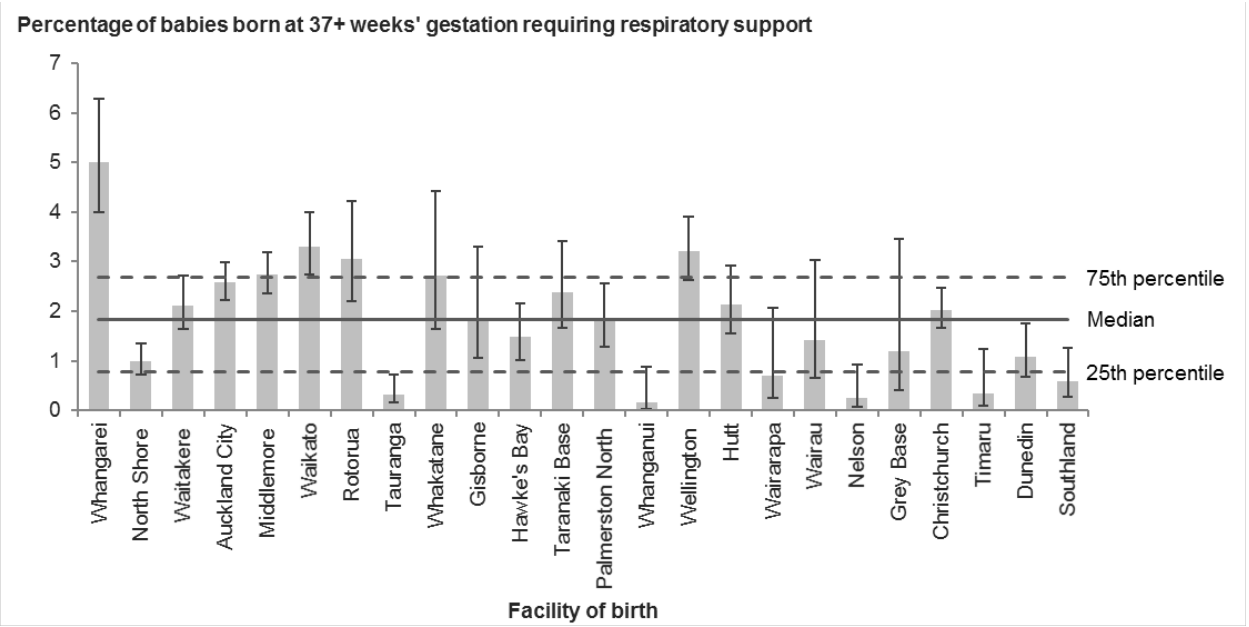
Indicator 21: Babies born at 37+ weeks' gestation requiring respiratory support, 2014

Figure 37: Percentage of babies born at 37+ weeks' gestation requiring respiratory support, by DHB of residence, 2014



Black line represents the median percentage of DHBs; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Figure 38: Percentage of babies born at 37+ weeks' gestation requiring respiratory support, by facility of birth (secondary and tertiary facilities), 2014



Black line represents the median percentage of secondary and tertiary facilities; dashed lines represent the 25th and 75th percentiles.
Error bars represent 95% confidence intervals.

Table 43: Number and percentage of babies born at 37+ weeks' gestation requiring respiratory support, by DHB of residence, 2014

DHB of residence	Babies born at 37+ weeks' gestation requiring over 4 hours of respiratory support	Babies born at 37+ weeks' gestation	Rate (%)
Northland	79	1,957	4.0
Waitemata	116	7,341	1.6
Auckland	116	5,909	2.0
Counties Manukau	199	7,702	2.6
Waikato	132	4,926	2.7
Lakes	40	1,285	3.1
Bay of Plenty	23	2,589	0.9
Tairāwhiti	12	664	1.8
Hawke's Bay	29	1,917	1.5
Taranaki	33	1,403	2.4
MidCentral	36	1,937	1.9
Whanganui	3	762	0.4
Capital & Coast	93	3,309	2.8
Hutt Valley	37	1,708	2.2
Wairarapa	3	410	0.7
Nelson Marlborough	9	1,333	0.7
West Coast	4	320	1.3
Canterbury	101	5,561	1.8
South Canterbury	2	612	0.3
Southern	29	3,010	1.0
Unknown	6	331	-
New Zealand	**1,102**	**54,986**	**2.0**

Table 39: Number and percentage of babies born at 37+ weeks' gestation requiring respiratory support, by facility of birth (secondary and tertiary facilities), 2014

Place of birth	Babies born at 37+ weeks' gestation requiring over 4 hours of respiratory support	Babies born at 37+ weeks' gestation	Rate (%)
Whangarei	71	1,415	5.0
North Shore	37	3,751	1.0
Waitakere	59	2,784	2.1
Auckland City	175	6,802	2.6
Middlemore	163	5,950	2.7
Waikato	104	3,142	3.3
Rotorua	35	1,142	3.1
Tauranga	6	1,838	0.3
Whakatane	15	554	2.7
Gisborne	11	589	1.9
Hawke's Bay	27	1,821	1.5
Taranaki Base	29	1,216	2.4
Palmerston North	31	1,708	1.8
Whanganui	1	634	0.2
Wellington	94	2,936	3.2
Hutt	36	1,693	2.1
Wairarapa	3	424	0.7
Wairau	6	426	1.4
Nelson	2	784	0.3
Grey Base	3	250	1.2
Christchurch	95	4,693	2.0
Timaru	2	583	0.3
Dunedin	16	1,469	1.1
Southland	6	1,042	0.6
All secondary and tertiary facilities	**1,027**	**47,646**	**2.2**
All primary facilities	**58**	**5,288**	**1.1**
All home births	**13**	**1,848**	**0.7**
New Zealand[1]	**1,102**	**54,986**	**2.0**

1 Includes babies where birth location was unspecified.

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Appendices

Appendix 1: 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 collates data about each pregnancy that results in birth and each live-born baby separately from:

- 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
- 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 midwife LMC.[4]

These sources are collected for administrative purposes (including the funding of maternity services). The collection does not contain details of stillborn babies. Information about stillbirths is included in the Mortality Collection. Refer to the data dictionary (www.health.govt.nz/publication/national-maternity-collection-data-dictionary) for more information on the data held in the National Maternity Collection.

National Minimum Dataset

The National Minimum Dataset stores administrative information routinely collected for all publicly funded inpatients of a New Zealand maternity facility (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 data dictionary (www.health.govt.nz/publication/national-minimum-dataset-hospital-events-data-dictionary) for more information on the data held in the National Minimum Dataset.

Lead Maternity Carer claims data

The LMC claims data set contains information on women and babies who access primary maternity services provided under Section 88 of the New Zealand Public Health and Disability Act 2000. The information is received through the LMC claim forms, and includes all women registered with an LMC. This represented 91% of all women giving birth in 2014. Data sourced from LMC claim forms includes details on registration with an LMC, as well as other antenatal and postnatal factors (eg, parity, BMI, smoking status, breastfeeding status).

4 Collection of this data set (from 2014 onwards) is under way but is incomplete at this time. Data currently available in the National Maternity Collection has been included in this publication.

DHB-funded primary maternity services data

Collection of this data set is under way. This data set contains information (similar to LMC claims data) on women who access DHB primary maternity services, including DHB caseload midwives, DHB primary midwifery teams and shared care arrangements.

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 to DHBs that provide primary maternity services to at least one-quarter of their women giving birth. Not all DHBs that provide primary maternity services have provided data to the National Maternity Collection.[5]

Once complete, this data set will increase the scope of information the Ministry holds on women (and their babies) who access primary maternity services.

5 From 2009 to 2014, approximately 87% of women giving birth registered to receive primary maternity care with an LMC and 5% registered to receive care from a DHB primary maternity service. Provision of care was unknown for 8% of women giving birth. It is expected that most of these women received care from the respective DHB primary maternity services (not yet reporting), but some may not have received any primary maternity care (Ministry of Health 2015).

Appendix 2: Technical notes

Getting the data

In this publication, the National Maternity Collection is used as the primary source for identifying all women giving birth and live-born babies. Variables used to identify the women and babies were extracted from the National Maternity Collection, as well as the following variables: delivery date, place of birth, age, ethnicity, BMI, smoking status, parity, primary maternity care provider, gestation, and birthweight.

Parity, smoking status and BMI data in the National Maternity Collection is primarily sourced from LMC claim forms, with additional data from some DHB primary maternity services. This data is therefore only available for women registered with an LMC or with a DHB primary maternity service (95% of women giving birth in 2014).

Indicators 2–12 and 21 require additional information that is not available in the National Maternity Collection. Therefore, hospital events occurring during the pregnancy and postnatal period for these women and their babies were identified and extracted from the National Minimum Dataset.

Hospital events in the National Minimum Dataset are coded using the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM). The 6th edition was used for hospital discharges up to 30 June 2014 and the 8th edition was used for hospital discharges from 1 July 2014 onwards. The clinical codes used are provided in the next section.

Clinical codes and definitions

Standard primiparae: a group of mothers considered to be clinically comparable and expected to require low levels of obstetric intervention. Standard primiparae are defined in this report as women recorded in the National Maternity Collection (MAT) who meet all of the following inclusions:

- gave birth at a maternity facility or had a home birth[6]
- are aged between 20 and 34 years (inclusive) at birth
- are pregnant with a single baby presenting in labour in cephalic position (see Tables A1 and A2)
- have no known prior pregnancy of 20 weeks and over gestation
- give birth to a live or stillborn baby at term gestation: between 37 and 41 weeks inclusive (based on gestational age recorded for the baby and exclusion criteria in Table A3)
- have no recorded obstetric complications in the present pregnancy that are indications for specific obstetric interventions (see Table A4).

6 Place of birth is designated as 'home' if there was an LMC claim for home birth supplies and no corresponding record for a birth at a maternity facility.

Table A1: Singleton birth exclusion criteria

Clinical code (ICD-10-AM)	Description
O300–O309	Multiple gestation
O318	Other complications specific to multiple gestation
O325	Maternal care for multiple gestation
O632	Delayed delivery of second twin, triplet, etc
O840–O849*	Multiple delivery
Z372–Z377	Outcome of delivery − twins or multiple

* Introduced in the 8th edition of ICD-10-AM

Table A2: Cephalic presentation exclusion criteria

Clinical code (ICD-10-AM)	Description
9047000	Spontaneous breech delivery
9047001	Assisted breech delivery
9047002	Assisted breech delivery with forceps to after-coming head
9047003	Breech extraction
9047004	Breech extraction with forceps to after-coming head
O640−O649	Labour and delivery affected by malposition and malpresentation of fetus

Table A3: Duration of pregnancy (gestation exclusion criteria)

Clinical code (ICD-10-AM)	Description
O090−O095	Duration of pregnancy under 37 weeks
O48	Prolonged pregnancy
O601	Preterm labour and delivery

Table A4: Obstetric complications exclusion criteria

Clinical code (ICD-10-AM)	Description
O10−O16	Hypertension, proteinuria, pre-eclampsia, eclampsia
O240−O249	Diabetes mellitus in pregnancy
O360, O361, O363, O364, O365	Known or suspected fetal problems
O411, O420−O429	Infection of the amniotic sac/membranes or premature rupture of membranes
O450–O459, O460−O469, O48	Premature separation of placenta, antepartum haemorrhage, prolonged pregnancy

Spontaneous vaginal birth: the birth of a baby without obstetric intervention (ie, without caesarean section, forceps or vacuum (ventouse)), identified by the presence of a spontaneous vaginal birth clinical code with no concurrent instrumental/caesarean section code (see Table A5). Spontaneous vaginal births may include births where labour has been induced or augmented. Women giving birth at home are counted as having had a spontaneous vaginal birth.

Table A5: Delivery type codes

Clinical code (ICD-10-AM)	Description
O80	Single spontaneous delivery
O81	Single delivery by forceps and vacuum extractor
O82	Single delivery by caesarean section
O83*	Other assisted single delivery
O840*	Multiple delivery, all spontaneous
O841*	Multiple delivery, all by forceps and vacuum extractor
O842*	Multiple delivery, all by caesarean section
O848*	Other multiple delivery
O849*	Multiple delivery, unspecified
9046700	Spontaneous vertex delivery
9046800−9046804	Forceps delivery
9046900	Vacuum extraction with delivery
1652000−1652003	Caesarean section

* Introduced in the 8th edition of ICD-10-AM

Instrumental vaginal birth: a vaginal birth requiring instrumental assistance with no concurrent clinical code indicating a caesarean section. Interventions include forceps and/or vacuum (ventouse) extraction (see Table A5). Instrumental vaginal births do not include failed attempts at forceps or vacuum extraction (see Table A6).

Table A6: Excluded delivery procedure codes

Clinical code (ICD-10-AM)	Description
9046805	Failed forceps
9046901	Failed vacuum extraction

Caesarean section: an operative birth through an abdominal incision. This definition includes emergency and elective, lower segment and classical caesarean sections, and it is identified by the presence of any caesarean section clinical code (see Table A5).

Induction of labour: an intervention to stimulate the onset of labour by pharmacological or other means, identified by induction of labour clinical codes (see Table A7).

Table A7: Induction procedure codes

Clinical code (ICD-10-AM)	Description
9046500	Medical induction of labour, oxytocin
9046501	Medical induction of labour, prostaglandin
9046502	Other medical induction of labour
9046503	Surgical induction of labour by artificial rupture of membranes
9046504	Other surgical induction of labour
9046505	Medical and surgical induction of labour

Intact lower genital tract: identified by an absence of clinical codes indicating an episiotomy or a tear of any degree (first to fourth, and including 'was unspecified' degree) (see Table A8).

Episiotomy: an incision of the perineal tissue surrounding the vagina at the time of birth to facilitate delivery, identified by the presence of an episiotomy clinical code (see Table A8). Women giving birth at home are counted as having had a spontaneous vaginal birth without an episiotomy.

Third- and fourth-degree tear: a third- or fourth-degree perineal laceration during birth, identified by the presence of a third- or fourth-degree tear clinical code (see Table A8) in a hospital admission within three days after birth.

Table A8: Episiotomy and/or perineal tear codes

Clinical code (ICD-10-AM)	Description
9047200	Episiotomy
O700	First-degree perineal laceration during delivery
O701	Second-degree perineal laceration during delivery
O702	Third-degree perineal laceration during delivery
O703	Fourth-degree perineal laceration during delivery
O709	Perineal laceration during delivery, was unspecified
9048100	Suture of first or second degree tear of perineum
1657300	Suture of third or fourth degree tear of perineum

General anaesthetic for a caesarean section birth: identified by the presence of a general anaesthetic clinical code (see Table A9) and a caesarean section clinical code (see Table A5).

Table A9: General anaesthetic procedure code

Clinical code (ICD-10-AM)	Description
92514XX	General anaesthesia

Blood transfusion during birth admission: identified by clinical codes for selected blood transfusion procedures (see Table A10) in a hospital admission within three days after birth.

Table A10: Blood transfusion procedure codes

Clinical code (ICD-10-AM)	Description
1370601	Administration of whole blood
1370602	Administration of packed cells
1370603	Administration of platelets
9206000	Administration of autologous blood
9206200	Administration of other serum
9206300	Administration of blood expander
9206400	Administration of other blood product

Diagnosis of eclampsia at birth admission: identified by the presence of an eclampsia clinical code (see Table A11) during birth admission.

Table A11: Eclampsia codes

Clinical code (ICD-10-AM)	Description
O150	Eclampsia in pregnancy
O151	Eclampsia in labour
O152	Eclampsia in the puerperium
O159	Eclampsia, was unspecified as to time period

Diagnosis of peripartum hysterectomy: identified by the presence of an abdominal hysterectomy clinical code (see Table A12) in a hospital admission within six weeks after birth.

Table A12: Peripartum hysterectomy codes

Clinical code (ICD-10-AM)	Description
3565300	Subtotal abdominal hysterectomy
3565301	Total abdominal hysterectomy
3565304	Total abdominal hysterectomy with removal of adnexa

Mechanical ventilation required during pregnancy or postnatal period: identified by any hospital admission during the pregnancy or postnatal period where the woman was in an intensive care unit and required more than 24 hours of mechanical ventilation.

First trimester registration with a Lead Maternity Carer (LMC): where date of registration with an LMC is within the first 12 completed weeks of pregnancy, based on the woman's estimated date of delivery reported at registration.

Preterm birth: the birth of a live-born baby between 20 weeks 0 days and 36 weeks 6 days gestation.

Small for gestational age: applies to babies born with birthweight below the 10th percentile for their gestational age, based on smoothed centile tables for birthweight according to gestational age from the INTERGROWTH-21st project (see Table A13).

Table A13: 10th centile birthweight for male and female babies according to gestational age

Gestational age (weeks)	Male (kg)	Female (kg)
37	2.38	2.33
38	2.57	2.50
39	2.73	2.65
40	2.88	2.78
41	3.01	2.89
42	3.12	2.98

Source: Villar et al 2014.

Respiratory support during birth admission: applies to a baby requiring over four hours of mechanical ventilation or of continuous positive airway pressure during a hospital admission within three days after birth.

Other technical notes

Facility graphs: all facility graphs in this report present maternity events occurring in secondary and tertiary maternity facilities (hospitals) only, while DHB graphs present maternity events by DHB of residence and include births at all maternity facilities (including primary facilities). The aim of this is to enable the comparison of births for which clinicians have access to similar clinical facilities and interventions. Data for individual primary facilities is provided in the accompanying online tables. Care should be taken when making comparisons, because many primary units deal with only a small number of maternity events, meaning that in many cases differences between rates will not be statistically significant.

Presentation of confidence intervals: the error bars on the charts in this document represent 95% confidence intervals for the sample proportion, which have been calculated using the Wilson score (see Newcombe 1998).

Southern DHB data: in May 2010, Otago and Southland DHBs were merged into a single entity, Southern DHB, which began reporting to the Ministry of Health National Collections in 2011. All relevant data is reported in this report under 'Southern DHB'.

Christchurch and Christchurch Women's data: from 1 July 2009 maternity events that had previously been reported as occurring in Christchurch Women's Hospital were reported as occurring in Christchurch Hospital. This change represents a change in the way the data is reported, rather than a change in patient care. For the purposes of this report, Christchurch Women's Hospital and Christchurch Hospital events have been summed.

Appendix 3: Catchment areas

The primary, secondary and tertiary maternity facilities that reported births between 2009 and 2013 are listed by DHB region (of location) in the table below. Their geographical locations are presented in Figure A1.

DHB	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 Taumaranui Te Kuiti Thames Tokoroa Waihi Waterford
Lakes		Rotorua	Taupo
Bay of Plenty		Tauranga Whakatane	Murupara Opotiki
Tairāwhiti		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

DHB	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 facility that provides a multidisciplinary specialist team for women and babies with complex or rare maternity needs; for example, babies with major fetal disorders requiring prenatal diagnostic and fetal therapy services, or women with obstetric histories that significantly increase the risks during pregnancy, labour and delivery (for example, those who have already had two placental abruptions). This includes neonatal intensive care units.

2 A facility that provides additional care during the antenatal, labour and birth, and postnatal periods for women and babies who experience complications and who have a clinical need for either specialist consultation or transfer.

3 A facility that does not have inpatient secondary maternity services or 24-hour on-site availability of specialist obstetricians, paediatricians and anaesthetists. This includes birthing units.

* These facilities did not provide birth care in 2014.

Figure A1: Maternity facilities in New Zealand by DHB and facility type (2009–2014)