Te Whatu Ora
Health New Zealand

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Report on Maternity: further information

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Introduction

This document provides the purpose and background of the web tool, as well as information on the source of the data provided, analytical methods used and commonly used terms. It provides contact details if you require additional information.

Purpose

The maternity report web tool is designed for you to view and download summary data about women/people giving birth, their pregnancy and childbirth experience and the characteristics of live-born babies in New Zealand.[1]

The data presented in the web tool is sourced from the New Zealand Maternity Collection. The web tool focuses on women/people who gave birth and babies who were born during the latest ten years for which data is available. Data is also available as downloadable files from within the web tool.

This document provides information about the data sources and analytical methods used to produce the summary data. It defines common terms and contains a data dictionary for variables used in the web tool.

Background

In New Zealand, maternity services are classified according to the level of complexity of clinical care a pregnant woman/person and her baby require – either primary, secondary or tertiary. A range of practitioners contribute to the provision of antenatal care (midwives, general practitioners (GPs), obstetricians, radiologists and childbirth educators), in a range of settings (the woman's/person's home, consulting rooms, primary maternity facilities and hospitals). A summary of these services is described in Appendix 1: 'Maternity model of care'.

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

[1] Data on maternal deaths and stillborn babies is recorded in the Mortality Collection and is not included in the National Maternity Collection. Statistics about maternal deaths are presented in the **Mortality and Demographic Data series**. Statistics about stillborn babies are presented in the **Fetal and Infant Deaths series** and in the **annual report** of the Perinatal and Maternal Mortality Review Committee.

Data sources

Te Whatu Ora extracts data for the Report on Maternity web tool from the National Maternity Collection (MAT). The National Maternity Collection integrates health information from two sources to provide statistical, demographic and clinical information about women/people giving birth and live-born babies in New Zealand. MAT contains data on primary maternity services provided under Section 88 of the New Zealand Public Health and Disability Act 2000. This information is sourced from Lead Maternity Carer (LMC) claims for payment. MAT also contains inpatient and day-patient health event data during pregnancy, birth and the postnatal period for parent and baby, sourced from the National Minimum Dataset (NMDS).

Maternal and newborn records are coded and extracted separately, so the information collected in these two sources (eg, maternal age) may differ. Some disparities may be due to incomplete maternal or newborn information submitted to Te Whatu Ora by districts and other maternity providers. Information presented in the web tool that primarily depend on LMC claim forms as a data source are parity, body mass index (BMI), smoking status, breastfeeding status and referrals to a GP and Well Child/Tamariki Ora provider. Following recent upgrades to the National Maternity Collection, some districts are now reporting data from their primary maternity services for these variables.

Population data used to calculate birth rates in the web tool was derived from multiple customised data sets provided by Statistics New Zealand. Estimated resident population counts are regarded as the best available population and are used whenever possible as the denominator to calculate birth rates in the web tool. Details of the specific populations used can be found in the *Technical information* section of the web tool. Further information about the methods used to prepare estimates and projections, as well as their limitations, is available on the Statistics New Zealand website: **Population statistics - user guide.**

Maternity data clinical coding changes

From 1 July 2019, diagnoses codes are assigned using the 11th Edition of ICD-10-AM (International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification) and procedure codes are assigned using the 11th Edition of ACHI (Australian Classification of Health Interventions) (Source: The Independent Hospital Pricing Authority).

Some maternity events (women/people giving birth in hospital and live babies born in hospital) are impacted by changes in the 11th Edition clinical coding standards, in particular:

Place of birth

Coding of out of hospital births where the placenta is delivered in hospital with or without assistance has changed in the 11th Edition. Some births previously counted as out of hospital births are now counted as hospital births. This means the data may

show an increase in births in secondary and tertiary facilities, but it may be due to the change in coding standards rather than a true increase.

Birth type

Birth type groupings were reclassified in the 11th Edition. The coding changes and impacts on the data in this web tool are:

- Coding of obstetric manoeuvres (eg, McRoberts) without use of forceps or vacuum extraction has changed in the 11th Edition. Some births previously categorised as spontaneous vaginal births are now categorised as assisted births. This means the data may show an increase in assisted births, but it may be due to the change in coding standards rather than a true increase.
- Coding of failed forceps or vacuum extraction and subsequent spontaneous vaginal birth has changed in the 11th Edition. Some births previously categorised as spontaneous vaginal births are now categorised as assisted births. This means the data is expected to show an increase in assisted births, but it may be due to the change in coding standards rather than a true increase.
- Coding of caesarean section type (Classical/Lower Uterine Segment) and indication (elective/emergency) has changed in the 11th Edition. Caesarean sections where Classical or Lower Uterine Segment (LUS) is not documented are now coded as 'caesarean section, not elsewhere classified' (NEC), where previously they were categorised as LUS. Some births categorised as elective caesarean sections are now categorised as emergency caesarean sections. For these reasons, the data is expected to show an increase in emergency caesareans, but it may be due to the change in coding standards rather than a true increase.

Please note, not all districts/DHBs upgraded to ICD-10-AM/ACHI/ACS 11th Edition on 1 July 2019. Therefore, the data in this web tool for the 2019 and 2020 calendar years include clinical coding in both 8th and 11th Edition. Data for the 2021 calendar year was coded in 11th Edition.

Primary Maternity Services Notice 2021

The Primary Maternity Services Notice 2021 came into force on 29th November 2021, introducing changes to the terms and conditions on which maternity providers can claim for providing primary maternity services. This revokes the Primary Maternity Services Notice which came into effect on 1 July 2007 and its amendments.
There are underlying changes to the way some data are now captured (such as smoking status or breastfeeding and Well child referral). Also, some metrics are no longer collected (such as height and weight at registration, which impacts on BMI calculation). It is important to consider these changes when comparing claims data pre

and post November 2021. Further information on the Primary Maternity Services Notice 2021 is available on the **Ministry of Health's website**.

Data integrity

Te Whatu Ora compiles the Report on Maternity series from data supplied by districts, lead maternity carers (LMCs) and other claimants from the Primary Maternity Services Notice. The districts and their maternity facilities are individually responsible for ensuring the completeness and quality of data they supply to national collections. Lead maternity carers are contractually responsible for ensuring the accuracy of data they supply on claims for payment. Te Whatu Ora has applied data quality management at several points in the collection, extraction and reporting of the data used for the Report on Maternity series. However, errors can occur. Users should contact the Data Services team at Te Whatu Ora with any concerns regarding the data or analyses presented in the Report on Maternity.

Analytical methods

The data presented in the Report on Maternity web tool primarily pertains to all women/pregnant people recorded as giving birth and to live-born babies for the latest ten years of available data, as sourced from the National Maternity Collection. Data presented for multiple years was analysed using the same methods and criteria to provide a consistent view over time.

Ethnicity

The web tool uses *prioritised ethnicity*, whereby each person represented in the data is allocated to a single ethnic group using the priority system Māori > Pacific peoples > Indian > Asian (excluding Indian) > Other ethnicities> European. The aim of prioritisation is to ensure that where it is necessary to assign people to a single ethnic group, ethnic groups that are small or important in terms of policy are not swamped by the European ethnic group. This is also a more robust method of dealing with the low rate of multiple ethnicities in health sector data. Further information on ethnicity data protocols for the health and disability sector is available from the Ministry of Health ethnicity protocols (Ministry of Health 2004).

Individuals recorded as being of Other ethnicities are primarily Middle Eastern, Latin American or African. The number of individuals in the Other ethnic group is small and, therefore, the Other ethnic group is often included with the European group for analysis.

In the web tool, individuals are commonly presented as the following ethnic groups: Māori, Pacific peoples, Indian, Asian (excluding Indian) and European or Other. Information on individual ethnic groups that are aggregated in the web tool can be made available on request.

The Indian ethnic group is sometimes presented separately from the Asian ethnic group in the web tool. This is because the Indian ethnic group has a more complex pregnancy profile. In general, women/people in the Indian ethnic group have a higher

rate of interventions, and babies have lower birth weight than the Asian ethnic group excluding Indian.

Deprivation

The New Zealand Deprivation Index (NZDep) is a measure of socioeconomic status calculated for small geographic areas. The calculation uses nine variables from each Census of Population and Dwellings and provides a summary deprivation score between 1 and 10 for each meshblock (small geographical unit containing a median of 90 people).
Te Whatu Ora maps the meshblocks to domicile codes, which are built up to the relevant geographic scale using weighted average census usually resident population counts. Further information about socioeconomic deprivation in New Zealand is available on the **University of Otago website**.

In the web tool, individuals are categorised into deprivation quintiles, ranging from 1 (least deprived) to 5 (most deprived). The deprivation quintiles are derived from:

- the 2006 NZDep for women giving birth or babies born before 2010 (mid-point between Censuses)
- the 2013 NZDep for women giving birth or babies born from 2010 to 2015 (mid-point between Censuses)
- the 2018 NZDep for women giving birth or babies born from 2016 onwards.

This measure is designed so approximately equal numbers of the population reside in areas associated with each of the five deprivation quintile areas.

Type of birth

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

Some women/people have more than one birth procedure reported for the birth of their baby. The web tool uses a priority system by which a maximum of one procedure type is reported per woman/person giving birth. Table 1 shows the priority system, and how the web tool has aggregated each birth procedure into a type of birth for reporting purposes.

Table 1: Priority for reporting birth procedures

Priority	Birth procedure	Type of birth (aggregated)
1	Emergency caesarean	Caesarean section
2	Elective caesarean	Caesarean section
3	Assisted breech	Assisted vaginal birth
4	Forceps and vacuum extraction	Instrumental vaginal birth

5	Forceps	Instrumental vaginal birth
6	Vacuum extraction	Instrumental vaginal birth
7	Other assisted birth	Assisted vaginal birth
8	Spontaneous breech	Spontaneous vaginal birth
9	Spontaneous vertex	Spontaneous vaginal birth
10	Not stated	Unknown

Counting births and babies

When the term 'women giving birth' is used in the web tool, births are counted using the number of women/people giving birth during the calendar year, ie, between 1 January and 31 December. A woman/person who had twins or a multiple birth is counted as having had one birth. A woman/person who gave birth twice within the same calendar year is counted twice.

The number of births presented in the web tool include only live births recorded in the Maternity Collection (MAT) at any gestation, and where a birth has a registration or birth record reported in the National Minimum Dataset (NMDS). Where a birth has an equivalent death registration recorded in the New Zealand Mortality Collection, the birth is also excluded from the analysis.

In the 'Babies' section of the web tool, the numbers presented only include live-born babies at any gestation. Babies resulting from a twin, or a multiple pregnancy are counted individually.

Each year, a small proportion of births are recorded in MAT without a birth status. These records are notably less complete than records for live births and are not included in this web tool. Most of these records are reported as planned homebirths but could also include unplanned homebirths and out of hospital births.
From 2012 to 2021, the proportion of records where birth status was not reported ranged from 0.4 to 1.3% of total births in any given year. Te Whatu Ora is currently confirming information about these births. Where possible, records will be updated, and these changes will be reflected in future updates of the web tool.

Proportions

Proportions are expressed as a percentage. The denominator for proportion calculations is the total for each variable for which the information was recorded, and excludes 'Unknown' categories. For example:

Sex	Babies	Percentage
Male	30,809	51.8
Female	28,680	48.2
Unknown	5	-
Total	**59,494**	**100.0**

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

$$= \frac{30{,}809 * 100}{59{,}494 - 5}$$

$$= 51.8\%$$

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

Birth rates

A birth rate shows the proportion of women giving birth out of the female population who are of reproductive age (15–44 years). It is expressed as births per 1,000 females of reproductive age.

Rates for a specific group (eg, Māori, those residing in deprivation quintile 3 or the 30–34 years age group) are calculated using the best available population for that group. For example:

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

Teens aged under 15 years and women aged 45 years and over giving birth account for a very small proportion of the total number of women giving birth each year (<0.5%). They are included in the numerator to calculate birth rates (as part of the <20 years and 40+ years age groups, respectively). The denominator used is limited to the female population aged 15–44 years.

More than one population data set may have been used within a set of birth rate calculations.

Rates for districts/DHB regions were calculated based on the residence of women/people giving birth. Rates have not been standardised for differences in population structures, ie, birth rates are crude and not age-standardised.

Proportions vs birth rates

In this web tool, proportions (expressed as a percentage) are used to describe and compare the characteristics of women/people giving birth or of live-born babies. Proportions have been calculated using the number of women/people giving birth or of live-born babies as the denominator.
In addition, birth rates are also presented for women/people giving birth in each main demographic group, ie, age group, ethnic group and neighbourhood deprivation quintile. They have been calculated using the female population of reproductive age as the denominator.
Birth rates can provide helpful context, as they account for the size of the population in relation to the number of women/people giving birth for that demographic group.
Table 2 shows some examples of how the proportion and birth rate for Māori women compare with that for the European or Other ethnic group, where:

- 26% of women who gave birth were Māori while 44% were of European or Other ethnicity
- the birth rate for Māori women was 1.7 times the rate for women in the European or Other ethnic group.

Table 2: Examples of comparing proportions and birth rates between the Māori and the European or Other ethnic groups

	Māori	European or Other
Proportion (%)		
Formula	Women giving birth in the Māori ethnic group/All women giving birth with known ethnicity * 100	Women giving birth in the European or Other ethnic group/All women giving birth with known ethnicity * 100
Calculation	(14,689/58,926) * 100	(28,892/58,926) * 100
Value	24.9%	49.0%
Interpretation	For every 100 women giving birth, 25 were Māori	For every 100 women giving birth, 49 were of European or Other ethnicities
Birth rate (births per 1,000 females of reproductive age)		
Formula	Women giving birth in the Māori ethnic group/Female population aged 15–44 years in the Māori ethnic group * 1,000	Women giving birth in the European or Other ethnic group/Female population aged 15–44 years in the European or Other ethnic group * 1,000
Calculation	(14,689/159,830) * 1,000	(28,892/536,550) * 1,000
Value	91.9 per 1,000 females of reproductive age	53.8 per 1,000 females of reproductive age
Interpretation	For every 1,000 females aged 15–44 years of Māori ethnicity, 92 gave birth	For every 1,000 females aged 15–44 years of European or Other ethnicities, 54 gave birth
Proportion (%) with two variables, eg, ethnicity and place of birth		
Formula	Māori women giving birth in 2017 at a secondary facility/All Māori women giving birth in all recorded places * 100	Women giving birth at a secondary facility in 2017 in the European or Other ethnic group/All women giving birth in all recorded places, in the European or Other ethnic group * 100
Calculation	(7272/14,070) * 100	(11728/26,698) * 100
Value	49.7%	42.0%
Interpretation	For every 100 Māori women giving birth in all recorded places, 50 gave birth in a secondary facility	For every 100 women of European or Other ethnicity giving birth in all recorded places, 42 gave birth in a secondary facility

Additional information

Please contact the **Data Services team** at Te Whatu Ora if you would like further information not included in this web tool. Te Whatu Ora can produce customised data extracts tailored to your needs. These may incur a charge (at Official Information Act rates). The contact details are as follows:

Postal address:	Data Services Te Whatu Ora PO Box 5013 Wellington 6145 New Zealand
Email:	**data-enquiries@health.govt.nz**
Phone:	(04) 496 2000

Key terms used

District/District Health Board region

The geographic distribution of women/people giving birth is based on the district (or DHB region) of the woman's residence. Rates and numbers presented by district are intended to reflect the usually resident population of the district and not necessarily the facilities run by that district. The terms district and DHB region are used interchangeably throughout the web tool.

Parity

Parity refers to the number of times a woman/person has previously given birth, including stillbirths. Parity data is primarily sourced from LMC claim forms, with additional data from some district primary maternity services. It is, therefore, only available for women/people registered with an LMC or district primary maternity service (approximately 95% of women giving birth).

Body Mass index

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

Underweight: <19
Healthy weight: 19–24

Overweight: 25–29
Obese: 30+

Height and weight measurements for calculating BMI are taken during first registration with a woman/person's primary maternity care provider. This usually happens during the first trimester of pregnancy.

BMI data is primarily sourced from LMC claim forms, with additional data from some district primary maternity services. It is, therefore, only available for women/people registered with an LMC or with a district primary maternity service (approximately 95% of women giving birth).

Maternal smoking status

Maternal smoking status presented in the web tool is at two weeks after birth. Smoking data is primarily sourced from LMC claim forms, with additional data from some district primary maternity services. It is, therefore, only available for women/people registered with an LMC or with a district primary maternity service (approximately 95% of women giving birth).

Primary maternity care

Primary maternity care is usually provided by a community-based LMC. An LMC provides a pregnant woman/person and their baby with continuity of care throughout pregnancy, labour and birth and the postnatal period.

Pregnant women/people who do not access an LMC, either through choice or lack of availability, are entitled to receive primary maternity services from their district. Collection of data from district primary maternity services is under way; currently, only some districts have provided their data.

Most women/people recently giving birth received primary maternity care from an LMC, but a small percentage received care from a district primary maternity service. Pregnant women/people whose provision of care was unknown were most likely to have received care from their respective district primary maternity services (not yet reporting),[2] but some may not have received any primary maternity care.

Registration with a Lead Maternity Carer

Most LMCs are midwives, but a GP meeting the required criteria, or an obstetrician may also provide LMC services. A description of LMC services from registration to discharge is available in the Primary Maternity Services Notice 2021 on the Ministry of Health website **https://www.health.govt.nz/publication/primary-maternity-services-notice-2021**

Registration refers to selecting an LMC and documenting this selection.

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

[2] Not all districts provide primary maternity services and not all districts who provide maternity primary services have reported to the National Maternity Collection. Collection of this data (from 2014 onwards) is under way.

Information presented in web tool may not fully reflect the collaborative and complex nature of primary maternity care. LMCs may work in a group or as solo practitioners with a back-up LMC for when they are not available. This publication does not present analysis of non-LMC maternity services such as maternity-related GP visits or pregnancy ultrasound scans.

Data presented in the web tool is sourced from LMC claim forms submitted to Te Whatu Ora for payment of services.

Variations in the proportion of pregnant women/people registered with an LMC likely reflect the LMC workforce availability. District primary maternity services are expected to be available for women/people who do not register with an LMC (through choice or availability).

Registration with district primary maternity services

Pregnant women/people who do not register with an LMC, either through choice or lack of availability, are entitled to care from district-funded primary maternity services. These services include district caseload midwives, district primary midwifery teams and shared case arrangements.

Provision of district primary maternity services became available in 2007. Collection of data from district primary maternity services began in 2014. Currently, only some districts have provided their data.

Type of birth

The numbers presented in the web tool refer to the number of women/people giving birth, not the number of delivery procedures. A priority system is used to report a procedure type for women/people reported to have more than one of the delivery procedures described (see Analytical methods section for more information). Types of birth have been grouped into the following aggregated categories.

Spontaneous vaginal birth: birth of a baby without any obstetric delivery assistance to facilitate delivery; includes spontaneous breech birth (vaginal birth in which the baby's buttocks or lower limbs precede its head). These births may include labour interventions such as induction or augmentation prior to delivery.

Spontaneous vaginal birth is known to provide multiple benefits for the woman and her baby. These benefits are evident at time of birth and have long-term effects for society as a whole. It specifically contributes to the physical and emotional wellbeing of women and babies by:

- preparing the baby for birth as a result of the mother's hormonal response in spontaneous labour
- initiating the bonding process through sight, touch and smell, from immediate skin-to-skin contact between mother and baby after birth
- reassuring the baby with ongoing attachment to a familiar environment, ie, the mother
- reducing risk of respiratory difficulties for the baby after birth

- exposing the baby to normal flora from the mother, so that it colonises the baby's intestine
- promoting early initiation of breastfeeding, thereby supporting exclusive breastfeeding for a longer duration
- contributing to an easier transition to motherhood with easier physical recovery following birth (Levine 2001; Jordan 2005; Penders 2006; Chalmers 2010; Gregory 2012).

Assisted birth: vaginal birth, including assisted breech birth.

Instrumental vaginal birth: vaginal birth requiring obstetric delivery assistance eg, forceps, vacuum extraction.

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

Breech births

Breech birth in this web tool refers to a vaginal birth of a baby where the buttocks or lower limbs precede the head.

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

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

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

Caesarean sections

Emergency caesarean section refers to an unplanned caesarean section performed urgently for the health of the woman or baby, once labour has started.

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

Interventions

The web tool describes women/people having an obstetric intervention (induction, augmentation, epidural or episiotomy) during labour and birth. This does not include all possible interventions.

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

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

Epidural refers to a regional analgesic agent being injected into the epidural space of the spinal cord.

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

Women/people who had their labour both induced and augmented are recorded as having had an induction only. Therefore, the number of augmentations presented may be lower than the true number.

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

Plurality

Plurality is the number of babies resulting from a pregnancy.

Singleton pregnancy refers to being pregnant with one baby.

Twin pregnancy refers to being pregnant with two babies.

Multiple pregnancy refers to being pregnant with three or more babies.

Place of birth

Women/people are entitled to choose where they give birth. This may include a secondary or tertiary hospital, a primary maternity facility, or at home. Women/people are entitled to give birth at a facility with greater clinical capacity than their expected clinical need. Primary maternity facilities and home births are recommended for well, healthy women/people likely to experience normal birth (Birthplace in England Collaborative Group 2011; NICE 2014). Place of birth usually reflects the local configuration of facilities and LMC access agreements, in addition to clinical need and the woman's/person's preference.

Maternity facilities

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

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

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

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

Home births

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

Home birth refers to an intended home birth that took place in a person's home and not in a maternity facility.

Birthweight

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

Low birthweight refers to a birthweight of less than 2.5 kg at any gestation. Prematurity, multiple pregnancy and restricted fetal (intra-uterine) growth are possible contributors to a baby's low weight at birth. Low birthweight is associated with increased risk of fetal and neonatal mortality and morbidity, as well as inhibited growth and cognitive development (WHO and UNICEF 2004).

Normal birthweight refers to a birthweight between 2.5 kg and 4.4 kg.

High birthweight refers to a birthweight of 4.5 kg or more.

Some districts/DHB regions showed fluctuations in the proportion of low birthweight babies over the same time. These percentages may have been calculated based on small numbers and should be interpreted with caution.

Gestation

Gestation is the duration of pregnancy measured from the first day of the last normal menstrual period to the delivery date, expressed in completed weeks (WHO 1975).

Gestational age may also be derived from clinical assessment during pregnancy, or from an examination of the baby after birth.

Preterm refers to babies born before 37 weeks of gestation.

Term refers to babies born between 37.0 and 41.6 weeks of gestation.

Breastfeeding

Breast milk is the perfect food for an infant as it contributes positively to both infant and maternal health. Te Whatu Ora uses the following standard breastfeeding definitions for New Zealand (Ministry of Health, 2020).

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

Fully: the infant has taken breast milk only, and no other liquids or solids except a minimal amount of water or prescribed medicines, in the past 48 hours.

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

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

The data presented regarding breastfeeding is primarily sourced from LMC claim forms, with additional data from some district primary maternity services. It is, therefore, only available for babies of women/people registered with an LMC or with a district primary maternity service (approximately 95% of women/people giving birth).

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Glossary

Term	Definition
Artificially fed	A newborn who has had no breast milk but has had alternative liquid such as infant formula with or without solid food in the past 48 hours.
Assisted birth	An assisted vaginal birth. Includes assisted breech birth.
Assisted breech birth	An assisted vaginal birth in which a baby being born feet or buttocks first is delivered spontaneously as far as its umbilicus and is then extracted. It may include the use of forceps. See also *Assisted birth*; *Breech birth*.
Augmentation (of labour)	The process of stimulating the uterus to increase the frequency, duration and intensity of contractions after the onset of spontaneous labour by artificial rupture of membranes or pharmacological means.
Birth	The delivery of a live-born or stillborn baby (or babies, in the case of a twin/multiple birth). See also *Live-born baby*; *Stillborn baby*.
Birth rate	$\text{Birth rate} = \frac{\text{Number of women giving birth}}{\text{Female population of reproductive age}} \times 100$ See also *Reproductive age*.
Birthweight	The first weight of the fetus or newborn obtained after birth, preferably measured within the first hour of life before significant postnatal weight loss has occurred (WHO 1975).
Breastfed, exclusive	An infant who has never, to the parent's knowledge, had any water, formula or other liquid or solid food. Only breast milk (from the breast or expressed) and prescribed medicines (defined in the Medicines Act 1981) have been given to the baby from birth.
Breastfed, fully	An infant who has taken breast milk only, and no other liquids or solids except a minimal amount of water or prescribed medicines, in the past 48 hours.
Breastfed, partial	An infant who has taken some breast milk and some infant formula or other solid food in the past 48 hours.
Breech birth	A vaginal birth of a baby by the buttocks or lower limbs first rather than the head. May be spontaneous or assisted.
Breech extraction	An assisted vaginal birth performed by grasping the baby's feet or buttocks before any part of the trunk is born and delivering by traction. It may include the use of forceps. See also *Assisted breech birth*; *Breech birth*.
Caesarean section	An operative delivery through an abdominal incision.

Term	Definition
Confidence interval	A range of values used to describe the uncertainty around a single value, used to estimate the true value in a population. Confidence intervals describe how different an estimate could have been if chance had led to a different set of data.
Denominator	The number that appears at the bottom of a fraction, used to calculate proportions. See also *Proportion*.
Deprivation quintile	A measure of deprivation derived from the 2006, 2013 or 2018 indexes of socioeconomic deprivation. The measure is calculated for small geographical units, which are then built up to the relevant geographic scale using weighted average 'usually resident population' counts from the Census. Deprivation quintiles of residence range from 1 (least deprived) to 5 (most deprived). Approximately equal numbers of the total population reside in areas associated with each of the quintiles.
District health board (DHB)/district	Up to 30 June 2022, DHBs were organisations established under Section 19 of the New Zealand Public Health and Disability Act 2000, acting within a defined geographic region. From 1 July 2022, DHBs were abolished under the health system reforms and are now referred to as districts.
Domicile code	A code representing the usual residential address of the woman/person giving birth or the live-born baby.
Elective caesarean section	A caesarean section performed as a planned procedure before or following the onset of labour, where the decision to have a caesarean section was made before labour. See also *Caesarean section*.
Emergency caesarean section	A caesarean section performed urgently once labour has started. See also *Caesarean section*.
Epidural	A regional analgesic agent injected into the epidural space of the spinal cord.
Episiotomy	An incision of the perineal tissue surrounding the vagina at the time of birth to facilitate delivery.
Ethnicity, ethnic group	Ethnicity is the ethnic group or groups that people may identify with or feel they belong to. Ethnicity is self-perceived; a person may identify with more than one ethnic group (Ministry of Health 2004). See also *Prioritised ethnicity*.
Facility (maternity)	See *Maternity facility*.
Forceps	See *Instrumental birth, forceps*.
Gestation, gestational age	The duration of pregnancy measured from the first day of the last normal menstrual period to the delivery date, expressed in completed weeks (WHO 1975). Gestational age may also be derived from clinical assessment during pregnancy or from an examination of the baby after birth.
Home birth	A birth that takes place in a person's home and not in a maternity facility. See also *Intended home birth*.
Iatrogenic	Relating to illness caused by medical examination or treatment.

Term	Definition
Induction (of labour)	The process of artificially stimulating the uterus to start labour by artificial rupture of membranes or pharmacological means.
Instrumental birth	A vaginal birth receiving obstetric assistance (eg, forceps, vacuum extraction).
Instrumental birth, forceps	An instrumental vaginal birth using a metallic obstetric instrument. See also *Instrumental birth*.
Instrumental birth, vacuum extraction	An instrumental vaginal birth using a suction cap applied to the baby's head. See also *Instrumental birth*.
Intended home birth	A birth for which there is a documented plan to give birth at home and the management of the labour commences at home. The birth may or may not occur at home.
Intervention	An induction or augmentation of labour, an epidural during labour or an episiotomy. See also *Augmentation*; *Epidural*; *Episiotomy*; *Induction*.
Lead Maternity Carer (LMC)	A person who: • is: – a general practitioner with a Diploma in Obstetrics (or equivalent, as determined by the New Zealand College of General Practitioners); or – a midwife; or – an obstetrician; and • is either: – a maternity provider in his or her own right; or – an employee or contractor of a maternity provider; and – has been selected by the woman/person to provide her lead maternity care.
Live-born baby, live birth	The complete expulsion or extraction from its mother of a product of conception, irrespective of duration of pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered live-born (WHO 1975).
Low birthweight	A birthweight of less than 2.5 kg (WHO 1975). See also *Birthweight*.
Maternity facility	A facility that provides maternity services in accordance with the Tier Two Service Specification available from the Ministry of Health. See also *Primary facility*; *Secondary facility*; *Tertiary facility*.
National Health Index (NHI) number	A unique identifier number allocated to individual service users by the National Health Index, managed by Te Whatu Ora.
National Maternity Collection (MAT)	A collection of demographic and clinical information about mothers/pregnant people and live-born babies from publicly funded maternity services provided up to nine months before and three months after birth.

Term	Definition
National Minimum Dataset (NMDS)	A collection of health data that is collected routinely from all people discharged from a hospital in New Zealand.
Numerator	The number that appears at the top of a fraction, used to calculate proportions. See also *Proportion*.
Parity	The number of times a woman/person has previously given birth, including stillbirths.
Plurality	The number of babies resulting from a pregnancy.
Postnatal	The period following birth, up to six weeks after birth.
Preterm birth, preterm labour	Birth or labour before 37 completed weeks' of gestation (WHO 1975). See also *Gestation*.
Primary maternity facility, primary facility	A maternity unit that provides care for normal births with care provision from midwives. It is specifically for women/people assessed as being at low risk of complications for labour and birth care. Access to specialist secondary maternity services and care will require transfer to a secondary or tertiary facility. Primary facilities do not provide epidural analgesia or operative birth services. See also *Maternity facility*.
Primary Maternity Services Notice 2021	Notice pursuant to Section 88 of the New Zealand Public Health and Disability Act 2000 that came into force on 1 July 2021.
Prioritised ethnicity	A system by which each individual is allocated to a single ethnic group using the priority system Māori > Pacific peoples > Indian > Asian (excluding Indian) > European > Other. See also *Ethnicity*.
Proportion	A part, share or number considered in comparative relation to a whole. Proportions are calculated by dividing the numerator by the denominator and are expressed as a percentage in this web tool. See also *Denominator*; *Numerator*.
Reproductive age	Aged between 15 and 44 years.
Secondary maternity facility, secondary facility	A hospital that can provide care for normal births, complicated pregnancies and births, including operative births and caesarean sections, plus specialist adjunct services including anaesthetics and paediatrics. As a minimum, secondary facilities include an obstetrician rostered on site during working hours and on call after hours, with access to support from an anaesthetist, paediatrician, radiological, laboratory and neonatal services (Ministry of Health 2012). See also *Maternity facility*.
Spontaneous breech birth	The birth of a baby in a breech presentation without obstetric intervention to facilitate delivery. See also *Breech birth*; *Spontaneous vaginal birth*.
Spontaneous vaginal birth	A vaginal birth without obstetric intervention to facilitate delivery. Includes spontaneous vertex and spontaneous breech births.
Spontaneous vertex birth	The birth of a baby in a vertex presentation without any obstetric intervention to facilitate delivery. See also *Spontaneous vaginal birth*.

Term	Definition
Stillbirth, stillborn baby	A dead fetus that (a) weighed 400 g or more when issued from its mother, or (b) issued from its mother after the 20th week of pregnancy (Births, Deaths, Marriages, and Relationships Registration Act 1995). See also *Birth*.
Term birth, term labour	Birth or labour at 37–41 completed weeks' gestation (WHO 1975). See also *Gestation*.
Tertiary maternity facility, tertiary facility	A hospital that can provide care for women/people with high-risk, complex pregnancies, by specialised multidisciplinary teams. Tertiary maternity care includes an obstetric specialist or registrar immediately available on site 24 hours a day and an on-site, level 3 neonatal service (Ministry of Health 2012). See also *Maternity facility*.
Trimester	One of three periods into which a woman's/person's pregnancy is divided: first trimester: <13 weeks' gestation; second trimester: 13–28 weeks' gestation; third trimester: 29+ weeks' gestation.
Vacuum extraction	See *Instrumental birth*, *vacuum extraction*.
Well Child/Tamariki Ora	The Well Child/Tamariki Ora programme is a package of universal health services offered free to all New Zealand families/whānau for children from birth to five years.

Appendices

The appendices are as follows:

- Appendix 1: Maternity model of care
- Appendix 2: National Maternity Collection

Appendix 1: Maternity model of care

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

There are a range of employment and contracting models in place for maternity services, including direct Te Whatu Ora funding, private funding or a mix of these. Most maternity services are free to eligible women/people, although some services have co-payments.

Primary maternity care

The Primary Maternity Services Notice 2021, pursuant to Section 88 of the New Zealand Public Health and Disability Act 2000, sets out the objectives of primary maternity services, which are to:

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

All eligible pregnant women/people in New Zealand are entitled to continuity of primary maternity care through an LMC. Pregnant women/people who choose a midwife or GP as their LMC receive this care for free. Pregnant women/people may also choose to receive primary maternity care from a private obstetrician operating as an LMC, but they usually have to pay a co-payment for this care.

Pregnant women/people who do not access an LMC, either through choice or lack of availability, are entitled to receive primary maternity services from their district. Pregnant women/people are less likely to receive continuity of care within a district primary maternity services service than they are with an LMC. The Primary Maternity Services Tier Two Service Specification sets the requirement for the delivery of district primary maternity services and is largely analogous to the Primary Maternity Services Notices 2021.

Place of birth

Pregnant women/people are entitled to choose where they give birth. This may include a tertiary hospital, secondary hospital, primary maternity facilities or at home. Pregnant women/people are entitled to give birth at a facility with greater clinical capacity than their expected clinical need. Primary maternity facilities and home births are recommended for pregnant women/people likely to experience normal birth. Place of birth usually reflects the local configuration of facilities and LMC access agreements, in addition to clinical need and the woman's preference.

Current funding model

Most pregnant women/people receive primary maternity services funded through the Primary Maternity Services Notice 2021 (The Notice). The Notice is a modular, fee-for-service model that specifies service expectations and funds Lead Maternity Care (LMC) services, non LMC first trimester and urgent care, primary maternity ultrasounds and some specialist services.

Te Whatu Ora also funds primary maternity services within Te Whatu Ora districts (formerly known as district health boards (DHBs)). The districts are defined in the DHB Service Coverage Schedule as the '[primary maternity service] provider of last resort' and are expected to meet the primary maternity service needs of pregnant women/people who do not receive care from a midwife LMC funded via the Notice. This includes pregnant women/people with no LMC and the midwife component of care for pregnant women/people who are under the care of an obstetric or GP LMC.

The extent of primary maternity services being provided by Te Whatu Ora districts varies significantly, ranging from districts that do not currently provide any primary maternity services to districts that provide primary maternity services to a notable proportion of their women/people giving birth. This has changed considerably over time.

Te Whatu Ora funds all secondary and tertiary maternity facilities and services within the districts. These services and facilities are free for all eligible women/people and access is based on clinical need.

Appendix 2: National Maternity Collection

Te Whatu Ora's National Maternity Collection provides statistical, demographic and clinical information about selected publicly funded maternity services up to nine months before and three months after a birth. It collates data about each pregnancy that results in birth and each live-born baby separately from:

- inpatient and day-patient health event data during pregnancy, birth and the postnatal period for pregnant women/people giving birth and their babies, sourced from the National Minimum Dataset (NMDS)
- Lead Maternity Carer (LMC) claim forms for primary maternity services provided under the Primary Maternity Services Notice 2021
- primary maternity services provided by districts to pregnant women/people who do not have a midwife LMC.[3]

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

National Minimum Dataset

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

Lead Maternity Carer claims data

This data set contains information on pregnant women/people and babies who access primary maternity services funded under the Primary Maternity Services Notice 2021. This information is received through the claim forms and includes all women/people registered with an LMC. Data sourced from LMC claim forms includes details on registration with an LMC, as well as other antenatal and postnatal factors (eg, parity, smoking status and breastfeeding status).

[3] Collection of this data set (from 2014 onwards) is under way and is incomplete at this time. Data currently available in the National Maternity Collection has been included in this web tool.

District-funded primary maternity services data

Collection of the data set from district-funded primary maternity services is under way. This data set contains information (similar to LMC claims data) on women/people who access Te Whatu Ora district primary maternity services, including case loading midwifery teams, primary midwifery teams and shared care arrangements. Once complete, this data set will increase the scope of information Te Whatu Ora holds on those who access primary maternity services, and their babies.