New Zealand Maternity Clinical Indicators

2012

Citation: Ministry of Health. 2014. *New Zealand Maternity Clinical Indicators 2012*. Wellington: Ministry of Health.

Published in October 2014
by the Ministry of Health
PO Box 5013, Wellington 6145, New Zealand

ISBN: 978-0-478-42886-5 (online)
HP 6004

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# Executive summary

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 New Zealand Maternity Clinical Indicators. These proposed changes were further reviewed and developed by the original expert working group to ensure the objectives of the New Zealand Maternity Clinical Indicators were retained: being a tool for assessing the quality and national consistency in the delivery of maternity services in New Zealand.

This report presents the first year of these revised indicators. In addition to improved quality and completeness of the existing 12 indicators, three new indicators have been added that reflect care during pregnancy and the postnatal period, and severe maternal morbidity.

For this report, as with previous reports in this series, the ‘standard primipara’definition (see ‘Summary of Changes’ on p2) is used to identify a group of women for whom interventions and outcomes should be similar. Of the 15 indicators covered in this report, 8 apply to standard primiparae, 4 apply to all women giving birth, 2 apply to women who registered with a Lead Maternity Carer and 1 applies to all babies born.

Since 2012, district health boards (DHBs) and maternity stakeholders have used this 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 four‑year period.

As the three previous reports demonstrated, maternity service delivery and outcomes vary between DHBs and between individual secondary and tertiary facilities. These findings merit further investigation of data quality and integrity as well as the local clinical practice management reasons for these variations.

# Introduction

## What are the New Zealand Maternity Clinical Indicators?

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

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

* highlight areas where quality can be improved at a national level
* support local 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 New Zealand Maternity Clinical Indicators are developed and published by the Ministry of Health with support from the National Maternity Monitoring Group and the New Zealand Maternity Clinical Indicators Expert Working Group.

It is an expectation in 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 Ministry of Health worked with key professional colleges to identify potential indicators and consider how these might be used as part of a national quality and safety programme.

The Ministry of Health convened an expert working group to develop the initial set of 12 indicators, comprising representatives from midwifery, obstetric, paediatric, general practice, epidemiology, service management and consumer backgrounds.

Following three publications of these 12 indicators (2009 to 2011), the National Maternity Monitoring Group reviewed the available data and recommended a range of changes to improve the quality, completeness and scope of the New Zealand Maternity Clinical Indicators.

The next review of the New Zealand Maternity Clinical Indicators will occur prior to the development of the 2015 report.

## Overview

This report presents the first year of these revised indicators, developed in partnership with the New Zealand Maternity Clinical Indicators Expert Working Group. In addition to improved quality and completeness of the existing 12 indicators, 3 new indicators have been added that reflect care during pregnancy and the postnatal period, and severe maternal morbidity.

This publication is the fourth annual report on the original 12 indicators, and the first report presenting new indicators and revised definitions. Its focus is presenting data for the 2012 calendar year.

Because the indicators have been revised using new definitions and data sources, data presented here cannot necessarily be compared to the previously published reports for 2009 to 2011. Refer to Appendix 3 and accompanying online tables for 2009 to 2011 figures calculated using the revised definitions and data sources.

## Summary of changes

Three changes, enabled by improvements in nationally collected data, have been made to this current report compared to the previous reports. They are: improving the accuracy of the standard primipara calculation, expanding the population covered by the indicators to include births occurring outside maternity facilities, and introducing three new indicators.

### Standard primipara

The standard primipara represents a woman expected to have an uncomplicated pregnancy; intervention and complication rates for such women should be low and consistent across hospitals. Compiling data from only 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).

For this report, a ‘standard primipara’is defined as a woman aged between 20 and 34 years at the time of birth, having her first baby (parity = 0)[[1]](#footnote-1) at term (37 to 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 intervention. Standard primiparae account for approximately 14% of all births nationally; this proportion varies across DHBs.[[2]](#footnote-2) See ‘Appendix 1: Technical notes’ for more information on definitions.

Changes to data sources for the 2012 report have improved the accuracy of the standard primipara calculation but do not change the definition of a standard primipara.

### Population

The population from which the indicators are derived has changed. Due to system limitations, previous reports focused on women giving birth and babies born in maternity facilities only. For 2012 onwards, where possible the scope of the indicators is expanded to all births known to the Ministry of Health, including births not occurring at a maternity facility – that is, home births and births where the location was unknown. Indicators 1 and 14 cover all women registered with a Lead Maternity Carer, indicators 10 to 13 cover all women giving birth (regardless of birth location) and indicator 15 covers all babies born (regardless of birth location).

For 2012, indicators 2 to 9 (standard primiparae) are limited to women giving birth at a maternity facility. Alternative methodologies to expand the definition of standard primipara to accurately include births not at a maternity facility are being developed and tested, and are expected to apply from the 2013 report onwards.

### New and modified indicators

The existing preterm birth indicator (indicator 15) has been modified in this report to include all babies born under 37 weeks gestation (that is, all live births between 20 weeks 0 days and 36 weeks and 6 days). A breakdown of babies born under 32 weeks and 32 to 36 weeks gestation for 2012 is provided in this report.

Three new indicators have also been added. These additions reflect government policies such as the Health Target ‘better help for smokers to quit’, the recommendations of the National Maternity Monitoring Group regarding timely access to a Lead Maternity Carer, and an increased focus on severe morbidity by the Perinatal and Maternal Mortality Review Committee.

Further indicators of severe maternal morbidity and infant outcomes will be considered for future reports.

Table 1 lists numerators and denominators for the 15 Clinical Indicators presented in this publication. Previous years’ data (2009 to 2011) has been reproduced using the new definitions to enable a comparison over time.

## Data sources

Data for these indicators was extracted from all pregnancies and live births recorded on the National Maternity Collection (MAT) on 23 January 2014.

MAT provides statistical, demographic and clinical information about selected publicly funded maternity services up to nine months before and three months after a birth. It integrates health information from three sources:

* inpatient and day-patient health event data during pregnancy, birth and the postnatal period for mother and baby, sourced from the National Minimum Dataset (NMDS)
* Lead Maternity Carer (LMC) claim forms for primary maternity services provided under Section 88 of the New Zealand Public Health and Disability Act 2000
* primary maternity services provided by DHBs to women who do not have a community LMC or are under the care of a DHB secondary service during their pregnancy or birth.[[3]](#footnote-3)

These sources are collected for administrative purposes (including the funding of maternity services).

MAT does not contain details of stillborn babies. Information about stillbirths is included in the Mortality Collection. Refer to the [MAT data dictionary](http://www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/collections/national-minimum-dataset-hospital-events) for more information on the data held in MAT.

Table 1: New Zealand Maternity Clinical Indicators

| **Source** | **Indicator** | **Numerator** | **Denominator** |
| --- | --- | --- | --- |
| LMC Claims (MAT) | 1 | Registration with a Lead Maternity Carer in the first trimester of pregnancy | Total number of women who register with a Lead Maternity Carer in the first trimester of their pregnancy | Total number of women who register with a Lead Maternity Carer |
| Hospital Events (NMDS) | 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 who give birth at a maternity facility |
| 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 who give birth at a maternity facility |
| 4 | Standard primiparae who undergo caesarean section | Total number of standard primiparae who undergo caesarean section | Total number of standard primiparae who give birth at a maternity facility |
| 5 | Standard primiparae who undergo induction of labour | Total number of standard primiparae who undergo induction of labour | Total number of standard primiparae who give birth at a maternity facility |
| 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 at a maternity facility | Total number of standard primiparae who give birth vaginally at a maternity facility |
| 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 at a maternity facility | Total number of standard primiparae who give birth vaginally at a maternity facility |
| 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 at a maternity facility | Total number of standard primiparae who give birth vaginally at a maternity facility |
| 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 at a maternity facility | Total number of standard primiparae who give birth vaginally at a maternity facility |
| All women giving birth (MAT) | 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 |
| LMC claims (MAT) | 14 | 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 |
| All babies born (MAT) | 15 | Preterm birth | Total number of babies born under 37 weeks gestation | Total number of babies born (live births) |

Note: This table lists the 15 indicators presented in this publication and differs from previous reports in this publication series.

### National Minimum Dataset

The National Minimum Dataset (NMDS) 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 [NMDS data dictionary](http://www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/collections/national-minimum-dataset-hospital-events) for more information on the data held in the NMDS.

### Lead Maternity Carer claims data

This dataset 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. This information is received through the Lead Maternity Carer (LMC) claim forms and includes all women registered with an LMC. This represented 89% of all women giving birth in 2012.

### DHB funded primary maternity services data

Collection of this dataset is under way and is expected to be available in future reports. This dataset contains information on women who access a DHB provider, including a DHB caseload midwife, DHB primary midwifery teams and shared care arrangements. Once complete, this dataset will increase the scope of information the Ministry holds on women and babies who access primary maternity services, including the level of service they receive and their trimester of registration when the DHB is the primary maternity provider.

## Analytical methods

The data presented in this report primarily pertains to women recorded as giving birth and babies live-born in 2012 from MAT. Data between 2009 and 2011 has also been analysed using the same methods and criteria to provide a time-series view.

Records of babies born at 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.

S[tandard primipara](#Std_Primp)e were identified using maternal age, gestational age and reported parity 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 1: Technical notes’ for more detail on definitions and code ranges.

Due to insufficient data at time of analysis, standard primiparae in this report only include women giving birth in maternity facilities and exclude home births or births where the location was unknown. It is estimated that approximately 13% of women giving birth at home met the criteria for standard primiparae nationally (6% to 17% between DHBs). Work to expand the definition of standard primipara to accurately include births not at a maternity facility (such as home births) is under way and changes are expected to apply from the 2013 report onwards.

The definitions and data sources used in this report have been revised and differ from previously published reports (2009 to 2011). Therefore, data presented in this report 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. DHBs and facilities are individually responsible for ensuring the completeness and quality of data they supply to national collections. LMCs 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.

## Numbers and rates

Data is presented in this report in two ways:

* by DHB of domicile: this data is intended to provide DHBs with information relevant to their usually resident population
* by facility 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 tables in the appendices.

Rates are presented as raw percentages. Rates have not been standardised by age or ethnicity; the choice of denominator (standard primiparae)is intended to group women into clinically similar cohorts that would be expected to experience similar birth outcomes. 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.

Numbers by secondary/tertiary facility and by primary facility for each clinical indicator are presented in Appendix 4 and Appendix 5, respectively.

# Notes on national data

At a national level, there was a statistically significant increase[[4]](#footnote-4) between 2009 and 2012 for rates of:

* registration with a Lead Maternity Carer in the first trimester of pregnancy (indicator 1)
* standard primiparae sustaining a 3rd- or 4th-degree perineal tear and undergoing episiotomy (indicator 9)
* women requiring a blood transfusion with vaginal birth (indicator 12).

At a national level, there was a statistically significant decrease[[5]](#footnote-5) between 2009 and 2012 for rates of:

* standard primiparae with an intact lower genital tract (indicator 6)
* women requiring a blood transfusion with caesarean section (indicator 11)
* maternal tobacco use during the postnatal period (indicator 14).

The remaining indicators fluctuated over the four-year period presented here or represent very small numbers from which trends cannot yet be drawn. Figure 1 presents four years of data for the indicators at the national level. This figure is also available by DHB and by secondary or tertiary facility in the accompanying online tables.

New Zealand has lower rates of obstetric intervention among standard primiparae relative to Australia, although methodology differences in the degree of standardisation limit true comparability. Other indicators among the wider birthing population including general anaesthetic for caesarean section (indicator 10) and maternal tobacco use (indicator 14) are similar to Australian counterparts. A greater percentage of women access antenatal care in the first trimester of pregnancy in Australia compared to New Zealand (indicator 1) (AIHW 2013).

Figure 1: New Zealand Maternity Clinical Indicator rates by year, 2009 to 2012



Note: The rate of eclampsia at birth admission (indicator 13) is not presented here due to low numbers (<0.05% annually). See Appendix 3 for underlying numbers.

#

# Indicator 1: Registration with a Lead Maternity Carer

## Rationale and purpose

The Perinatal and Maternal Mortality Review Committee (2012), 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 a Lead Maternity Carer (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 had an LMC providing their primary maternity care. This indicator supports national and local monitoring of the effectiveness of activities to improve timely registration with an LMC.

Women who access a DHB-funded primary maternity service are not yet captured in this dataset. This is estimated to be around 10% of women in 2012. Collection of service provision data for women receiving a DHB-funded primary maternity service is under way and will be included in this indicator as it becomes available.

## Notes on 2012 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 domicile ranged from 40.8% to 74.1%, and rates by facility of birth ranged from 40.8% to 79.5%. New initiatives in this area 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.

## Indicator 1: Registration with a Lead Maternity Carer in the first trimester of pregnancy, 2012

Figure 2: Percentage of women who register with a Lead Maternity Carer in the first trimester of their pregnancy among all registered women, by DHB of domicile, 2012



Black line represents national average.
Error bars represent 95% confidence intervals.

Figure 3: Percentage of women who register with Lead Maternity Carer in the first trimester of their pregnancy among all registered women, by facility of birth (secondary and tertiary facilities), 2012



Black line represents average for all secondary and tertiary facilities.
Error bars represent 95% confidence intervals.

Table 2: Number and percentage of women who register with a Lead Maternity Carer in the first trimester of their pregnancy among all registered women, by DHB of domicile, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **DHB of domicile** | **Registered within the first trimester of pregnancy** | **All registered women** | **Rate (%)** |
| Northland | 1136 | 2137 | 53.2 |
| Waitemata | 4908 | 7521 | 65.3 |
| Auckland | 3266 | 5080 | 64.3 |
| Counties Manukau | 2741 | 5802 | 47.2 |
| Waikato | 3444 | 5120 | 67.3 |
| Lakes | 752 | 1535 | 49.0 |
| Bay of Plenty | 2025 | 2962 | 68.4 |
| Tairawhiti | 299 | 732 | 40.8 |
| Hawke’s Bay | 1298 | 2110 | 61.5 |
| Taranaki | 1130 | 1540 | 73.4 |
| MidCentral | 1410 | 2043 | 69.0 |
| Whanganui | 481 | 819 | 58.7 |
| Capital & Coast | 2223 | 3558 | 62.5 |
| Hutt Valley | 1084 | 1877 | 57.8 |
| Wairarapa | 312 | 501 | 62.3 |
| Nelson Marlborough | 976 | 1319 | 74.0 |
| West Coast | 165 | 266 | 62.0 |
| Canterbury | 4411 | 5956 | 74.1 |
| South Canterbury | 344 | 648 | 53.1 |
| Southern | 2593 | 3545 | 73.1 |
| Unspecified | 124 | 228 | – |
| **New Zealand** | **35,122** | **55,299** | **63.5** |

Table 3: Number and percentage of women who register with a Lead Maternity Carer in the first trimester of their pregnancy among all registered women, by facility of birth, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility of birth** | **Registered within the first trimester of pregnancy** | **All registered women** | **Rate (%)** |
| Whangarei | 825 | 1454 | 56.7 |
| North Shore | 2554 | 3694 | 69.1 |
| Waitakere | 1652 | 2810 | 58.8 |
| Auckland City | 4057 | 6056 | 67.0 |
| Middlemore | 1612 | 3914 | 41.2 |
| Waikato | 2273 | 3264 | 69.6 |
| Rotorua | 662 | 1320 | 50.2 |
| Tauranga | 1530 | 2120 | 72.2 |
| Whakatane | 324 | 557 | 58.2 |
| Gisborne | 274 | 671 | 40.8 |
| Hawke’s Bay | 1243 | 2030 | 61.2 |
| Taranaki Base | 934 | 1277 | 73.1 |
| Palmerston North | 1285 | 1830 | 70.2 |
| Whanganui | 378 | 671 | 56.3 |
| Wairarapa | 299 | 471 | 63.5 |
| Hutt | 1042 | 1865 | 55.9 |
| Wellington | 1983 | 3099 | 64.0 |
| Wairau | 325 | 409 | 79.5 |
| Nelson | 539 | 742 | 72.6 |
| Grey Base | 124 | 174 | 71.3 |
| Christchurch | 3849 | 5193 | 74.1 |
| Timaru | 309 | 598 | 51.7 |
| Dunedin | 1398 | 1826 | 76.6 |
| Southland | 847 | 1202 | 70.5 |
| **All secondary and tertiary facilities** | **30,318** | **47,247** | **64.2** |
| **All primary facilities** | **2828** | **4955** | **57.1** |
| **All home births** | **1255** | **1919** | **65.4** |
| **New Zealand1** | **35,122** | **55,299** | **63.5** |

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.[[6]](#footnote-6) Their purpose is to encourage maternity service providers to review the appropriateness of these interventions, 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.

### 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 instruments 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 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.

### 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.

### Exclusion of births outside maternity facilities

Standard primiparae presented in these indicators only include women giving birth at maternity facilities (including primary facilities) and exclude home births or births where the location was unknown, due to insufficient data at time of analysis.

It is estimated that approximately 13% of women (around 400 women in 2012) giving birth at home met the criteria for standard primiparae nationally (6% to 17% between DHBs). Work to expand the definition of standard primipara to accurately include births not at a maternity facility is under way.

## Notes on 2012 data

Rates of spontaneous vaginal birth among standard primiparae varied significantly between DHBs and between secondary and tertiary facilities in 2012; DHB rates ranged from 57.1% to 83.8% and facility rates ranged from 57.1%to 83.9%. This variation merits further urgent investigation.

Rates of instrumental vaginal birth ranged from 4.3% to 23.8% between facilities. Caesarean section rates also varied by facility, from 8.2% to 25.2% and by DHB, from 7.1% to 22.1%. These variations indicate a need for urgent detailed review. DHBs 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. DHBs and facilities with rates significantly above the national average should investigate reasons for high induction rates.

Rates of intervention in some secondary or tertiary facilities may be influenced by transfers from primary facilities, so DHBs should compare rates of intervention according to where labour was initiated, or by DHB of domicile.

## Indicator 2: Spontaneous vaginal birth among standard primiparae, 2012

Figure 4: Percentage of spontaneous vaginal births among standard primiparae, by DHB of domicile, 2012



Black line represents national average.
Error bars represent 95% confidence intervals.

Figure 5: Percentage of spontaneous vaginal births among standard primiparae, by facility of birth (secondary and tertiary facilities), 2012



Black line represents average for all secondary and tertiary facilities.
Error bars represent 95% confidence intervals.

Table 4: Number and percentage of spontaneous vaginal births among standard primiparae1, by DHB of domicile, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **DHB of domicile** | **Spontaneous vaginal births** | **Standard primiparae** | **Rate (%)** |
| Northland | 208 | 255 | 81.6 |
| Waitemata | 901 | 1353 | 66.6 |
| Auckland | 784 | 1174 | 66.8 |
| Counties Manukau | 801 | 1174 | 68.2 |
| Waikato | 477 | 644 | 74.1 |
| Lakes | 165 | 197 | 83.8 |
| Bay of Plenty | 266 | 391 | 68.0 |
| Tairawhiti | 73 | 91 | 80.2 |
| Hawke’s Bay | 187 | 294 | 63.6 |
| Taranaki | 177 | 252 | 70.2 |
| MidCentral | 193 | 287 | 67.2 |
| Whanganui | 86 | 104 | 82.7 |
| Capital & Coast | 349 | 536 | 65.1 |
| Hutt Valley | 235 | 323 | 72.8 |
| Wairarapa | 44 | 77 | 57.1 |
| Nelson Marlborough | 136 | 195 | 69.7 |
| West Coast | 28 | 41 | 68.3 |
| Canterbury | 555 | 854 | 65.0 |
| South Canterbury | 83 | 110 | 75.5 |
| Southern | 361 | 558 | 64.7 |
| Unspecified | 4 | 5 | – |
| **New Zealand** | **6113** | **8915** | **68.6** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

Table 5: Number and percentage of spontaneous vaginal births among standard primiparae1, by facility of birth (secondary and tertiary facilities), 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility of birth** | **Spontaneous vaginal births** | **Standard primiparae** | **Rate (%)** |
| Whangarei | 139 | 186 | 74.7 |
| North Shore | 452 | 750 | 60.3 |
| Waitakere | 412 | 559 | 73.7 |
| Auckland City | 761 | 1216 | 62.6 |
| Middlemore | 546 | 862 | 63.3 |
| Waikato | 247 | 411 | 60.1 |
| Rotorua | 142 | 170 | 83.5 |
| Tauranga | 224 | 339 | 66.1 |
| Whakatane | 33 | 45 | 73.3 |
| Gisborne | 73 | 91 | 80.2 |
| Hawke’s Bay | 185 | 291 | 63.6 |
| Taranaki Base | 138 | 212 | 65.1 |
| Palmerston North | 180 | 274 | 65.7 |
| Whanganui | 78 | 93 | 83.9 |
| Wairarapa | 44 | 77 | 57.1 |
| Hutt | 245 | 337 | 72.7 |
| Wellington | 285 | 471 | 60.5 |
| Wairau | 56 | 77 | 72.7 |
| Nelson | 77 | 115 | 67.0 |
| Grey Base | 24 | 37 | 64.9 |
| Christchurch | 422 | 721 | 58.5 |
| Timaru | 78 | 104 | 75.0 |
| Dunedin | 157 | 271 | 57.9 |
| Southland | 118 | 201 | 58.7 |
| **All secondary and tertiary facilities** | **5116** | **7910** | **64.7** |
| **All primary facilities** | **997** | **1005** | **99.2** |
| **New Zealand** | **6113** | **8915** | **68.6** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

## Indicator 3: Instrumental vaginal birth among standard primiparae, 2012

Figure 6: Percentage of instrumental vaginal births among standard primiparae, by DHB of domicile, 2012



Black line represents national average.
Error bars represent 95% confidence intervals.

Figure 7: Percentage of instrumental vaginal births among standard primiparae, by facility of birth (secondary and tertiary facilities), 2012



Black line represents average for all secondary and tertiary facilities.
Error bars represent 95% confidence intervals.

Table 6: Number and percentage of instrumental vaginal births among standard primiparae1, by DHB of domicile, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **DHB of domicile** | **Instrumental vaginal births** | **Standard primiparae** | **Rate (%)** |
| Northland | 25 | 255 | 9.8 |
| Waitemata | 189 | 1353 | 14.0 |
| Auckland | 195 | 1174 | 16.6 |
| Counties Manukau | 160 | 1174 | 13.6 |
| Waikato | 97 | 644 | 15.1 |
| Lakes | 18 | 197 | 9.1 |
| Bay of Plenty | 71 | 391 | 18.2 |
| Tairawhiti | 10 | 91 | 11.0 |
| Hawke’s Bay | 55 | 294 | 18.7 |
| Taranaki | 28 | 252 | 11.1 |
| MidCentral | 45 | 287 | 15.7 |
| Whanganui | 6 | 104 | 5.8 |
| Capital & Coast | 104 | 536 | 19.4 |
| Hutt Valley | 42 | 323 | 13.0 |
| Wairarapa | 18 | 77 | 23.4 |
| Nelson Marlborough | 16 | 195 | 8.2 |
| West Coast | 7 | 41 | 17.1 |
| Canterbury | 169 | 854 | 19.8 |
| South Canterbury | 13 | 110 | 11.8 |
| Southern | 98 | 558 | 17.6 |
| Unspecified | 0 | 5 | – |
| **New Zealand** | **1366** | **8915** | **15.3** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

Table 7: Number and percentage of instrumental vaginal births among standard primiparae1, by facility of birth (secondary and tertiary facilities), 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility of birth** | **Instrumental vaginal births** | **Standard primiparae** | **Rate (%)** |
| Whangarei | 25 | 186 | 13.4 |
| North Shore | 138 | 750 | 18.4 |
| Waitakere | 61 | 559 | 10.9 |
| Auckland City | 209 | 1216 | 17.2 |
| Middlemore | 137 | 862 | 15.9 |
| Waikato | 98 | 411 | 23.8 |
| Rotorua | 14 | 170 | 8.2 |
| Tauranga | 67 | 339 | 19.8 |
| Whakatane | 5 | 45 | 11.1 |
| Gisborne | 10 | 91 | 11.0 |
| Hawke’s Bay | 55 | 291 | 18.9 |
| Taranaki Base | 28 | 212 | 13.2 |
| Palmerston North | 45 | 274 | 16.4 |
| Whanganui | 4 | 93 | 4.3 |
| Wairarapa | 18 | 77 | 23.4 |
| Hutt | 43 | 337 | 12.8 |
| Wellington | 104 | 471 | 22.1 |
| Wairau | 7 | 77 | 9.1 |
| Nelson | 9 | 115 | 7.8 |
| Grey Base | 7 | 37 | 18.9 |
| Christchurch | 169 | 721 | 23.4 |
| Timaru | 13 | 104 | 12.5 |
| Dunedin | 61 | 271 | 22.5 |
| Southland | 37 | 201 | 18.4 |
| **All secondary and tertiary facilities** | **1364** | **7910** | **17.2** |
| **All primary facilities** | **2** | **1005** | **0.2** |
| **New Zealand** | **1366** | **8915** | **15.3** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

## Indicator 4: Caesarean section among standard primiparae, 2012

Figure 8: Percentage of caesarean section deliveries among standard primiparae, by DHB of domicile, 2012



Black line represents national average.
Error bars represent 95% confidence intervals.

Figure 9: Percentage of caesarean section deliveries among standard primiparae, by facility of birth (secondary and tertiary facilities), 2012



Black line represents average for all secondary and tertiary facilities.
Error bars represent 95% confidence intervals.

Table 8: Number and percentage of deliveries by caesarean section among standard primiparae1, by DHB of domicile, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **DHB of domicile** | **Caesarean sections** | **Standard primiparae** | **Rate (%)** |
| Northland | 21 | 255 | 8.2 |
| Waitemata | 258 | 1353 | 19.1 |
| Auckland | 192 | 1174 | 16.4 |
| Counties Manukau | 204 | 1174 | 17.4 |
| Waikato | 68 | 644 | 10.6 |
| Lakes | 14 | 197 | 7.1 |
| Bay of Plenty | 54 | 391 | 13.8 |
| Tairawhiti | 8 | 91 | 8.8 |
| Hawke’s Bay | 50 | 294 | 17.0 |
| Taranaki | 46 | 252 | 18.3 |
| MidCentral | 48 | 287 | 16.7 |
| Whanganui | 11 | 104 | 10.6 |
| Capital & Coast | 83 | 536 | 15.5 |
| Hutt Valley | 46 | 323 | 14.2 |
| Wairarapa | 15 | 77 | 19.5 |
| Nelson Marlborough | 43 | 195 | 22.1 |
| West Coast | 6 | 41 | 14.6 |
| Canterbury | 129 | 854 | 15.1 |
| South Canterbury | 14 | 110 | 12.7 |
| Southern | 98 | 558 | 17.6 |
| Unspecified | 1 | 5 | – |
| **New Zealand** | **1409** | **8915** | **15.8** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

Table 9: Number and percentage of deliveries by caesarean section among standard primiparae1, by facility of birth (secondary and tertiary facilities), 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility of birth** | **Caesarean sections** | **Standard primiparae** | **Rate (%)** |
| Whangarei | 21 | 186 | 11.3 |
| North Shore | 156 | 750 | 20.8 |
| Waitakere | 85 | 559 | 15.2 |
| Auckland City | 242 | 1216 | 19.9 |
| Middlemore | 174 | 862 | 20.2 |
| Waikato | 65 | 411 | 15.8 |
| Rotorua | 14 | 170 | 8.2 |
| Tauranga | 48 | 339 | 14.2 |
| Whakatane | 7 | 45 | 15.6 |
| Gisborne | 8 | 91 | 8.8 |
| Hawke’s Bay | 49 | 291 | 16.8 |
| Taranaki Base | 45 | 212 | 21.2 |
| Palmerston North | 48 | 274 | 17.5 |
| Whanganui | 10 | 93 | 10.8 |
| Wairarapa | 15 | 77 | 19.5 |
| Hutt | 49 | 337 | 14.5 |
| Wellington | 82 | 471 | 17.4 |
| Wairau | 14 | 77 | 18.2 |
| Nelson | 29 | 115 | 25.2 |
| Grey Base | 6 | 37 | 16.2 |
| Christchurch | 130 | 721 | 18.0 |
| Timaru | 13 | 104 | 12.5 |
| Dunedin | 52 | 271 | 19.2 |
| Southland | 46 | 201 | 22.9 |
| **All secondary and tertiary facilities** | **1408** | **7910** | **17.8** |
| **All primary facilities** | **1** | **1005** | **0.1** |
| **New Zealand** | **1409** | **8915** | **15.8** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

## Indicator 5: Induction of labour among standard primiparae, 2012

Figure 10: Percentage of inductions of labour among standard primiparae, by DHB of domicile, 2012



Black line represents national average.
Error bars represent 95% confidence intervals.

Figure 11: Percentage of inductions of labour among standard primiparae, by facility of birth (secondary and tertiary facilities), 2012



Black line represents average for all secondary and tertiary facilities.
Error bars represent 95% confidence intervals.

Table 10: Number and percentage of inductions of labour among standard primiparae1, by DHB of domicile, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **DHB of domicile** | **Inductions of labour** | **Standard primiparae** | **Rate (%)** |
| Northland | 9 | 255 | 3.5 |
| Waitemata | 65 | 1353 | 4.8 |
| Auckland | 47 | 1174 | 4.0 |
| Counties Manukau | 40 | 1174 | 3.4 |
| Waikato | 34 | 644 | 5.3 |
| Lakes | 9 | 197 | 4.6 |
| Bay of Plenty | 10 | 391 | 2.6 |
| Tairawhiti | 1 | 91 | 1.1 |
| Hawke’s Bay | 11 | 294 | 3.7 |
| Taranaki | 5 | 252 | 2.0 |
| MidCentral | 16 | 287 | 5.6 |
| Whanganui | 0 | 104 | – |
| Capital & Coast | 36 | 536 | 6.7 |
| Hutt Valley | 8 | 323 | 2.5 |
| Wairarapa | 0 | 77 | – |
| Nelson Marlborough | 5 | 195 | 2.6 |
| West Coast | 3 | 41 | 7.3 |
| Canterbury | 34 | 854 | 4.0 |
| South Canterbury | 6 | 110 | 5.5 |
| Southern | 33 | 558 | 5.9 |
| Unspecified | 1 | 5 | – |
| New Zealand | 373 | 8915 | 4.2 |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

Table 11: Number and percentage of inductions of labour among standard primiparae1, by facility of birth (secondary and tertiary facilities), 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility of birth** | **Inductions of labour** | **Standard primiparae** | **Rate (%)** |
| Whangarei | 9 | 186 | 4.8 |
| North Shore | 39 | 750 | 5.2 |
| Waitakere | 20 | 559 | 3.6 |
| Auckland City | 66 | 1216 | 5.4 |
| Middlemore | 28 | 862 | 3.2 |
| Waikato | 32 | 411 | 7.8 |
| Rotorua | 9 | 170 | 5.3 |
| Tauranga | 11 | 339 | 3.2 |
| Whakatane | 0 | 45 | – |
| Gisborne | 1 | 91 | 1.1 |
| Hawke’s Bay | 10 | 291 | 3.4 |
| Taranaki Base | 5 | 212 | 2.4 |
| Palmerston North | 14 | 274 | 5.1 |
| Whanganui | 0 | 93 | – |
| Wairarapa | 1 | 77 | 1.3 |
| Hutt | 9 | 337 | 2.7 |
| Wellington | 39 | 471 | 8.3 |
| Wairau | 1 | 77 | 1.3 |
| Nelson | 3 | 115 | 2.6 |
| Grey Base | 3 | 37 | 8.1 |
| Christchurch | 34 | 721 | 4.7 |
| Timaru | 6 | 104 | 5.8 |
| Dunedin | 10 | 271 | 3.7 |
| Southland | 22 | 201 | 10.9 |
| **All secondary and tertiary facilities** | **372** | **7910** | **4.7** |
| **All primary facilities** | **1** | **1005** | **0.1** |
| **New Zealand** | **373** | **8915** | **4.2** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

# Indicators 6 to 9:Degree of 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](#Epi_tear) 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](#Epi_tear) enable a standardised description of perineal damage. Assessing and identifying degrees of lower genital tract 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. Measuring the number of women who are not affected by perineal trauma (that is, those who have an intact perineum after birth) provides a more concise measure than that which could presently be achieved by reviewing reported rates of first- or second-degree tears. This indicator therefore provides a measure that can 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 appropriately assess risks to the mother as well as the infant 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 (WHA 2007).

### Third- and fourth-degree tears (with or 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 (WHA 2007).

### Exclusion of births outside maternity facilities

Standard primiparae presented in the these indicators only include women giving birth at maternity facilities (including primary facilities) and exclude home births or births where the location was unknown, due to insufficient data at time of analysis.

It is estimated that approximately 13% of women (around 400 women in 2012) giving birth at home met the criteria for standard primiparae nationally (6% to 17% between DHBs). Work to expand the definition of standard primipara to accurately include births not at a maternity facility is under way.

## Notes on 2012 data

Rates of intact lower genital tract after vaginal birth among standard primiparae ranged from 16.5% to 51.6% across DHBs, and from 9.9% to 53.0% 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 decrease over time since 2009. Further investigation of the causes of this is required.

Rates of episiotomy without third- or fourth-degree tear also varied, at 6.5% to 31.6% across DHBs, and 6.0% to 35.5% across secondary and tertiary facilities. Outlier DHBs and facilities should investigate the reasons for these differences, which could include review of the clinical indications given in specific cases and the discipline and number of practitioners performing episiotomies.

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, 2012

Figure 12: Percentage of standard primiparae giving birth vaginally with intact lower genital tract, by DHB of domicile, 2012



Black line represents national average.
Error bars represent 95% confidence intervals.

Figure 13: Percentage of standard primiparae giving birth vaginally with intact lower genital tract, by facility of birth (secondary and tertiary facilities), 2012



Black line represents average for all secondary and tertiary facilities.
Error bars represent 95% confidence intervals.

Table 12: Number and percentage of standard primiparae1 giving birth vaginally with intact lower genital tract, by DHB of domicile, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **DHB of domicile** | **Intact lower genital tract** | **Standard primiparae givingbirth vaginally** | **Rate (%)** |
| Northland | 116 | 234 | 49.6 |
| Waitemata | 261 | 1095 | 23.8 |
| Auckland | 195 | 982 | 19.9 |
| Counties Manukau | 160 | 970 | 16.5 |
| Waikato | 270 | 576 | 46.9 |
| Lakes | 91 | 183 | 49.7 |
| Bay of Plenty | 86 | 337 | 25.5 |
| Tairawhiti | 39 | 83 | 47.0 |
| Hawke’s Bay | 72 | 244 | 29.5 |
| Taranaki | 93 | 206 | 45.1 |
| MidCentral | 69 | 239 | 28.9 |
| Whanganui | 48 | 93 | 51.6 |
| Capital & Coast | 81 | 453 | 17.9 |
| Hutt Valley | 90 | 277 | 32.5 |
| Wairarapa | 12 | 62 | 19.4 |
| Nelson Marlborough | 32 | 152 | 21.1 |
| West Coast | 14 | 35 | 40.0 |
| Canterbury | 199 | 725 | 27.4 |
| South Canterbury | 27 | 96 | 28.1 |
| Southern | 143 | 460 | 31.1 |
| Unspecified | 2 | 4 | – |
| **New Zealand** | **2100** | **7506** | **28.0** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

Table 13: Number and percentage of standard primiparae1 giving birth vaginally with intact lower genital tract, by facility of birth (secondary and tertiary facilities), 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility of birth** | **Intact lower genital tract** | **Standard primiparae giving birth vaginally** | **Rate (%)** |
| Whangarei | 69 | 165 | 41.8 |
| North Shore | 100 | 594 | 16.8 |
| Waitakere | 124 | 474 | 26.2 |
| Auckland City | 150 | 974 | 15.4 |
| Middlemore | 68 | 688 | 9.9 |
| Waikato | 109 | 346 | 31.5 |
| Rotorua | 81 | 156 | 51.9 |
| Tauranga | 63 | 291 | 21.6 |
| Whakatane | 12 | 38 | 31.6 |
| Gisborne | 38 | 83 | 45.8 |
| Hawke’s Bay | 71 | 242 | 29.3 |
| Taranaki Base | 65 | 167 | 38.9 |
| Palmerston North | 58 | 226 | 25.7 |
| Whanganui | 44 | 83 | 53.0 |
| Wairarapa | 14 | 62 | 22.6 |
| Hutt | 94 | 288 | 32.6 |
| Wellington | 49 | 389 | 12.6 |
| Wairau | 12 | 63 | 19.0 |
| Nelson | 20 | 86 | 23.3 |
| Grey Base | 11 | 31 | 35.5 |
| Christchurch | 119 | 591 | 20.1 |
| Timaru | 26 | 91 | 28.6 |
| Dunedin | 53 | 219 | 24.2 |
| Southland | 35 | 155 | 22.6 |
| **All secondary and tertiary facilities** | **1485** | **6502** | **22.8** |
| **All primary facilities** | **615** | **1004** | **61.3** |
| **New Zealand** | **2100** | **7506** | **28.0** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

## Indicator 7: Episiotomy and no third- or fourth-degree tear among standard primiparae giving birth vaginally, 2012

Figure 14: Percentage of standard primiparae giving birth vaginally and undergoing episiotomy without mention of third- or fourth-degree tear, by DHB of domicile, 2012



Black line represents national average.
Error bars represent 95% confidence intervals.

Figure 15: 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), 2012



Black line represents average for all secondary and tertiary facilities.
Error bars represent 95% confidence intervals.

Table 14: Number and percentage of standard primiparae1 giving birth vaginally and undergoing episiotomy without mention of third- or fourth-degree tear, by DHB of domicile, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **DHB of domicile** | **Episiotomy without 3rd- or 4th-degree tear** | **Standard primiparae giving birth vaginally** | **Rate (%)** |
| Northland | 24 | 234 | 10.3 |
| Waitemata | 223 | 1095 | 20.4 |
| Auckland | 289 | 982 | 29.4 |
| Counties Manukau | 181 | 970 | 18.7 |
| Waikato | 70 | 576 | 12.2 |
| Lakes | 19 | 183 | 10.4 |
| Bay of Plenty | 70 | 337 | 20.8 |
| Tairawhiti | 7 | 83 | 8.4 |
| Hawke’s Bay | 54 | 244 | 22.1 |
| Taranaki | 26 | 206 | 12.6 |
| MidCentral | 55 | 239 | 23.0 |
| Whanganui | 6 | 93 | 6.5 |
| Capital & Coast | 143 | 453 | 31.6 |
| Hutt Valley | 45 | 277 | 16.2 |
| Wairarapa | 19 | 62 | 30.6 |
| Nelson Marlborough | 22 | 152 | 14.5 |
| West Coast | 6 | 35 | 17.1 |
| Canterbury | 196 | 725 | 27.0 |
| South Canterbury | 20 | 96 | 20.8 |
| Southern | 72 | 460 | 15.7 |
| Unspecified | 0 | 4 | – |
| **New Zealand** | **1547** | **7506** | **20.6** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

Table 15: Number and percentage of standard primiparae1 giving birth vaginally and undergoing episiotomy without mention of third- or fourth-degree tear, by facility of birth (secondary and tertiary facilities), 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility of birth** | **Episiotomy without 3rd- or 4th-degree tear** | **Standard primiparae giving birth vaginally** | **Rate (%)** |
| Whangarei | 22 | 165 | 13.3 |
| North Shore | 143 | 594 | 24.1 |
| Waitakere | 83 | 474 | 17.5 |
| Auckland City | 320 | 974 | 32.9 |
| Middlemore | 141 | 688 | 20.5 |
| Waikato | 66 | 346 | 19.1 |
| Rotorua | 17 | 156 | 10.9 |
| Tauranga | 64 | 291 | 22.0 |
| Whakatane | 7 | 38 | 18.4 |
| Gisborne | 7 | 83 | 8.4 |
| Hawke’s Bay | 55 | 242 | 22.7 |
| Taranaki Base | 25 | 167 | 15.0 |
| Palmerston North | 52 | 226 | 23.0 |
| Whanganui | 5 | 83 | 6.0 |
| Wairarapa | 19 | 62 | 30.6 |
| Hutt | 47 | 288 | 16.3 |
| Wellington | 138 | 389 | 35.5 |
| Wairau | 7 | 63 | 11.1 |
| Nelson | 15 | 86 | 17.4 |
| Grey Base | 7 | 31 | 22.6 |
| Christchurch | 192 | 591 | 32.5 |
| Timaru | 19 | 91 | 20.9 |
| Dunedin | 46 | 219 | 21.0 |
| Southland | 24 | 155 | 15.5 |
| **All secondary and tertiary facilities** | **1521** | **6502** | **23.4** |
| **All primary facilities** | **26** | **1004** | **2.6** |
| **New Zealand** | **1547** | **7506** | **20.6** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

## Indicator 8: Third- or fourth-degree tear and no episiotomy among standard primiparae giving birth vaginally, 2012

Figure 16: Percentage of standard primiparae giving birth vaginally sustaining a third- or fourth-degree tear and not undergoing episiotomy, by DHB of domicile, 2012



Black line represents national average.
Error bars represent 95% confidence intervals.

Figure 17: 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), 2012



Black line represents average for all secondary and tertiary facilities.
Error bars represent 95% confidence intervals.

Table 16: Number and percentage of standard primiparae1 giving birth vaginally sustaining a third- or fourth-degree tear and not undergoing episiotomy, by DHB of domicile, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **DHB of domicile** | **3rd- or 4th-degree tearwithout episiotomy** | **Standard primiparae giving birth vaginally** | **Rate (%)** |
| Northland | 3 | 234 | 1.3 |
| Waitemata | 43 | 1095 | 3.9 |
| Auckland | 27 | 982 | 2.7 |
| Counties Manukau | 43 | 970 | 4.4 |
| Waikato | 31 | 576 | 5.4 |
| Lakes | 9 | 183 | 4.9 |
| Bay of Plenty | 13 | 337 | 3.9 |
| Tairawhiti | 5 | 83 | 6.0 |
| Hawke’s Bay | 16 | 244 | 6.6 |
| Taranaki | 5 | 206 | 2.4 |
| MidCentral | 9 | 239 | 3.8 |
| Whanganui | 4 | 93 | 4.3 |
| Capital & Coast | 13 | 453 | 2.9 |
| Hutt Valley | 7 | 277 | 2.5 |
| Wairarapa | 1 | 62 | 1.6 |
| Nelson Marlborough | 4 | 152 | 2.6 |
| West Coast | 0 | 35 | – |
| Canterbury | 20 | 725 | 2.8 |
| South Canterbury | 0 | 96 | – |
| Southern | 22 | 460 | 4.8 |
| Unspecified | 0 | 4 | – |
| **New Zealand** | **275** | **7506** | **3.7** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

Table 17: Number and percentage of standard primiparae1 giving birth vaginally sustaining a third- or fourth-degree tear and not undergoing episiotomy, by facility of birth (secondary and tertiary facilities), 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility of birth** | **3rd- or 4th-degree tear without episiotomy** | **Standard primiparae giving birth vaginally** | **Rate (%)** |
| Whangarei | 3 | 165 | 1.8 |
| North Shore | 25 | 594 | 4.2 |
| Waitakere | 13 | 474 | 2.7 |
| Auckland City | 28 | 974 | 2.9 |
| Middlemore | 36 | 688 | 5.2 |
| Waikato | 29 | 346 | 8.4 |
| Rotorua | 8 | 156 | 5.1 |
| Tauranga | 11 | 291 | 3.8 |
| Whakatane | 2 | 38 | 5.3 |
| Gisborne | 5 | 83 | 6.0 |
| Hawke’s Bay | 17 | 242 | 7.0 |
| Taranaki Base | 5 | 167 | 3.0 |
| Palmerston North | 8 | 226 | 3.5 |
| Whanganui | 3 | 83 | 3.6 |
| Wairarapa | 1 | 62 | 1.6 |
| Hutt | 7 | 288 | 2.4 |
| Wellington | 13 | 389 | 3.3 |
| Wairau | 3 | 63 | 4.8 |
| Nelson | 1 | 86 | 1.2 |
| Grey Base | 0 | 31 | - |
| Christchurch | 19 | 591 | 3.2 |
| Timaru | 0 | 91 | - |
| Dunedin | 10 | 219 | 4.6 |
| Southland | 11 | 155 | 7.1 |
| **All secondary and tertiary facilities** | **258** | **6502** | **4.0** |
| **All primary facilities** | **17** | **1004** | **1.7** |
| **New Zealand** | **275** | **7506** | **3.7** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

## Indicator 9: Episiotomy and third- or fourth-degree tear among standard primiparae giving birth vaginally, 2012

Figure 18: Percentage of standard primiparae giving birth vaginally undergoing episiotomy and sustaining a third- or fourth-degree tear, by DHB of domicile, 2012



Black line represents national average.
Error bars represent 95% confidence intervals.

Figure 19: 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), 2012



Black line represents average for all secondary and tertiary facilities.
Error bars represent 95% confidence intervals.

Table 18: Number and percentage of standard primiparae1 giving birth vaginally undergoing episiotomy and sustaining a third- or fourth-degree tear, by DHB of domicile, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **DHB of domicile** | **Episiotomy with 3rd-or 4th-degree tear** | **Standard primiparae giving birth vaginally** | **Rate (%)** |
| Northland | 4 | 234 | 1.7 |
| Waitemata | 13 | 1095 | 1.2 |
| Auckland | 19 | 982 | 1.9 |
| Counties Manukau | 18 | 970 | 1.9 |
| Waikato | 9 | 576 | 1.6 |
| Lakes | 0 | 183 | – |
| Bay of Plenty | 4 | 337 | 1.2 |
| Tairawhiti | 2 | 83 | 2.4 |
| Hawke’s Bay | 7 | 244 | 2.9 |
| Taranaki | 4 | 206 | 1.9 |
| MidCentral | 1 | 239 | 0.4 |
| Whanganui | 2 | 93 | 2.2 |
| Capital & Coast | 12 | 453 | 2.6 |
| Hutt Valley | 2 | 277 | 0.7 |
| Wairarapa | 0 | 62 | – |
| Nelson Marlborough | 3 | 152 | 2.0 |
| West Coast | 0 | 35 | – |
| Canterbury | 9 | 725 | 1.2 |
| South Canterbury | 0 | 96 | – |
| Southern | 14 | 460 | 3.0 |
| Unspecified | 0 | 4 | – |
| **New Zealand** | **123** | **7506** | **1.6** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

Table 19: Number and percentage of standard primiparae1 giving birth vaginally undergoing episiotomy and sustaining a third- or fourth-degree tear, by facility of birth (secondary and tertiary facilities), 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility of birth** | **Episiotomy with 3rd-or 4th-degree tear** | **Standard primiparae giving birth vaginally** | **Rate (%)** |
| Whangarei | 4 | 165 | 2.4 |
| North Shore | 12 | 594 | 2.0 |
| Waitakere | 2 | 474 | 0.4 |
| Auckland City | 20 | 974 | 2.1 |
| Middlemore | 16 | 688 | 2.3 |
| Waikato | 8 | 346 | 2.3 |
| Rotorua | 0 | 156 | – |
| Tauranga | 4 | 291 | 1.4 |
| Whakatane | 0 | 38 | – |
| Gisborne | 2 | 83 | 2.4 |
| Hawke’s Bay | 7 | 242 | 2.9 |
| Taranaki Base | 4 | 167 | 2.4 |
| Palmerston North | 2 | 226 | 0.9 |
| Whanganui | 1 | 83 | 1.2 |
| Wairarapa | 0 | 62 | – |
| Hutt | 1 | 288 | 0.3 |
| Wellington | 13 | 389 | 3.3 |
| Wairau | 0 | 63 | – |
| Nelson | 3 | 86 | 3.5 |
| Grey Base | 0 | 31 | – |
| Christchurch | 9 | 591 | 1.5 |
| Timaru | 0 | 91 | – |
| Dunedin | 9 | 219 | 4.1 |
| Southland | 5 | 155 | 3.2 |
| **All secondary and tertiary facilities** | **122** | **6502** | **1.9** |
| **All primary facilities** | **1** | **1004** | **0.1** |
| **New Zealand** | **123** | **7506** | **1.6** |

1 Standard primiparae only include women giving birth in maternity facilities (including primary facilities).

# 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 2012 data

Rates of general anaesthetic use in caesarean section deliveries ranged from 3.9% to 13.6% across DHBs, and from 2.8%to 22.4% 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, 2012

Figure 20: Percentage of women undergoing a caesarean section under general anaesthetic, by DHB of domicile, 2012



Black line represents national average.
Error bars represent 95% confidence intervals.

Figure 21: Percentage of women undergoing a caesarean section under general anaesthetic, by facility of birth (secondary and tertiary facilities), 2012



Black line represents average for all secondary and tertiary facilities.
Error bars represent 95% confidence intervals.

Table 20: Number and percentage of women undergoing a caesarean section under general anaesthetic, by DHB of domicile, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **DHB of domicile** | **Caesarean section under general anaesthetic** | **All caesarean sections** | **Rate (%)** |
| Northland | 45 | 332 | 13.6 |
| Waitemata | 218 | 2316 | 9.4 |
| Auckland | 103 | 1919 | 5.4 |
| Counties Manukau | 248 | 1980 | 12.5 |
| Waikato | 139 | 1030 | 13.5 |
| Lakes | 15 | 379 | 4.0 |
| Bay of Plenty | 81 | 661 | 12.3 |
| Tairawhiti | 18 | 133 | 13.5 |
| Hawke’s Bay | 57 | 600 | 9.5 |
| Taranaki | 41 | 396 | 10.4 |
| MidCentral | 61 | 569 | 10.7 |
| Whanganui | 20 | 168 | 11.9 |
| Capital & Coast | 62 | 1094 | 5.7 |
| Hutt Valley | 41 | 505 | 8.1 |
| Wairarapa | 8 | 154 | 5.2 |
| Nelson Marlborough | 16 | 413 | 3.9 |
| West Coast | 10 | 124 | 8.1 |
| Canterbury | 75 | 1627 | 4.6 |
| South Canterbury | 13 | 166 | 7.8 |
| Southern | 65 | 999 | 6.5 |
| Unspecified | 2 | 7 | – |
| **New Zealand** | **1338** | **15,572** | **8.6** |

Table 21: Number and percentage of women undergoing a caesarean section under general anaesthetic, by facility of birth (secondary and tertiary facilities), 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility of birth** | **Caesarean section under general anaesthetic** | **All caesarean sections** | **Rate (%)** |
| Whangarei | 42 | 311 | 13.5 |
| North Shore | 126 | 1263 | 10.0 |
| Waitakere | 77 | 735 | 10.5 |
| Auckland City | 126 | 2567 | 4.9 |
| Middlemore | 254 | 1724 | 14.7 |
| Waikato | 132 | 998 | 13.2 |
| Rotorua | 13 | 378 | 3.4 |
| Tauranga | 52 | 517 | 10.1 |
| Whakatane | 28 | 125 | 22.4 |
| Gisborne | 15 | 127 | 11.8 |
| Hawke’s Bay | 52 | 580 | 9.0 |
| Taranaki Base | 41 | 386 | 10.6 |
| Palmerston North | 67 | 585 | 11.5 |
| Whanganui | 14 | 132 | 10.6 |
| Wairarapa | 6 | 140 | 4.3 |
| Hutt | 40 | 500 | 8.0 |
| Wellington | 76 | 1185 | 6.4 |
| Wairau | 4 | 144 | 2.8 |
| Nelson | 10 | 265 | 3.8 |
| Grey Base | 8 | 102 | 7.8 |
| Christchurch | 77 | 1646 | 4.7 |
| Timaru | 9 | 155 | 5.8 |
| Dunedin | 34 | 580 | 5.9 |
| Southland | 33 | 422 | 7.8 |
| **All secondary and tertiary facilities** | **1336** | **15,567** | **8.6** |
| **All primary facilities** | **2** | **5** | **40.0** |
| **New Zealand** | **1338** | **15,572** | **8.6** |

# 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, 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 2012 data

Overall, rates of blood transfusion were low and did not vary widely, although the rate and range was greater in the case of caesarean section deliveries than vaginal births. These rates were based on small numbers, so caution must be used when making comparisons.

DHBs 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, 2012

Figure 22: Percentage of women giving birth by caesarean section and undergoing blood transfusion during birth admission, by DHB of domicile, 2012



Black line represents national average.
Error bars represent 95% confidence intervals.

Figure 23: Percentage of women giving birth by caesarean section and undergoing blood transfusion during birth admission, by facility of birth (secondary and tertiary facilities), 2012



Black line represents average for all secondary and tertiary facilities.
Error bars represent 95% confidence intervals.

Table 22: Number and percentage of women giving birth by caesarean section and undergoing blood transfusion during birth admission, by DHB of domicile, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **DHB of domicile** | **Blood transfusion** | **All caesarean sections** | **Rate (%)** |
| Northland | 14 | 332 | 4.2 |
| Waitemata | 44 | 2316 | 1.9 |
| Auckland | 53 | 1919 | 2.8 |
| Counties Manukau | 78 | 1980 | 3.9 |
| Waikato | 43 | 1030 | 4.2 |
| Lakes | 11 | 379 | 2.9 |
| Bay of Plenty | 27 | 661 | 4.1 |
| Tairawhiti | 2 | 133 | 1.5 |
| Hawke’s Bay | 21 | 600 | 3.5 |
| Taranaki | 12 | 396 | 3.0 |
| MidCentral | 17 | 569 | 3.0 |
| Whanganui | 7 | 168 | 4.2 |
| Capital & Coast | 59 | 1094 | 5.4 |
| Hutt Valley | 20 | 505 | 4.0 |
| Wairarapa | 6 | 154 | 3.9 |
| Nelson Marlborough | 13 | 413 | 3.1 |
| West Coast | 4 | 124 | 3.2 |
| Canterbury | 38 | 1627 | 2.3 |
| South Canterbury | 4 | 166 | 2.4 |
| Southern | 22 | 999 | 2.2 |
| Unspecified | 1 | 7 | – |
| **New Zealand** | **496** | **15,572** | **3.2** |

Table 23: 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), 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility of birth** | **Blood transfusion** | **All caesarean sections** | **Rate (%)** |
| Whangarei | 12 | 311 | 3.9 |
| North Shore | 31 | 1263 | 2.5 |
| Waitakere | 5 | 735 | 0.7 |
| Auckland City | 70 | 2567 | 2.7 |
| Middlemore | 75 | 1724 | 4.4 |
| Waikato | 43 | 998 | 4.3 |
| Rotorua | 9 | 378 | 2.4 |
| Tauranga | 19 | 517 | 3.7 |
| Whakatane | 7 | 125 | 5.6 |
| Gisborne | 2 | 127 | 1.6 |
| Hawke’s Bay | 21 | 580 | 3.6 |
| Taranaki Base | 11 | 386 | 2.8 |
| Palmerston North | 19 | 585 | 3.2 |
| Whanganui | 6 | 132 | 4.5 |
| Wairarapa | 4 | 140 | 2.9 |
| Hutt | 20 | 500 | 4.0 |
| Wellington | 64 | 1185 | 5.4 |
| Wairau | 2 | 144 | 1.4 |
| Nelson | 10 | 265 | 3.8 |
| Grey Base | 2 | 102 | 2.0 |
| Christchurch | 39 | 1646 | 2.4 |
| Timaru | 3 | 155 | 1.9 |
| Dunedin | 14 | 580 | 2.4 |
| Southland | 8 | 422 | 1.9 |
| **All secondary and tertiary facilities** | **496** | **15,567** | **3.2** |
| **All primary facilities** | **0** | **5** | **–** |
| **New Zealand** | **496** | **15,572** | **3.2** |

## Indicator 12: Blood transfusion during birth admission for vaginal birth, 2012

Figure 24: Percentage of women giving birth vaginally and undergoing blood transfusion during birth admission, by DHB of domicile, 2012



Black line represents national average.
Error bars represent 95% confidence intervals.

Figure 25: Percentage of women giving birth vaginally and undergoing blood transfusion during birth admission, by facility of birth (secondary and tertiary facilities), 2012



Black line represents average for all secondary and tertiary facilities.
Error bars represent 95% confidence intervals.

Table 24: Number and percentage of women giving birth vaginally and undergoing blood transfusion during birth admission, by DHB of domicile, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **DHB of domicile** | **Blood transfusion** | **All vaginal births** | **Rate (%)** |
| Northland | 25 | 1968 | 1.3 |
| Waitemata | 71 | 5680 | 1.3 |
| Auckland | 92 | 4789 | 1.9 |
| Counties Manukau | 133 | 6781 | 2.0 |
| Waikato | 71 | 4430 | 1.6 |
| Lakes | 32 | 1180 | 2.7 |
| Bay of Plenty | 32 | 2316 | 1.4 |
| Tairawhiti | 3 | 603 | 0.5 |
| Hawke’s Bay | 34 | 1661 | 2.0 |
| Taranaki | 16 | 1167 | 1.4 |
| MidCentral | 29 | 1584 | 1.8 |
| Whanganui | 19 | 706 | 2.7 |
| Capital & Coast | 54 | 2788 | 1.9 |
| Hutt Valley | 37 | 1507 | 2.5 |
| Wairarapa | 3 | 354 | 0.8 |
| Nelson Marlborough | 14 | 1110 | 1.3 |
| West Coast | 1 | 289 | 0.3 |
| Canterbury | 61 | 4371 | 1.4 |
| South Canterbury | 2 | 483 | 0.4 |
| Southern | 34 | 2606 | 1.3 |
| Unspecified | 1 | 365 | – |
| **New Zealand** | **764** | **46,738** | **1.6** |

Table 25: Number and percentage of women giving birth vaginally and undergoing blood transfusion during birth admission, by facility of birth (secondary and tertiary facilities), 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility of birth** | **Blood transfusion** | **All vaginal births** | **Rate (%)** |
| Whangarei | 21 | 1276 | 1.6 |
| North Shore | 37 | 2574 | 1.4 |
| Waitakere | 22 | 2319 | 0.9 |
| Auckland City | 116 | 5091 | 2.3 |
| Middlemore | 128 | 5124 | 2.5 |
| Waikato | 70 | 2474 | 2.8 |
| Rotorua | 29 | 950 | 3.1 |
| Tauranga | 24 | 1615 | 1.5 |
| Whakatane | 6 | 434 | 1.4 |
| Gisborne | 3 | 549 | 0.5 |
| Hawke’s Bay | 33 | 1572 | 2.1 |
| Taranaki Base | 16 | 913 | 1.8 |
| Palmerston North | 30 | 1345 | 2.2 |
| Whanganui | 16 | 575 | 2.8 |
| Wairarapa | 2 | 337 | 0.6 |
| Hutt | 38 | 1482 | 2.6 |
| Wellington | 54 | 2271 | 2.4 |
| Wairau | 2 | 333 | 0.6 |
| Nelson | 12 | 610 | 2.0 |
| Grey Base | 1 | 189 | 0.5 |
| Christchurch | 62 | 3586 | 1.7 |
| Timaru | 2 | 443 | 0.5 |
| Dunedin | 23 | 1256 | 1.8 |
| Southland | 10 | 826 | 1.2 |
| **All secondary and tertiary facilities** | **757** | **38,144** | **2.0** |
| **All primary facilities** | **7** | **5361** | **0.1** |
| **All home births** | **0** | **1923** | **–** |
| **New Zealand1** | **764** | **46,738** | **1.6** |

1 Includes women where birth location was unspecified.

# Indicator 13: 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 and fewer still are potentially avoidable.[[7]](#footnote-7) The 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. Cases of severe maternal morbidity should be subject to local review for quality improvement purposes.

The first severe morbidity indicator to be included in the New Zealand Maternity Clinical Indicators is eclampsia among women giving birth. Additional categories of severe morbidity are likely to be added over time.

## Eclampsia

Pre-eclampsia is a disorder of pregnancy characterised by [high blood pressure](http://en.wikipedia.org/wiki/Hypertension) and [protein in the urine](http://en.wikipedia.org/wiki/Proteinuria). 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.

## Notes on 2012 data

There were 14 women diagnosed with eclampsia during their birth admission across seven DHBs, with fewer than five in each DHB. DHBs with cases should investigate each case for upstream opportunities for management of hypertension and/or pre-eclampsia.

## Indicator 13: Diagnosis of eclampsia during birth admission, 2012

Table 26: Number and percentage of women diagnosed with eclampsia during birth admission, by DHB of domicile, 2012

|  |  |  |
| --- | --- | --- |
| **DHB of domicile** | **Diagnosis of eclampsia during birth admission** | **All women giving birth** |
| Northland | 0 | 2300 |
| Waitemata | 2 | 7996 |
| Auckland | 0 | 6708 |
| Counties Manukau | 3 | 8761 |
| Waikato | 1 | 5460 |
| Lakes | 0 | 1559 |
| Bay of Plenty | 1 | 2977 |
| Tairawhiti | 2 | 736 |
| Hawke’s Bay | 0 | 2261 |
| Taranaki | 0 | 1563 |
| MidCentral | 0 | 2153 |
| Whanganui | 0 | 874 |
| Capital & Coast | 0 | 3882 |
| Hutt Valley | 0 | 2012 |
| Wairarapa | 1 | 508 |
| Nelson Marlborough | 0 | 1523 |
| West Coast | 0 | 413 |
| Canterbury | 4 | 5998 |
| South Canterbury | 0 | 649 |
| Southern | 0 | 3605 |
| Unspecified | 0 | 372 |
| **New Zealand** | **14** | **62,310** |

Table 27: Number and percentage of women diagnosed with eclampsia during birth admission, by facility of birth (secondary and tertiary facilities), 2012

|  |  |  |
| --- | --- | --- |
| **Facility of birth** | **Diagnosis of eclampsia during birth admission** | **All women giving birth** |
| Whangarei | 0 | 1587 |
| North Shore | 1 | 3837 |
| Waitakere | 1 | 3054 |
| Auckland City | 0 | 7658 |
| Middlemore | 3 | 6848 |
| Waikato | 1 | 3472 |
| Rotorua | 1 | 1328 |
| Tauranga | 0 | 2132 |
| Whakatane | 0 | 559 |
| Gisborne | 2 | 676 |
| Hawke’s Bay | 0 | 2152 |
| Taranaki Base | 0 | 1299 |
| Palmerston North | 0 | 1930 |
| Whanganui | 0 | 707 |
| Wairarapa | 1 | 477 |
| Hutt | 0 | 1982 |
| Wellington | 0 | 3456 |
| Wairau | 0 | 477 |
| Nelson | 0 | 875 |
| Grey Base | 0 | 291 |
| Christchurch | 4 | 5232 |
| Timaru | 0 | 598 |
| Dunedin | 0 | 1836 |
| Southland | 0 | 1248 |
| **All secondary and tertiary facilities** | **14** | **53,711** |
| **All primary facilities** | **0** | **5366** |
| **All home births** | **0** | **1923** |
| **New Zealand1** | **14** | **62,310** |

1 Includes women where birth location was unspecified.

# Indicator 14: 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. This reduces the oxygen and nourishment available to the baby and leads to higher rates of neonatal mortality, sudden unexpected death in infancy (SUDI), low birth weight and long-term respiratory problems for the child (The Quit Group 2004).

Pregnancy is often the time women seek to quit smoking for their health and the health of their unborn baby. This indicator monitors tobacco use at two weeks postnatal, which – when compared to tobacco use rates at first engagement with maternity services – seeks to ensure women who have quit smoking during their pregnancy maintain a smokefree environment for their newborn baby.

Improving this indicator requires coordinated tobacco cessation support during pregnancy and into the postnatal period that meets the needs of local populations, and requires tobacco cessation services to work closely with LMCs and DHB primary maternity services.

## Notes on 2012 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 3.3% to 32.4%, and facility rates ranged from 2.3% to 35.9%. DHBs and facilities with higher rates warrant further investigation into access to appropriate smoking cessation services and development of new initiatives to support smoking cessation among pregnant and postpartum women.

This indicator currently presents tobacco use information collected from women registered with a Lead Maternity Carer (89% of women in 2012). Collection of tobacco use data for women who receive DHB-funded primary maternity services is under way and will be included in this indicator when it becomes available.

## Indicator 14: Maternal tobacco use during postnatal period, 2012

Figure 26: Percentage of women identified as smokers during postnatal period (2 weeks after birth), by DHB of domicile, 2012



Black line represents national average.
Error bars represent 95% confidence intervals.

Figure 27: Percentage of women identified as smokers during postnatal period (2 weeks after birth), by facility of birth (secondary and tertiary facilities), 2012



Black line represents average for all secondary and tertiary facilities.
Error bars represent 95% confidence intervals.

Table 28: Number and percentage of women identified as smokers during postnatal period (2 weeks after birth), by DHB of domicile, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **DHB of domicile** | **Women identified as smokers at 2 weeks after birth** | **All women with reported smoking status at 2 weeks after birth** | **Rate (%)** |
| Northland | 579 | 1981 | 29.2 |
| Waitemata | 513 | 7229 | 7.1 |
| Auckland | 159 | 4882 | 3.3 |
| Counties Manukau | 741 | 5440 | 13.6 |
| Waikato | 888 | 4955 | 17.9 |
| Lakes | 397 | 1490 | 26.6 |
| Bay of Plenty | 638 | 2888 | 22.1 |
| Tairawhiti | 223 | 688 | 32.4 |
| Hawke’s Bay | 437 | 2018 | 21.7 |
| Taranaki | 268 | 1404 | 19.1 |
| MidCentral | 394 | 1952 | 20.2 |
| Whanganui | 229 | 777 | 29.5 |
| Capital & Coast | 248 | 3430 | 7.2 |
| Hutt Valley | 168 | 1748 | 9.6 |
| Wairarapa | 73 | 454 | 16.1 |
| Nelson Marlborough | 139 | 1267 | 11.0 |
| West Coast | 10 | 222 | 4.5 |
| Canterbury | 628 | 5836 | 10.8 |
| South Canterbury | 97 | 592 | 16.4 |
| Southern | 463 | 3416 | 13.6 |
| Unspecified | 31 | 200 | – |
| **New Zealand** | **7323** | **52,869** | **13.9** |

Table 29: Number and percentage of women identified as smokers during postnatal period (2 weeks after birth), by facility of birth (secondary and tertiary facilities), 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility of birth** | **Women identified as smokers at 2 weeks after birth** | **All women with reported smoking status at 2 weeks after birth** | **Rate (%)** |
| Whangarei | 370 | 1339 | 27.6 |
| North Shore | 159 | 3580 | 4.4 |
| Waitakere | 308 | 2670 | 11.5 |
| Auckland City | 132 | 5801 | 2.3 |
| Middlemore | 542 | 3591 | 15.1 |
| Waikato | 501 | 3134 | 16.0 |
| Rotorua | 354 | 1283 | 27.6 |
| Tauranga | 339 | 2084 | 16.3 |
| Whakatane | 192 | 535 | 35.9 |
| Gisborne | 203 | 640 | 31.7 |
| Hawke’s Bay | 431 | 1951 | 22.1 |
| Taranaki Base | 207 | 1151 | 18.0 |
| Palmerston North | 327 | 1751 | 18.7 |
| Whanganui | 204 | 647 | 31.5 |
| Wairarapa | 70 | 434 | 16.1 |
| Hutt | 160 | 1750 | 9.1 |
| Wellington | 176 | 2935 | 6.0 |
| Wairau | 44 | 383 | 11.5 |
| Nelson | 78 | 723 | 10.8 |
| Grey Base | 4 | 139 | 2.9 |
| Christchurch | 508 | 5076 | 10.0 |
| Timaru | 88 | 548 | 16.1 |
| Dunedin | 216 | 1779 | 12.1 |
| Southland | 174 | 1129 | 15.4 |
| **All secondary and tertiary facilities** | **5787** | **45,053** | **12.8** |
| **All primary facilities** | **1085** | **4828** | **22.5** |
| **All home births** | **241** | **1856** | **13.0** |
| **New Zealand1** | **7323** | **52,869** | **13.9** |

1 Includes women where birth location was unspecified.

# Indicator 15: 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.

Spontaneous preterm birth, 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 have 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 2012 data

Overall rates of preterm birth (<37 weeks gestation) varied between DHBs, ranging from 5.4% to 9.2%, and varied more widely between secondary and tertiary facilities, ranging from 3.9% to 12.4%. The latter variation is likely to reflect clinical decision-making around management of women in preterm labour.

Rates of very preterm (<32 weeks gestation) birth have remained fairly stable while rates of moderate or late preterm birth (32 to 36 weeks gestation) appear to be increasing slightly over time. This warrants further investigation as to the cause of both.

## Indicator 15: Preterm births, 2012

Figure 28: Percentage of preterm births, by DHB of domicile, 2012



Black line represents national average.
Error bars represent 95% confidence intervals.

Figure 29: Percentage of preterm births, by facility of birth (secondary and tertiary facilities), 2012



Black line represents average for all secondary and tertiary facilities.
Error bars represent 95% confidence intervals.

Table 30: Number and percentage of preterm births, by DHB of domicile, 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **DHB of domicile** | **Babies born under 37 weeks gestation** | **All babies born(live births)** | **Rate (%)** |
| **<32 weeks** | **32–36 weeks** | **Total** |
| Northland | 33 | 125 | 158 | 2312 | 6.8 |
| Waitemata | 81 | 503 | 584 | 8076 | 7.2 |
| Auckland | 73 | 413 | 486 | 6743 | 7.2 |
| Counties Manukau | 120 | 528 | 648 | 8824 | 7.3 |
| Waikato | 72 | 364 | 436 | 5525 | 7.9 |
| Lakes | 22 | 99 | 121 | 1561 | 7.8 |
| Bay of Plenty | 43 | 190 | 233 | 2992 | 7.8 |
| Tairawhiti | 12 | 36 | 48 | 747 | 6.4 |
| Hawke’s Bay | 34 | 166 | 200 | 2267 | 8.8 |
| Taranaki | 18 | 116 | 134 | 1578 | 8.5 |
| MidCentral | 28 | 158 | 186 | 2202 | 8.4 |
| Whanganui | 23 | 57 | 80 | 880 | 9.1 |
| Capital & Coast | 58 | 258 | 316 | 3884 | 8.1 |
| Hutt Valley | 20 | 117 | 137 | 2039 | 6.7 |
| Wairarapa | 5 | 26 | 31 | 505 | 6.1 |
| Nelson Marlborough | 22 | 73 | 95 | 1541 | 6.2 |
| West Coast | 8 | 30 | 38 | 413 | 9.2 |
| Canterbury | 84 | 425 | 509 | 6054 | 8.4 |
| South Canterbury | 3 | 33 | 36 | 661 | 5.4 |
| Southern | 40 | 229 | 269 | 3625 | 7.4 |
| Unspecified | 9 | 5 | 14 | 314 | – |
| **New Zealand** | **808** | **3951** | **4759** | **62,743** | **7.6** |

Table 31: Number and percentage of preterm births, by facility of birth (secondary and tertiary facilities), 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility of birth** | **Babies born under 37 weeks gestation** | **All babies born(live births)** | **Rate (%)** |
| **<32 weeks** | **32–36 weeks** | **Total** |
| Whangarei | 8 | 102 | 110 | 1618 | 6.8 |
| North Shore | 10 | 252 | 262 | 3877 | 6.8 |
| Waitakere | 5 | 134 | 139 | 3117 | 4.5 |
| Auckland City | 164 | 577 | 741 | 7791 | 9.5 |
| Middlemore | 119 | 470 | 589 | 6963 | 8.5 |
| Waikato | 93 | 318 | 411 | 3569 | 11.5 |
| Rotorua | 11 | 97 | 108 | 1355 | 8.0 |
| Tauranga | 12 | 143 | 155 | 2168 | 7.1 |
| Whakatane | 6 | 38 | 44 | 575 | 7.7 |
| Gisborne | 6 | 32 | 38 | 695 | 5.5 |
| Hawke’s Bay | 20 | 153 | 173 | 2178 | 7.9 |
| Taranaki Base | 11 | 113 | 124 | 1321 | 9.4 |
| Palmerston North | 21 | 152 | 173 | 1958 | 8.8 |
| Whanganui | 9 | 48 | 57 | 720 | 7.9 |
| Wairarapa | 0 | 20 | 20 | 481 | 4.2 |
| Hutt | 2 | 108 | 110 | 2014 | 5.5 |
| Wellington | 137 | 296 | 433 | 3506 | 12.4 |
| Wairau | 1 | 24 | 25 | 486 | 5.1 |
| Nelson | 8 | 47 | 55 | 894 | 6.2 |
| Grey Base | 3 | 16 | 19 | 298 | 6.4 |
| Christchurch | 81 | 438 | 519 | 5348 | 9.7 |
| Timaru | 1 | 23 | 24 | 614 | 3.9 |
| Dunedin | 39 | 126 | 165 | 1863 | 8.9 |
| Southland | 7 | 98 | 105 | 1258 | 8.3 |
| **All secondary and tertiary facilities** | **774** | **3825** | **4599** | **54,667** | **8.4** |
| **All primary facilities** | **8** | **73** | **81** | **5479** | **1.5** |
| **All home births** | **5** | **30** | **35** | **1655** | **2.1** |
| **New Zealand1** | **808** | **3951** | **4759** | **62,743** | **7.6** |

1 Includes babies born without a birth location recorded.

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# Appendices

## Appendix 1: Technical notes

### 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:

* delivered at a maternity facility
* are aged between 20 and 34 years (inclusive) at delivery
* are pregnant with a single baby presenting in labour in cephalic position (see Tables A1, A2)
* have no known prior pregnancy of 20 weeks and over gestation
* deliver 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).

Table A1: Singleton birth exclusion criteria

|  |  |
| --- | --- |
| **Clinical code (ICD-10-AM)** | **Description** |
| O300−O309 | Multiple gestation |
| O632 | Delayed delivery of second twin, triplet, etc |
| Z372−Z377 | Outcome of delivery − twins or multiple |

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 |
| O60 | Preterm labour and delivery |

Table A4: Obstetric complications exclusion criteria

|  |  |
| --- | --- |
| **Clinical code (ICD-10-AM)** | **Description** |
| O100−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 (that is, 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.

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 |
| 9046700 | Spontaneous vertex delivery |
| 9046800−9046804 | Forceps delivery |
| 9046900 | Vacuum extraction with delivery |
| 1652000−1652003 | Caesarean section |

**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).

**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).

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 |

**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).

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).

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 |

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

### 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 deliveries or births for which clinicians have access to similar clinical facilities and interventions. Data for individual primary facilities is provided in Appendix 5. 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 RG, 1998, Two-sided confidence intervals for the single proportion: Comparison of seven methods, *Statistics in Medicine* 17: 857–72).

**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 merge:** 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 2: Catchment areas

The primary, secondary and tertiary maternity facilities with reported births between 2009 and 2012 are listed by DHB in the table below. Their geographical locations are presented in Figure A1.

| **District health board** | **Tertiary facility1** | **Secondary facility2** | **Primary facility3** |
| --- | --- | --- | --- |
| Northland | Auckland City | Whangarei | Bay of IslandsDargavilleHokianga HealthKaitaia |
| Waitemata | North ShoreWaitakere | HelensvilleWarkworthWellsford |
| Auckland |  | Birthcare Auckland |
| Counties Manukau | Middlemore |  | Botany DownsPapakuraPukekohe |
| Waikato | Waikato |  | Birthcare HuntlyMatarikiPohlen TrustRhoda ReadRiver Ridge\*TaumaranuiTe KuitiThamesTokoroaWaihiWaterford |
| Lakes | Rotorua | Taupo |
| Bay of Plenty | TaurangaWhakatane | MuruparaOpotiki |
| Tairawhiti | Gisborne | Ngati Porou Hauora |
| Taranaki | Taranaki Base | Elizabeth RHawera |
| Hawke’s Bay | Wellington | Hawke’s Bay Regional | Wairoa |
| MidCentral | Palmerston North | DannevirkeHorowhenua |
| Whanganui | Whanganui | OtaihapeWaimarino |
| Capital & Coast |  | KapitiKenepuru |
| Hutt Valley | Hutt |  |
| Wairarapa | Wairarapa |  |
| Nelson Marlborough | WairauNelson | Golden BayMotueka\* |
| West Coast | Christchurch | Grey Base | Buller |
| Canterbury |  | Akaroa\*\*AshburtonBurwoodDarfieldKaikouraLincolnRangioraSt George’sWaikari\*\* |
| South Canterbury | Timaru |  |
| Southern | DunedinSouthland | Charlotte JeanCluthaDunstanGoreLakes DistrictLumsdenManiototoOamaruTuatapereWinton |

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.

\* Maternity data for 2012 was not supplied to the Ministry of Health for these primary maternity facilities.

\*\* These facilities did not provide birth care in 2012.

Figure A1: Maternity facilities in New Zealand by district health board and facility type



## Appendix 3: New Zealand Maternity Clinical Indicator numbers and rates by year, 2009 to 2012

|  |  |  |  |
| --- | --- | --- | --- |
| **New Zealand Maternity Clinical Indicator** | **Numerator value** | **Denominator value** | **Rate (%)** |
| **2009** | **2010** | **2011** | **2012** | **2009** | **2010** | **2011** | **2012** | **2009** | **2010** | **2011** | **2012** |
| 1 Registration with a Lead Maternity Carer in the 1st trimester of pregnancy | 30,357 | 32,299 | 33,667 | 35,122 | 53,777 | 55,240 | 54,460 | 55,299 | 56.4 | 58.5 | 61.8 | 63.5 |
| 2 Standard primiparae who have a spontaneous vaginal birth | 6693 | 6581 | 6349 | 6113 | 9709 | 9502 | 9163 | 8915 | 68.9 | 69.3 | 69.3 | 68.6 |
| 3 Standard primiparae who undergo an instrumental vaginal birth | 1453 | 1399 | 1379 | 1366 | 9709 | 9502 | 9163 | 8915 | 15.0 | 14.7 | 15.0 | 15.3 |
| 4 Standard primiparae who undergo caesarean section | 1480 | 1455 | 1386 | 1409 | 9709 | 9502 | 9163 | 8915 | 15.2 | 15.3 | 15.1 | 15.8 |
| 5 Standard primiparae who undergo induction of labour | 433 | 368 | 408 | 373 | 9709 | 9502 | 9163 | 8915 | 4.5 | 3.9 | 4.5 | 4.2 |
| 6 Standard primiparae with an intact lower genital tract (no 1st- to 4th‑degree tear or episiotomy) | 2744 | 2599 | 2381 | 2100 | 8229 | 8047 | 7777 | 7506 | 33.3 | 32.3 | 30.6 | 28.0 |
| 7 Standard primiparae undergoing episiotomy and no 3rd- or 4th‑degree perineal tear | 1663 | 1642 | 1581 | 1547 | 8229 | 8047 | 7777 | 7506 | 20.2 | 20.4 | 20.3 | 20.6 |
| 8 Standard primiparae sustaining a 3rd- or 4th-degree perineal tear and no episiotomy | 266 | 268 | 269 | 275 | 8229 | 8047 | 7777 | 7506 | 3.2 | 3.3 | 3.5 | 3.7 |
| 9 Standard primiparae undergoing episiotomy and sustaining a 3rd- or 4th-degree perineal tear | 102 | 81 | 98 | 123 | 8229 | 8047 | 7777 | 7506 | 1.2 | 1.0 | 1.3 | 1.6 |
| 10 Women having a general anaesthetic for caesarean section | 1376 | 1386 | 1244 | 1338 | 15,238 | 15,247 | 14,876 | 15,572 | 9.0 | 9.1 | 8.4 | 8.6 |
| 11 Women requiring a blood transfusion with caesarean section | 569 | 500 | 487 | 496 | 15,238 | 15,247 | 14,876 | 15,572 | 3.7 | 3.3 | 3.3 | 3.2 |
| 12 Women requiring a blood transfusion with vaginal birth | 707 | 747 | 728 | 764 | 48,983 | 49,203 | 47,422 | 46,738 | 1.4 | 1.5 | 1.5 | 1.6 |
| 13 Diagnosis of eclampsia at birth admission | 27 | 22 | 17 | 14 | 64,221 | 64,450 | 62,298 | 62,310 | 0.04 | 0.03 | 0.03 | 0.02 |
| 14 Maternal tobacco use during postnatal period | 7617 | 8159 | 7353 | 7323 | 51,042 | 52,908 | 52,121 | 52,869 | 14.9 | 15.4 | 14.1 | 13.9 |
| 15 Preterm birth | 4745 | 4779 | 4585 | 4759 | 64,519 | 64,836 | 62,602 | 62,743 | 7.4 | 7.4 | 7.3 | 7.6 |

## Appendix 4: New Zealand Maternity Clinical Indicator numbers, by facility of birth (secondary and tertiary facilities), 2012

| **Facility of birth** | **Value** | **New Zealand Maternity Clinical Indicator1** |
| --- | --- | --- |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| Whangarei | Num | 825 | 139 | 25 | 21 | 9 | 69 | 22 | 3 | 4 | 42 | 12 | 21 | 0 | 370 | 110 |
| Den | 1454 | 186 | 186 | 186 | 186 | 165 | 165 | 165 | 165 | 311 | 311 | 1276 | 1587 | 1339 | 1618 |
| North Shore | Num | 2554 | 452 | 138 | 156 | 39 | 100 | 143 | 25 | 12 | 126 | 31 | 37 | 1 | 159 | 262 |
| Den | 3694 | 750 | 750 | 750 | 750 | 594 | 594 | 594 | 594 | 1263 | 1263 | 2574 | 3837 | 3580 | 3877 |
| Waitakere | Num | 1652 | 412 | 61 | 85 | 20 | 124 | 83 | 13 | 2 | 77 | 5 | 22 | 1 | 308 | 139 |
| Den | 2810 | 559 | 559 | 559 | 559 | 474 | 474 | 474 | 474 | 735 | 735 | 2319 | 3054 | 2670 | 3117 |
| Auckland City | Num | 4057 | 761 | 209 | 242 | 66 | 150 | 320 | 28 | 20 | 126 | 70 | 116 | 0 | 132 | 741 |
| Den | 6056 | 1216 | 1216 | 1216 | 1216 | 974 | 974 | 974 | 974 | 2567 | 2567 | 5091 | 7658 | 5801 | 7791 |
| Middlemore | Num | 1612 | 546 | 137 | 174 | 28 | 68 | 141 | 36 | 16 | 254 | 75 | 128 | 3 | 542 | 589 |
| Den | 3914 | 862 | 862 | 862 | 862 | 688 | 688 | 688 | 688 | 1724 | 1724 | 5124 | 6848 | 3591 | 6963 |
| Waikato | Num | 2273 | 247 | 98 | 65 | 32 | 109 | 66 | 29 | 8 | 132 | 43 | 70 | 1 | 501 | 411 |
| Den | 3264 | 411 | 411 | 411 | 411 | 346 | 346 | 346 | 346 | 998 | 998 | 2474 | 3472 | 3134 | 3569 |
| Rotorua | Num | 662 | 142 | 14 | 14 | 9 | 81 | 17 | 8 | 0 | 13 | 9 | 29 | 1 | 354 | 108 |
| Den | 1320 | 170 | 170 | 170 | 170 | 156 | 156 | 156 | 156 | 378 | 378 | 950 | 1328 | 1283 | 1355 |
| Tauranga | Num | 1530 | 224 | 67 | 48 | 11 | 63 | 64 | 11 | 4 | 52 | 19 | 24 | 0 | 339 | 155 |
| Den | 2120 | 339 | 339 | 339 | 339 | 291 | 291 | 291 | 291 | 517 | 517 | 1615 | 2132 | 2084 | 2168 |
| Whakatane | Num | 324 | 33 | 5 | 7 | 0 | 12 | 7 | 2 | 0 | 28 | 7 | 6 | 0 | 192 | 44 |
| Den | 557 | 45 | 45 | 45 | 45 | 38 | 38 | 38 | 38 | 125 | 125 | 434 | 559 | 535 | 575 |
| Gisborne | Num | 274 | 73 | 10 | 8 | 1 | 38 | 7 | 5 | 2 | 15 | 2 | 3 | 2 | 203 | 38 |
| Den | 671 | 91 | 91 | 91 | 91 | 83 | 83 | 83 | 83 | 127 | 127 | 549 | 676 | 640 | 695 |
| Hawke’s Bay | Num | 1243 | 185 | 55 | 49 | 10 | 71 | 55 | 17 | 7 | 52 | 21 | 33 | 0 | 431 | 173 |
| Den | 2030 | 291 | 291 | 291 | 291 | 242 | 242 | 242 | 242 | 580 | 580 | 1572 | 2152 | 1951 | 2178 |
| Taranaki Base | Num | 934 | 138 | 28 | 45 | 5 | 65 | 25 | 5 | 4 | 41 | 11 | 16 | 0 | 207 | 124 |
| Den | 1277 | 212 | 212 | 212 | 212 | 167 | 167 | 167 | 167 | 386 | 386 | 913 | 1299 | 1151 | 1321 |
| Palmerston North  | Num | 1285 | 180 | 45 | 48 | 14 | 58 | 52 | 8 | 2 | 67 | 19 | 30 | 0 | 327 | 173 |
| Den | 1830 | 274 | 274 | 274 | 274 | 226 | 226 | 226 | 226 | 585 | 585 | 1345 | 1930 | 1751 | 1958 |
| Whanganui | Num | 378 | 78 | 4 | 10 | 0 | 44 | 5 | 3 | 1 | 14 | 6 | 16 | 0 | 204 | 57 |
| Den | 671 | 93 | 93 | 93 | 93 | 83 | 83 | 83 | 83 | 132 | 132 | 575 | 707 | 647 | 720 |
| Wairarapa | Num | 299 | 44 | 18 | 15 | 1 | 14 | 19 | 1 | 0 | 6 | 4 | 2 | 1 | 70 | 20 |
| Den | 471 | 77 | 77 | 77 | 77 | 62 | 62 | 62 | 62 | 140 | 140 | 337 | 477 | 434 | 481 |
| Hutt | Num | 1042 | 245 | 43 | 49 | 9 | 94 | 47 | 7 | 1 | 40 | 20 | 38 | 0 | 160 | 110 |
| Den | 1865 | 337 | 337 | 337 | 337 | 288 | 288 | 288 | 288 | 500 | 500 | 1482 | 1982 | 1750 | 2014 |
| Wellington  | Num | 1983 | 285 | 104 | 82 | 39 | 49 | 138 | 13 | 13 | 76 | 64 | 54 | 0 | 176 | 433 |
| Den | 3099 | 471 | 471 | 471 | 471 | 389 | 389 | 389 | 389 | 1185 | 1185 | 2271 | 3456 | 2935 | 3506 |
| Wairau | Num | 325 | 56 | 7 | 14 | 1 | 12 | 7 | 3 | 0 | 4 | 2 | 2 | 0 | 44 | 25 |
| Den | 409 | 77 | 77 | 77 | 77 | 63 | 63 | 63 | 63 | 144 | 144 | 333 | 477 | 383 | 486 |
| Nelson | Num | 539 | 77 | 9 | 29 | 3 | 20 | 15 | 1 | 3 | 10 | 10 | 12 | 0 | 78 | 55 |
| Den | 742 | 115 | 115 | 115 | 115 | 86 | 86 | 86 | 86 | 265 | 265 | 610 | 875 | 723 | 894 |
| Grey Base | Num | 124 | 24 | 7 | 6 | 3 | 11 | 7 | 0 | 0 | 8 | 2 | 1 | 0 | 4 | 19 |
| Den | 174 | 37 | 37 | 37 | 37 | 31 | 31 | 31 | 31 | 102 | 102 | 189 | 291 | 139 | 298 |
| Christchurch | Num | 3849 | 422 | 169 | 130 | 34 | 119 | 192 | 19 | 9 | 77 | 39 | 62 | 4 | 508 | 519 |
| Den | 5193 | 721 | 721 | 721 | 721 | 591 | 591 | 591 | 591 | 1646 | 1646 | 3586 | 5232 | 5076 | 5348 |
| Timaru | Num | 309 | 78 | 13 | 13 | 6 | 26 | 19 | 0 | 0 | 9 | 3 | 2 | 0 | 88 | 24 |
| Den | 598 | 104 | 104 | 104 | 104 | 91 | 91 | 91 | 91 | 155 | 155 | 443 | 598 | 548 | 614 |
| Dunedin | Num | 1398 | 157 | 61 | 52 | 10 | 53 | 46 | 10 | 9 | 34 | 14 | 23 | 0 | 216 | 165 |
| Den | 1826 | 271 | 271 | 271 | 271 | 219 | 219 | 219 | 219 | 580 | 580 | 1256 | 1836 | 1779 | 1863 |
| Southland | Num | 847 | 118 | 37 | 46 | 22 | 35 | 24 | 11 | 5 | 33 | 8 | 10 | 0 | 174 | 105 |
| Den | 1202 | 201 | 201 | 201 | 201 | 155 | 155 | 155 | 155 | 422 | 422 | 826 | 1248 | 1129 | 1258 |

1 Refer to Table 1 for indicator descriptions and definitions. Num: numerator value; Den: denominator value.

## Appendix 5: New Zealand maternity clinical indicator numbers, by facility of birth (primary facilities), 2012

| **Facility of birth** | **Value** | **New Zealand Maternity Clinical Indicator1** |
| --- | --- | --- |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| Ashburton | Num | 110 | 30 | 0 | 0 | 0 | 15 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 0 |
| Den | 144 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 0 | 0 | 144 | 144 | 144 | 144 |
| Bay of Islands | Num | 80 | 35 | 0 | 0 | 0 | 25 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 77 | 4 |
| Den | 219 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 0 | 0 | 222 | 222 | 213 | 230 |
| Birthcare Auckland | Num | 242 | 93 | 0 | 0 | 0 | 87 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 8 | 3 |
| Den | 388 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 0 | 0 | 391 | 391 | 381 | 398 |
| Birthcare Huntly | Num | 66 | 24 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 3 |
| Den | 127 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 0 | 0 | 127 | 127 | 124 | 129 |
| Botany Downs | Num | 153 | 86 | 0 | 0 | 0 | 22 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 22 | 1 |
| Den | 296 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 1 | 1 | 380 | 381 | 288 | 392 |
| Buller | Num | 1 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Den | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 20 | 20 | 0 | 20 |
| Burwood | Num | 134 | 49 | 0 | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 0 |
| Den | 191 | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 0 | 0 | 192 | 192 | 187 | 197 |
| Charlotte Jean | Num | 47 | 9 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 1 |
| Den | 59 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | 0 | 59 | 59 | 56 | 59 |
| Clutha | Num | 17 | 6 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 |
| Den | 29 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 0 | 0 | 29 | 29 | 29 | 29 |
| Dannevirke | Num | 16 | 7 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 2 |
| Den | 37 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 0 | 0 | 37 | 37 | 37 | 37 |
| Darfield | Num | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Den | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 | 7 | 6 |
| Dargaville | Num | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Den | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 6 | 2 | 11 |
| Dunstan | Num | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Den | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| Elizabeth R | Num | 73 | 20 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 |
| Den | 89 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 0 | 0 | 89 | 89 | 86 | 89 |
| Golden Bay | Num | 1 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Den | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 10 | 10 | 2 | 10 |
| Gore | Num | 55 | 14 | 0 | 0 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 19 | 0 |
| Den | 76 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 0 | 0 | 76 | 76 | 74 | 76 |
| Hawera | Num | 63 | 14 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 |
| Den | 91 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 0 | 0 | 92 | 92 | 89 | 104 |
| Helensville | Num | 27 | 9 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| Den | 38 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | 0 | 38 | 38 | 38 | 44 |
| Hokianga Health | Num | 15 | 5 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 1 |
| Den | 42 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 42 | 42 | 38 | 39 |
| Horowhenua | Num | 56 | 17 | 1 | 0 | 0 | 12 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 3 |
| Den | 118 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 0 | 0 | 125 | 125 | 115 | 129 |
| Kaikoura | Num | 7 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 |
| Den | 11 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 11 | 11 | 11 | 11 |
| Kaitaia | Num | 63 | 23 | 0 | 0 | 0 | 14 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 57 | 8 |
| Den | 145 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 0 | 0 | 165 | 165 | 136 | 168 |
| Kapiti | Num | 110 | 20 | 0 | 0 | 0 | 9 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 12 | 3 |
| Den | 133 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 0 | 0 | 134 | 134 | 132 | 134 |
| Kenepuru | Num | 109 | 33 | 0 | 0 | 0 | 17 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 57 | 4 |
| Den | 239 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 0 | 0 | 242 | 242 | 233 | 243 |
| Lakes District | Num | 11 | 14 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| Den | 50 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 0 | 0 | 54 | 54 | 50 | 56 |
| Lincoln | Num | 76 | 25 | 0 | 0 | 0 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 1 |
| Den | 105 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 0 | 0 | 107 | 107 | 103 | 107 |
| Lumsden | Num | 16 | 11 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Den | 23 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 0 | 0 | 24 | 24 | 23 | 24 |
| Manitoto | Num | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Den | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 0 |
| Matariki | Num | 24 | 14 | 0 | 0 | 0 | 11 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 10 | 1 |
| Den | 39 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 0 | 0 | 76 | 76 | 39 | 82 |
| Murupara | Num | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Den | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 |
| Ngati Porou Hauora | Num | 4 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| Den | 12 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 12 | 12 | 9 | 13 |
| Oamaru | Num | 57 | 17 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 1 |
| Den | 79 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 0 | 0 | 79 | 79 | 79 | 80 |
| Opotiki | Num | 40 | 10 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 1 |
| Den | 71 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 0 | 0 | 72 | 72 | 70 | 73 |
| Otaihape | Num | 12 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| Den | 17 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 17 | 17 | 17 | 17 |
| Papakura | Num | 102 | 46 | 0 | 0 | 0 | 15 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 107 | 8 |
| Den | 315 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 1 | 1 | 373 | 374 | 309 | 391 |
| Pohlen Trust | Num | 59 | 25 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 1 |
| Den | 112 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 0 | 0 | 112 | 112 | 111 | 113 |
| Pukekohe | Num | 193 | 61 | 0 | 0 | 0 | 23 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 67 | 7 |
| Den | 361 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 63 | 1 | 1 | 370 | 371 | 353 | 375 |
| Rangiora | Num | 70 | 27 | 0 | 0 | 0 | 16 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 19 | 1 |
| Den | 110 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 0 | 0 | 115 | 115 | 110 | 119 |
| Rhoda Read | Num | 57 | 13 | 0 | 0 | 0 | 11 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 22 | 0 |
| Den | 85 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 0 | 0 | 85 | 85 | 84 | 86 |
| St George’s | Num | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Den | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Taumaranui | Num | 24 | 11 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 1 |
| Den | 48 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 0 | 0 | 48 | 48 | 48 | 50 |
| Taupo | Num | 70 | 26 | 0 | 0 | 0 | 15 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 35 | 6 |
| Den | 156 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 0 | 0 | 160 | 160 | 153 | 163 |
| Te Kuiti | Num | 6 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| Den | 19 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 48 | 48 | 12 | 48 |
| Thames | Num | 63 | 21 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 29 | 3 |
| Den | 120 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 1 | 1 | 119 | 120 | 114 | 124 |
| Tokoroa | Num | 7 | 16 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 2 |
| Den | 31 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 0 | 0 | 99 | 99 | 28 | 100 |
| Tuatapere | Num | 13 | 7 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 |
| Den | 22 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 0 | 0 | 22 | 22 | 21 | 22 |
| Waihi | Num | 30 | 6 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 |
| Den | 65 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 0 | 0 | 65 | 65 | 63 | 70 |
| Waimarino | Num | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Den | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 15 | 15 | 1 | 15 |
| Wairoa | Num | 3 | 4 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| Den | 6 | 6 | 6 | 6 | 6 | 5 | 5 | 5 | 5 | 1 | 1 | 29 | 30 | 1 | 31 |
| Warkworth | Num | 99 | 21 | 0 | 0 | 0 | 11 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 7 | 3 |
| Den | 123 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 0 | 0 | 123 | 123 | 121 | 121 |
| Waterford | Num | 281 | 88 | 0 | 0 | 0 | 55 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 59 | 6 |
| Den | 407 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 0 | 0 | 409 | 409 | 402 | 409 |
| Wellsford | Num | 19 | 7 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| Den | 33 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 0 | 0 | 33 | 33 | 29 | 33 |
| Winton | Num | 35 | 14 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| Den | 52 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 0 | 0 | 52 | 52 | 51 | 52 |

1 Refer to Table 1 for indicator descriptions and definitions. Num: numerator value; Den: denominator value.

1. Primiparae – women giving birth for the first time (parity=0) – account for approximately 40% of all births nationally; the proportion ranges from 32% to 50% between DHBs. The number of primiparae giving birth at home is lower, around 20%, ranging from 6% to 28% between DHBs. [↑](#footnote-ref-1)
2. The proportion of standard primiparae among all women giving birth ranges from 12% to 17% between DHBs. Around 37% of all primiparae are ‘standard’. [↑](#footnote-ref-2)
3. This data is being collected in 2014 and is not included in this 2012 report. All data on primary maternity services in this report is sourced from Lead Maternity Carer claims. [↑](#footnote-ref-3)
4. Chi-square test for proportions with Yates’ correction. [↑](#footnote-ref-4)
5. Chi-square test for proportions with Yates’ correction. [↑](#footnote-ref-5)
6. Some indicators do not sum to 100% due to missing data codes for some events. [↑](#footnote-ref-6)
7. The 8th Annual Perinatal and Maternal Mortality Review Committee report identified 10 maternal deaths in 2012. For the period 2006 to 2012, 33.8% of maternal deaths were classified as potentially avoidable (PMMRC 2014). [↑](#footnote-ref-7)