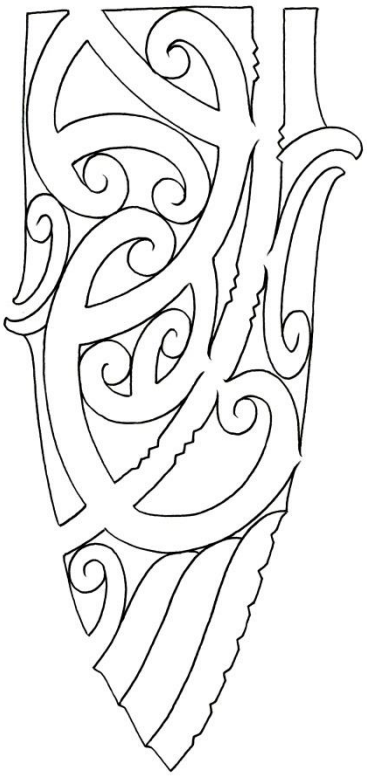
Bay of Plenty District Health Board

Māori Health Profile 2015

By Te Rōpū Rangahau Hauora a Eru Pōmare, University of Otago, Wellington
For the Ministry of Health

Te Rei Puta



The cover design represents the journey of data from its production to its use by the health sector. The overall shape of the design is the prized rei puta. This signifies the importance of information and the acknowledgement that knowledge is a taonga.

At the centre of the design interwoven kowhaiwhai represent the complexity of data that underpins the reports. The ngutu kākā represents the verbal mechanisms for passing on knowledge and the mangopare design symbolises strength and the application of knowledge.

The reports focus on the health status of Māori, and in particular where there are inequalities compared to non-Māori. Niho taniwha represents the strength required to meet adversity and persist through to a successful end, the koru symbolises the growth that results from access to information. The retention of knowledge is embodied in the pātaka kai.

Design by Graham Tipene
Ngāti Whatua, Ngāti Hine, Ngāti Kahu, Ngāti Manu, Ngāti Hāua

tewhekemoko@gmail.com
www.facebook.com/pages/Te-Wheke-Moko/371495646243927

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Further information on Te Rōpū Rangahau Hauora a Eru Pōmare can be found here.

TE RŌPŪ RANGAHAU HAUORA A ERU PŌMARE

UNIVERSITY of OTAGO
Te Whare Wānanga o Otāgo
NEW ZEALAND

MANATŪ HAUORA
MINISTRY OF HEALTH

He Mihi

Tūi Tuia i Te Herenga Tangata

Te tangi a Te Rōpū Rangahau Hauora a Eru Pōmare.

Tui Tui Tui Tuia

E ngā maunga whakahii, ngā pū kōrero huri noa

Tēnā koutou, tēnā koutou, tēnā tātou katoa.

Ngā mate huhua e hinga mai nei i runga i o tātou marae maha

Haere atu rā, okioki ai.

Ngā whakaaro, ngā kōrero aroha, ngā tautoko i awhi nei i te kaupapa

Anei te mihi ki ngā kaimahi hauora

Whakapiki te kaha

Whakapiki te ora

Whakapiki te māramatanga

Kia eke tātou katoa ki Te Pae Ora.

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Graham Tipene designed the rei puta and Somar Design developed the document template.

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Ngā mihi nui ki a koutou katoa.

Nā,

Te Rōpū Rangahau Hauora a Eru Pōmare (Eru Pōmare Māori Health Research Centre)
University of Otago Wellington

Tiro whānui
– Bay of Plenty at a glance

Bay of Plenty population

- In 2013, 53,700 Māori lived in the Bay of Plenty District Health Board region, 25% of the District's total population. Forty percent of the District's children aged 0–14 year were Māori, and 35% of those aged 15–24 years.
- The Bay of Plenty Māori population is youthful, but showing signs of ageing. In 2013, around half were under 25 years of age. The number of Māori aged 65 years and over will increase by nearly 40% between 2013 and 2020.

Whānau ora – Healthy families

- In 2013, most Bay of Plenty Māori adults (84%) reported that their whānau was doing well, but 7% felt their whānau was doing badly. A small proportion (5%) found it hard to access whānau support in times of need, but most found it easy (78%).
- Being involved in Māori culture was important to three-quarters of Māori adults (76%). Spirituality was important to two-thirds (65%).
- A quarter (27%) of Bay of Plenty Māori could have a conversation about a lot of everyday things in te reo Māori in 2013.
- Practically all Bay of Plenty Māori (98%) had been to a marae at some time. Most (67%) had been to their ancestral marae, with over half (55%) stating they would like to go more often.
- Fifteen percent had taken part in traditional healing or massage in the last 12 months.

Wai ora – Healthy environments

Education

- In 2013, 86% of Bay of Plenty Māori children starting school had participated in early childhood education.
- In 2013, 48% of Māori adults aged 18 years and over had at least a Level 2 Certificate, an increase since 2006 (39%). The proportion was three quarters that of non-Māori.

Work

- In 2013, 14% of Māori adults aged 15 years and over were unemployed, over twice the non-Māori rate (6%).
- Most Māori adults (89%) do voluntary work.
- In 2013, Māori were more likely than non-Māori to look after someone who was disabled or ill, within or outside of the home.

Income and standard of living

- In 2013, 42% of children and 37% of adults in Māori households (defined as households with at least one Māori resident) were in households with low equivalised household incomes (under $15,172), compared to 17% of children and 19% of adults in other households.
- Ten percent of Bay of Plenty Māori adults reported putting up with feeling the cold a lot to keep costs down during the previous 12 months, 9% had gone without fresh fruit and vegetables, and 13% had postponed or put off visits to the doctor.

- Residents of Māori households were more likely than non-Māori to have no access to a motor vehicle (9% compared to 2%).
- People in Māori households were less likely to have access to telecommunications than those living in other households: 35% had no internet, 15% no mobile phone, 30% no telephone, and 4% had no access to any telecommunications in the home.

Housing

- The most common housing problems reported to be a big problem by Māori adults in 2013 were needing repairs (12%), finding it hard to keep warm (10%), and damp (7%).
- Almost half (47%) of children in Bay of Plenty Māori households were living in rented accommodation, twice the proportion of children in other households (24%).
- Bay of Plenty residents living in Māori households were 3.5 times as likely as others to be in crowded homes (i.e. requiring at least one additional bedroom) (21% compared to 6%).

Area deprivation

- Using the NZDep2013 index of small area deprivation, 50% of Bay of Plenty Māori lived in the two most deprived decile areas compared to 17% of non-Māori. Conversely, only 4% of Māori lived in the two least deprived decile areas while the proportion of non-Māori was 15%.

Mauri ora – Healthy individuals

Pepi, tamariki – Infants and children

- On average 1,360 Māori infants were born per year over the 2009–2013 period, 46% of all live births in the DHB. Seven percent of Māori and 6% of non-Māori babies had low birth weight.
- In 2013, 78% of Māori babies in Bay of Plenty were fully breastfed at 6 weeks.
- Two thirds of Māori infants were enrolled with a Primary Health Organisation by three months of age.
- In 2014, 85% of Māori children were fully immunised at 8 months of age, 91% at 24 months.
- In 2013, 74% of Bay of Plenty Māori children and 44% of non-Māori children aged 5 years had caries. At school Year 8, two thirds of Māori children and half of non-Māori children had caries. Māori children under 15 years were a third more likely than non-Māori to be hospitalised for tooth and gum disease.
- During 2011–2013, on average there were 127 hospital admissions per year for grommet insertions among Māori children (at a rate similar to non-Māori) and 112 admissions for serious skin infections (with the rate 2.5 times that of non-Māori children).
- Māori children under 15 years were 10 times as likely as non-Māori children to be hospitalised for acute rheumatic fever, with 6 children per year admitted at least once.
- On average 1,255 hospitalisations per year of Māori children were potentially avoidable through population-based health promotion and intersectoral actions, at a rate one-third higher than that of non-Māori.
- On average, 850 hospitalisations per year of Māori children were potentially avoidable through preventive or treatment intervention in primary care (ambulatory care sensitive hospitalisations, or ASH), with a rate one-third higher than for non-Māori children.

Rangatahi – Young adults

- There has been a significant increase in the proportion of Bay of Plenty Māori aged 14 and 15 years who have never smoked, and a decrease in the proportion of Māori aged 15–24 years who smoke regularly. However, Māori youth are twice as likely as non-Māori youth to smoke regularly.
- By September 2014, between 56% and 64% of Māori girls aged 14 to 17 years had received all three doses of the human papilloma virus (HPV) vaccine (highest at age 14 and lowest at age 17 years). Coverage was higher for Māori than for non-Māori.
- During 2011–2013 30 Māori aged 15–24 years and 21 aged 25–44 years were admitted per year for injury from intentional self-harm. Rates were lower for Māori than for non-Māori among those aged 15–24 years but similar to those of non-Māori at ages 25–44 years.

- Two Māori and no non-Māori aged 15–24 years were admitted to hospital per year with acute rheumatic fever during 2011–2013.

Pakeke – Adults

- Just over half of Māori adults in Bay of Plenty (53%) reported having excellent or very good health in 2013, and a third reported having good health. One in seven (14%) reported having fair or poor health.
- Smoking rates are decreasing, but were more than twice as high for Māori as for non-Māori in 2013 (36% compared to 15%).

Circulatory system diseases

- Māori adults aged 25 years were almost 80% more likely than non-Māori to be hospitalised for circulatory system diseases (including heart disease and stroke) during 2011–2013.
- Bay of Plenty Māori were 64% more likely than non-Māori to be admitted with acute coronary syndrome, 19% more likely to have angiography, just as likely to have angioplasty or coronary artery bypass and graft.
- Heart failure admission rates were 3.9 times as high for Māori as for non-Māori.
- Stroke admission rates were 87% higher for Māori than for non-Māori, and admissions for hypertension over twice as high.
- Chronic rheumatic heart disease admissions were 4.7 times as common for Māori as for non-Māori, and heart valve replacements twice as frequent.
- Māori under 75 years were 4 times as likely as non-Māori to die from circulatory system diseases during 2007–2011.

Diabetes

- In 2013, 5% of Māori and non-Māori were estimated to have diabetes. Half of Māori aged 25 years and over who had diabetes were regularly receiving metformin or insulin, 78% were having their blood sugar monitored regularly, and 59% were being screened regularly for renal disease.
- In 2011–2013 Māori with diabetes were 3.3 times as likely as non-Māori to have a lower limb amputated.

Cancer

- Compared to non-Māori, cancer incidence was 34% higher for Māori females while cancer mortality was 2.4 times as high. Among males, cancer incidence was similar for Māori and non-Māori, but cancer mortality was 78% higher for Māori than for non-Māori.
- Breast, lung, uterine and colorectal cancers were the most commonly registered among Bay of Plenty Māori women. The rate of lung cancer was 4.4 times the non-Māori rate, uterine cancer 84% higher, breast cancer 38% higher, and colorectal cancer 41% lower.
- Cancers of the lung, breast, uterus and stomach were the most frequent causes of cancer death for Māori women. Mortality rates for each cancer were significantly higher for Māori than for non-Māori women.
- Breast screening coverage of Māori women aged 45–69 years was 57% compared to 70% of non-Māori women at the end of 2014. Cervical screening coverage of Māori women aged 25–69 years was 62% over 3 years and 78% over five years (compared to 83% and 97% of non-Māori respectively).
- Lung, prostate, colorectal and liver cancers were the most common cancers among Bay of Plenty Māori men. Liver cancer registration rates were 10 times as high as for non-Māori men respectively and lung cancer almost 4 times, while colorectal cancers was 40% lower.
- Lung, liver, prostate, stomach and colorectal cancers were the most common cause of cancer death among Māori men. Mortality rates for liver, lung and stomach cancers were significantly higher for Māori than for non-Māori men.

Respiratory disease

- Māori aged 45 years and over were 4 times as likely as non-Māori to be admitted to hospital for chronic obstructive pulmonary disease (COPD).
- Asthma hospitalisation rates were higher for Māori than for non-Māori in each age group.
- Māori under 75 years had 4 times the non-Māori rate of death from respiratory disease in 2007–2011.

Mental disorders

- Māori were 55% more likely than non-Māori to be admitted to hospital for a mental disorder during 2011–2013. Schizophrenia type disorders were the most common disorders, followed by mood disorders.

Gout

- In 2011 the prevalence of gout among Bay of Plenty Māori was estimated to be 8%, nearly twice the prevalence in non-Māori (4.2%).
- Just under 40% of Māori with gout regularly received allopurinol, a preventive therapy to lower urate levels. Of those who received allopurinol, only 36% had a lab test for serum urate levels in the following six months.
- In 2011–2013 the rate of hospitalisations for gout was 6.5 times as high for Māori as for non-Māori, indicating a higher rate of flare-ups.

All ages

Hospitalisations

- The all-cause rate of hospital admissions was 17% higher for Māori than for non-Māori during 2011–2013.
- Close to 3,400 Māori hospital admissions per year were potentially avoidable, with the rate 40% higher than for non-Māori. The ASH rate was 62% higher for Māori, with just over 2,000 admissions per year.

Mortality

- Life expectancy at birth for Māori in the Bay of Plenty Region during 2012–2014 was 76.7 years for Māori females (7.8 years lower than for non-Māori) and 72.3 years for Māori males (8.4 years lower than for non-Māori).
- The all-cause mortality rate for Bay of Plenty Māori was 2.3 times the non-Māori rate in 2008–2012.
- Leading causes of death for Māori females were ischaemic heart disease (IHD), lung cancer, COPD, stroke, and diabetes. Leading causes of death for Māori males were IHD, accidents, lung cancer, diabetes, and suicide.
- Potentially avoidable mortality and mortality amenable to health care were both 2.8 times as high for Māori as for non-Māori in Bay of Plenty during 2007–2011.

Injuries

- The rate of hospitalisation due to injury was 24% higher for Māori than for non-Māori.
- The most common causes of injury resulting in hospitalisations among Māori were falls, complications of medical and surgical care, exposure to mechanical forces, transport accidents, and assault.
- Compared to non-Māori, rates of hospital admission for injury caused by assault were 4.2 times as high as for Māori females, and 2.6 times as high as for Māori males. Admission rates were higher for males than for females.
- Injury mortality was twice as high for Māori as for non-Māori in Bay of Plenty, and higher for males than for females.

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List of Tables and Figures

Introduction

The Ministry of Health commissioned Te Rōpū Rangahau Hauora a Eru Pōmare to produce a Māori Health Profile for each District Health Board (DHB) in Aotearoa New Zealand. Each profile report is accompanied by an Excel© data file. The profiles are intended to be used by the health sector for planning purposes. They build on and update the previous Health Needs Assessments produced by Massey University in 2012 which can be viewed here.

The overall aim of the Māori Health Strategy, He Korowai Oranga, is Pae Ora or Healthy Futures. Pae Ora is a holistic concept that includes three interconnected elements; whānau ora, wai ora and mauri ora. Further detail on He Korowai Oranga can be found here. Health indicators contained in the Māori Health Profiles are arranged according to these three elements. Whānau ora, healthy families, includes indicators of whānau wellbeing and support, participation in Māori culture and reo. Wai ora, or healthy environments, encompasses indicators on education, work, income, housing and deprivation. Mauri ora, healthy individuals, includes individual level indicators of health status. Mauri ora indicators are ordered according to life stage from pepi/tamariki to rangatahi then pakeke, and also a section on indicators that affect individuals of all ages.

This document presents data for residents of **Hauora a Toi, the Bay of Plenty District Health Board.**

Data sources and key methods

The main data sources for this report are: the 2013 Census of Population and Dwellings, Te Kupenga 2013 (the Māori Social Survey), mortality registrations, public hospital discharges, cancer registrations, the national immunisation register, the community oral health service, the Health Quality and Safety Commission's Atlas of Healthcare Variation, Action on Smoking and Health (ASH) Year 10 Snapshot Survey of tobacco smoking among 14 and 15 year olds, and data from the Well Child/Tamariki Ora Quality Improvement Framework indicators.

Most data are presented for Māori and non-Māori residents of Bay of Plenty DHB. Accompanying Excel tables also include data for the total Bay of Plenty DHB population and the total New Zealand population for reo speakers, socioeconomic indicators, mortality, cancer registrations, and hospital discharges.

The unequal distribution of the social determinants of health is an important driver of health inequities between Māori and non-Māori. Information from the 2013 Census on living conditions that influence health has been analysed by individual, household, and neighbourhood. A household was classified as Māori if there was at least one Māori resident. The 2013 NZ Deprivation Index was used for classifying neighbourhoods. The index combines eight dimensions of deprivation, including access to telecommunications and internet, income, employment, qualifications, home ownership, support, living space, and access to transport.

Māori models of health encompass cultural vitality and whānau wellbeing. Indicators of these dimensions of health have been included in these Profiles, sourced from Te Kupenga 2013, the Māori Social Survey conducted in 2013 by Statistics New Zealand (SNZ). Further information on Te Kupenga can be found here. Data from Te Kupenga is presented for Māori only.

Hospitalisation, cancer registration, and mortality rates and Census data were age–sex-standardised to the 2001 Māori population[1].

Ninety-five percent confidence intervals (95% CI) were calculated for crude and age-standardised hospitalisation and mortality rates and ratios using the log-transformation method (Clayton and Hills 1993). Confidence intervals for data from Te Kupenga were calculated by Statistics New Zealand. Confidence intervals have not been calculated for data from other sources.

For ambulatory care sensitive admissions and admission rates for specific causes, transfers are only included as an admission if the principal diagnosis is not in the same diagnostic group as the initial admission.

[1] The use of the 2001 Māori population standard makes the age-standardised data in this report comparable to the Ministry of Health's Māori health chartbooks, but not to other Ministry of Health documents which use the World Health Organisation's world population.

Average numbers of events per year have been rounded to the nearest whole number.

Further technical notes and methods are provided in Appendix 2.

Further sources of data

Risk factors common to several chronic conditions such as diabetes, cardiovascular disease, cancer, respiratory disease, or vascular dementia, include smoking, alcohol and drug use, nutrition, body size, and physical activity. Improvements in these indicators require public health and intersectoral action to support healthy environments and living conditions for Māori communities, as well as primary care interventions designed for individuals and whānau. The 2012/13 New Zealand Health Survey provides evidence of inequities between Māori and non-Māori in the prevalence of these risks factors at the national level (Ministry of Health 2013).

Other useful data sources include the Ministry of Health's publications on Māori health, the Health Quality and Safety Commission's Atlas of Healthcare Variation, the DHB reports and Te Ohonga Ake reports of the New Zealand Child and Youth Epidemiology Service, the Trendly health performance monitoring website, and the Māori Health Plan Indicator reports provided to DHBs.

Te Tatauranga o te Iwi – Key demographics

In 2013, 8% (53,700) of the country's total Māori population lived in the Bay of Plenty District Health Board. The total population of the DHB (215,000) made up 5% of the national population. In 2015, the Māori population is estimated to be 54,900 and the total population 221,000. [2]

Table 1: Population by age group, Bay of Plenty DHB, 2013

	Māori			Non-Māori		Total DHB
Age group (years)	Number	Age distribution	% of DHB	Number	Age distribution	Number
0–14	18,220	34%	40	27,330	17%	45,550
15–24	8,920	17%	35	16,370	10%	25,290
25–44	12,540	23%	26	35,490	22%	48,030
45–64	10,560	20%	19	46,290	29%	56,850
65+	3,480	7%	9	35,760	22%	39,240
Total	53,700	100%	25	161,300	100%	215,000

Source: Statistics NZ Population projections for the Ministry of Health (2013 Census base) 2014 update

In 2013, Māori residents comprised 25% of the DHB population. The Māori population is relatively young, with a median age of 24.6 years in 2013, compared with 41.1 years for the total DHB population. In 2013, Māori comprised 40% of the DHB's children aged 0–14 years and 35% of the DHB's youth aged 15–24 years.

Table 2: Population projections, Bay of Plenty DHB, 2013 to 2033

	Māori							Total DHB				
Year	Residents	% of DHB	% of NZ Māori	% 0–14 years	% 15–64 years	% 65+ years	Median age	Residents	Median age	% of NZ pop	NZ Māori	Total NZ
2013	53,700	25	8	34	60	7	24.6	215,000	41.1	5	692,300	4,442,100
2018	56,300	25	8	33	59	8	25.0	227,800	42.1	5	734,500	4,726,200
2023	58,600	25	8	32	59	9	25.9	238,500	42.8	5	773,500	4,935,200
2028	60,800	24	8	31	59	11	26.8	248,800	43.3	5	811,700	5,139,700
2033	63,200	25	7	30	58	12	27.6	258,100	44.0	5	850,700	5,327,700

Source: Statistics NZ Population projections for the Ministry of Health (2013 Census base) 2014 update
Note: Detailed population projections are provided in Appendix 1.

The proportion of Māori who are aged 65 years and over is currently 7% but is projected to increase to 12% in 2033. Between 2013 and 2020 the number of Māori aged 65 and over will increase by almost 40% from 3,480 to 4,800 (see Appendix 1). In 2013 there were 1,130 Māori aged 75 years and over in the Bay of Plenty, with 303 living alone.

[2] Population projections are provided in Appendix 1.

Whānau ora
– Healthy families

The refreshed Māori health strategy, He Korowai Oranga (Ministry of Health, 2014) defines whānau ora as Māori families supported to achieve their maximum health and wellbeing. It aims to support families to be self-managing, leading healthy lifestyles, confidently participating in te ao Māori and society. This section reports selected findings from Te Kupenga 2013 on whānau well-being and support and engagement with Māori culture and reo.

Whānau well-being

Table 3: Whānau well-being reported by Māori aged 15 years and over, Bay of Plenty DHB, 2013

	Bay of Plenty DHB			New Zealand	
How the whānau is doing	Estimated number	%	(95% CI)	%	(95% CI)
Well / Extremely well	29,500	83.6	(79.8, 87.4)	83.4	(82.5, 84.4)
Neither well nor badly	3,000*	9.2*	(6.2, 12.2)	10.3	(9.4, 11.2)
Badly / Extremely badly	2,500*	7.2*	(4.5, 9.9)	6.3	(5.6, 7.0)

Source: Te Kupenga 2013, Statistics New Zealand customised report.
Note: An asterisk (*) shows the sampling error is 30% or more but less than 50%.

Over 80% of Bay of Plenty Māori adults reported that their whānau was doing well or extremely well in 2013. However 7% felt their whānau was doing badly or extremely badly.

Table 4: Whānau composition reported by Māori aged 15 years and over, Bay of Plenty DHB, 2013

	Bay of Plenty DHB			New Zealand	
Whānau description	Estimated number	%	(95% CI)	%	(95% CI)
Size of whānau					
10 or less	16,000	46.0	(40.7, 51.4)	53.7	(52.1, 55.3)
11 to 20	8,000	22.5	(18.1, 26.9)	22.6	(21.3, 24.0)
More than 20	11,000	31.4	(26.6, 36.3)	23.6	(22.4, 24.8)
Groups included in whānau					
Parents, partner, children, brothers & sisters	34,500	97.9	(96.6, 99.3)	94.6	(94.0, 95.2)
Aunts & uncles, cousins, nephews & nieces, other in-laws	16,000	46.3	(41.2, 51.5)	41.3	(39.8, 42.8)
Grandparents, grandchildren	19,500	54.9	(49.4, 60.4)	41.9	(40.5, 43.4)
Friends, others	4,500	12.9	(10.1, 15.7)	12.4	(11.5, 13.3)

Source: Te Kupenga 2013, Statistics New Zealand customised report.

Table 4 shows the size and composition of whānau, with nearly a third reporting whānau sizes of more than 20 people. Thirteen percent included friends in their description of whānau.

Whānau support

Table 5: Access to whānau support, Māori aged 15 years and over, Bay of Plenty DHB, 2013

	Bay of Plenty DHB			New Zealand	
How easy is it to get help	Estimated number	%	(95% CI)	%	(95% CI)
Support in times of need					
Easy, very easy	27,500	77.7	(73.8, 81.7)	81.2	(80.1, 82.4)
Sometimes easy, sometimes hard	6,000	17.5	(13.8, 21.3)	12.7	(11.7, 13.6)
Hard / very hard	1,500*	4.7*	(2.7, 6.8)	6.1	(5.4, 6.8)
Help with Māori cultural practices such as going to a tangi, speaking at a hui, or blessing a taonga					
Easy, very easy	21,000	60.1	(54.8, 65.4)	64.1	(62.7, 65.6)
Sometimes easy, sometimes hard	7,000	19.4	(15.5, 23.3)	16.9	(15.9, 18)
Hard / very hard	6,500	17.9	(13.8, 22)	14.7	(13.5, 15.9)
Don't need help	1,000**	2.7**	(1.1, 4.2)	4.2	(3.7, 4.7)

Source: Te Kupenga 2013, Statistics New Zealand customised report.
Notes: * Sampling error is 30% or more but less than 50%. ** Sampling error is 50% or more but less than 100%.

In 2013, the majority of Māori adults in Bay of Plenty (78%) reported having easy access to support in times of need. However, an estimated 1500 (5%) had difficulty getting help.

A smaller proportion found it easy to get help with Māori cultural practices (60%), with 18% finding it hard or very hard. A further 3% reported not needing help.

Importance of participation in Māori culture

Table 6: Importance of Māori culture and spirituality, Māori aged 15 years and over, Bay of Plenty DHB, 2013

	Bay of Plenty DHB			New Zealand	
	Estimated number	%	(95% CI)	%	(95% CI)
Importance of being involved in Māori culture					
Very / quite	17,500	49.8	(44.4, 55.3)	46.3	(44.9, 47.6)
Somewhat	8,500	24.1	(18.8, 29.4)	24.2	(22.9, 25.6)
A little / not at all	9,000	26.1	(21.3, 30.8)	29.5	(28.3, 30.7)
Importance of spirituality					
Very / quite	15,500	44.9	(40.1, 49.8)	48.7	(47.4, 49.9)
Somewhat	7,000	19.6	(15.3, 23.9)	17.0	(16.0, 18.0)
A little / not at all	12,500	35.5	(30.4, 40.6)	34.3	(33.1, 35.5)

Source: Te Kupenga 2013, Statistics New Zealand customised report.

Being involved in Māori culture was important to 50% of Bay of Plenty Māori adults, and somewhat important to a further 24%. Spirituality was very, quite, or somewhat important to two-thirds of Bay of Plenty Māori (65%).

Te Reo Māori

Table 7: People who can have a conversation about a lot of everyday things in te reo Māori, Bay of Plenty DHB, 2013

Māori			Non-Māori			Māori/non-Māori ratio (95% CI)	Difference in proportion
Number	%	(95% CI)	Number	%	(95% CI)		
13,089	27.4	(27.0, 27.9)	1,206	0.8	(0.8, 0.9)	**32.43 (30.1, 35.1)**	26.6

Source: 2013 Census, Statistics New Zealand
Notes: Percentages are age-standardised. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

According to the 2013 Census, over a quarter of all Māori in Bay of Plenty and 1% of non-Māori could have a conversation about a lot of everyday things in te reo Māori.

Table 8: Use of te reo Māori in the home, Māori aged 15 years and over, Bay of Plenty DHB, 2013

	Bay of Plenty DHB			New Zealand	
Language spoken at home	Estimated number	%	(95% CI)	%	(95% CI)
Māori is main language	1,500*	4.2*	(2.4, 6.0)	2.6	(2.2, 3.0)
Māori is used regularly	8,500	26.6	(21.9, 31.2)	20.5	(19.2, 21.8)

Source: Te Kupenga 2013, Statistics New Zealand customised report.
Note: * Sampling error is 30% or more but less than 50%.

Over a quarter of Māori adults use Māori language regularly in the home, and for 4% te reo Māori is the main language.

Access to marae

Table 9: Access to marae, Māori aged 15 years and over, Bay of Plenty DHB, 2013

	Bay of Plenty DHB			New Zealand	
Been to marae	Estimated number	%	(95% CI)	%	(95% CI)
At some time	34,500	98.3	(96.9, 99.7)	96.0	(95.5, 96.6)
In previous 12 months[(1)]	22,000	64.7	(60.0, 69.4)	58.2	(56.6, 59.7)
Ancestral marae at some time[(2)]	23,500	67.3	(62.0, 72.6)	62.3	(60.9, 63.7)
Ancestral marae in previous 12 months[(3)]	15,500	45.1	(40.1, 50.2)	33.6	(32.3, 34.9)
Like to go to ancestral marae more often[(2)]	14,500	55.2	(48.7, 61.7)	58.7	(56.7, 60.7)

Source: Te Kupenga 2013, Statistics New Zealand customised report.
Notes: (1) Those who had been to a marae at some time.
(2) Both those who knew and did not know their ancestral marae.
(3) Those who had been to any of their ancestral marae in the last 12 months.

In 2013, almost all Māori in Bay of Plenty (98%) had been to a marae, with most (65%) having been in the last 12 months. Around 70% had been to at least one of their ancestral marae, with 45% having been in the last 12 months. Over half (55%) reported that they would like to go more often.

Traditional healing or massage

Table 10: Māori aged 15 years and over who took part in traditional healing or massage in last 12 months, Bay of Plenty DHB, 2013

Bay of Plenty DHB			New Zealand	
Estimated number	%	(95% CI)	%	(95% CI)
5,000	15.0	(11.4, 18.6)	10.9	(10.0, 11.7)

Source: Te Kupenga 2013, Statistics New Zealand customised report.

An estimated 5,000 Māori adults (15%) in Bay of Plenty took part in traditional healing or massage in 2013.

Wai ora
– Healthy environments

This section focuses on those aspects of social and physical environments that influence our health and well-being. Data is presented on individuals, households, and individuals living in households. A household that includes at least one Māori usual resident on Census night is categorised as a Māori household, and other households are categorised as non-Māori.

Education

Table 11: Adults aged 18 years and over with a Level 2 Certificate or higher Bay of Plenty DHB, 2006 and 2013

	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)			Difference in percentage
Year	Number	%	(95% CI)	Number	%	(95% CI)				
2006	9,978	39.0	(38.4, 39.6)	55,629	59.1	(58.8, 59.5)	**0.66**	**(0.65,**	**0.67)**	-20.1
2013	12,729	47.6	(47.0, 48.2)	63,231	64.6	(64.3, 64.9)	**0.74**	**(0.73,**	**0.75)**	-17.0

Source: 2006 and 2013 Censuses, Statistics New Zealand
Notes: Percentages are age-standardised. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

The proportion of Māori adults aged 18 years and over with at least a Level 2 Certificate increased from 39% to 48% between 2006 and 2013. However there was only a small relative increase in qualifications compared to non-Māori with Māori being two-thirds as likely as non-Māori to having a Level 2 Certificate in 2006 and three quarters as likely in 2013.

Work

Table 12: Labour force status, 15 years and over, Bay of Plenty DHB, 2006 and 2013

	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)			Difference in percentage
Labour force status	Number	%	(95% CI)	Number	%	(95% CI)				
2006										
Employed full-time	12,609	44.5	(43.9, 45.0)	54,348	56.4	(56.1, 56.7)	**0.79**	**(0.78,**	**0.80)**	-11.9
Employed part-time	4,107	13.5	(13.2, 13.9)	17,733	17.2	(16.9, 17.4)	**0.79**	**(0.76,**	**0.82)**	-3.6
Unemployed	2,661	9.6	(9.3, 10.0)	2,856	3.9	(3.7, 4.0)	**2.50**	**(2.37,**	**2.64)**	5.8
Not in the labour force	9,954	32.3	(31.8, 32.8)	40,569	22.6	(22.3, 22.8)	**1.43**	**(1.40,**	**1.46)**	9.7
2013										
Employed full-time	12,204	40.5	(40.0, 41.0)	54,246	52.4	(52.1, 52.7)	**0.77**	**(0.76,**	**0.78)**	-11.9
Employed part-time	4,290	13.3	(12.9, 13.7)	18,543	16.9	(16.6, 17.1)	**0.79**	**(0.76,**	**0.82)**	-3.6
Unemployed	3,867	13.8	(13.4, 14.2)	4,485	5.8	(5.6, 6.0)	**2.38**	**(2.28,**	**2.49)**	8.0
Not in the labour force	10,872	32.4	(31.9, 32.9)	44,559	25.0	(24.7, 25.3)	**1.30**	**(1.27,**	**1.32)**	7.4

Source: 2006 and 2013 Censuses, Statistics New Zealand
Notes Percentages are age-standardised. Ratios in **bold** show a statistically significant difference between Māori and non-Māori. Employed part-time includes people working 1 hour per week or more. Employed full-time includes people who usually work 30 or more hours per week. Unemployed people are without a paid job, available for work and actively seeking work. People not in the labour force includes people in the working age population who are neither employed nor unemployed.

Between 2006 and 2013 there was a decrease in the number and proportion of Māori adults employed full-time, and a corresponding increase in the unemployment rate (from 10% to 14%). The proportion of the Māori population who were not in the labour force did not change notably.

In 2013 Māori were 2.4 times as likely as non-Māori to be unemployed, with an absolute gap of 8% in unemployment rates.

Table 13: Leading industries in which Māori were employed, Bay of Plenty DHB, 2013

	Bay of Plenty DHB						New Zealand	
	Māori			Non-Māori				
ANZSIC Industry	Number	%	Rank	Number	%	Rank	%	Rank
Females								
Health Care and Social Assistance	1,506	19.9	1	6,876	20.4	1	17.1	1
Education and Training	1,332	17.6	2	4,215	12.5	3	12.9	2
Retail Trade	843	11.1	3	4,323	12.9	2	11.6	3
Accommodation and Food Services	630	8.3	4	2,046	6.1	6	7.3	5
Agriculture, Forestry and Fishing	489	6.5	5	2,409	7.2	5	4.6	8
Males								
Manufacturing	1,284	17.2	1	4,788	13.1	2	13.4	1
Construction	1,209	16.2	2	5,313	14.6	1	13.2	2
Agriculture, Forestry and Fishing	1,113	14.9	3	4,590	12.6	3	8.7	4
Transport, Postal and Warehousing	777	10.4	4	2,370	6.5	6	5.9	7
Retail Trade	477	6.4	5	3,288	9.0	4	8.3	5

Source: 2013 Census, Statistics New Zealand
Note: Australian and New Zealand Standard Industrial Classification (ANZSIC).

Service industries were the main employers of Māori women in Bay of Plenty, including health care and social assistance; education and training; retail; and accommodation and food services. For Māori men, leading industries were manufacturing; construction; and agriculture, forestry, and fishing.

Table 14: Leading occupations of employed Māori, Bay of Plenty DHB, 2013

	Bay of Plenty DHB						New Zealand	
	Māori			Non-Māori				
ANZSCO Occupation	Number	%	Rank	Number	%	Rank	%	Rank
Females								
Professionals	1,695	22.3	1	8,433	25.1	1	26.7	1
Community and Personal Service Workers	1,320	17.3	2	4,497	13.4	4	12.9	4
Labourers	1,224	16.1	3	2,631	7.8	6	8.3	6
Clerical and Administrative Workers	1,209	15.9	4	6,816	20.3	2	19.5	2
Managers	933	12.3	5	5,052	15.0	3	14.4	3
Sales Workers	798	10.5	6	4,053	12.1	5	11.7	5
Technicians and Trades Workers	303	4.0	7	1,710	5.1	7	5.0	7
Machinery Operators and Drivers	129	1.7	8	390	1.2	8	1.5	8
Males								
Labourers	2,139	28.1	1	5,337	14.7	4	13.6	4
Machinery Operators and Drivers	1,377	18.1	2	3,201	8.8	5	9.1	5
Technicians and Trades Workers	1,263	16.6	3	7,122	19.7	2	18.5	3
Managers	1,083	14.2	4	9,375	25.9	1	22.7	1
Professionals	741	9.7	5	5,529	15.3	3	18.6	2
Community and Personal Service Workers	456	6.0	6	1,470	4.1	8	5.4	7
Sales Workers	303	4.0	7	2,655	7.3	6	7.1	6
Clerical and Administrative Workers	249	3.3	8	1,503	4.2	7	5.1	8

Source: 2013 Census, Statistics New Zealand
Note: Australian and New Zealand Standard Classification of Occupations (ANZSCO), major grouping.

Among employed Māori women, the leading occupational groupings were professionals (22%); community and personal service workers (17%); labourers (16%); and clerical and administrative workers (16%). The next most common occupations were managers, and sales workers.

Māori men were most likely to be employed as labourers (28%); machinery operators and drivers (18%); and technicians and trade workers (17%). Managers and professionals were the next most common occupations.

Table 15: Unpaid work, 15 years and over, Bay of Plenty DHB, 2013

	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)			Difference in percentage
Unpaid work	Number	%	(95% CI)	Number	%	(95% CI)				
Any unpaid work	25,572	89.4	(89.0, 89.8)	102,708	89.6	(89.4, 89.9)	1.00	(0.99, 1.00)		-0.2
Looking after disabled/ill household member	3,828	13.2	(12.8, 13.7)	7,884	6.4	(6.2, 6.5)	**2.08**	**(2.00, 2.17)**		6.9
Looking after disabled/ill non-household member	3,637	12.0	(11.7, 12.4)	10,848	7.4	(7.2, 7.6)	**1.62**	**(1.56, 1.69)**		4.6

Source: 2013 Census, Statistics New Zealand

Notes Percentages are age-standardised. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Ninety percent of Māori adults worked without pay in 2013. Māori were twice as likely as non-Māori to look after someone who was disabled or ill without pay within the home, and around 60% more likely to do so outside of the home.

Income and standard of living

Table 16: Unmet need reported by Māori aged 15 years and over to keep costs down in the last 12 months, Bay of Plenty DHB, 2013

	Bay of Plenty DHB			New Zealand	
Actions taken a lot to keep costs down	Estimated number	%	(95% CI)	%	(95% CI)
Put up with feeling the cold	3,000*	9.9*	(5.3, 14.4)	11.0	(10.2, 11.8)
Go without fresh fruit and vegetables	2,500*	9.2*	(4.8, 13.7)	5.4	(4.8, 6.0)
Postpone or put off visits to the doctor	4,000*	12.9*	(7.9, 17.9)	8.8	(7.9, 9.6)

Source: Te Kupenga 2013, Statistics New Zealand customised report.

Note: An asterisk (*) shows the sampling error is 30% or more but less than 50%

An estimated 3,000 Bay of Plenty Māori adults (10%) reported putting up with feeling cold a lot to keep costs down during the previous 12 months, 2,500 (9%) had often gone without fresh fruit and vegetables, and 4,000 (13%) had postponed or put off visits to the doctor in 2013.

Table 17: Children aged 0–17 years living in families where the only income is means-tested benefits, Bay of Plenty DHB, 2006 and 2013

	Māori families			Non-Māori families			Māori/non-Māori ratio (95% CI)			Difference in percentage
Year	Number	%	(95% CI)	Number	%	(95% CI)				
2006	4,695	25.0	(24.4, 25.6)	1,095	6.2	(5.9, 6.6)	**4.01**	**(3.77, 4.27)**		18.8
2013	4,764	23.8	(23.2, 24.3)	1,650	6.0	(5.7, 6.3)	**3.95**	**(3.74, 4.16)**		17.7

Source: Statistics New Zealand, 2006 and 2013 Census

Notes: Māori families include at least one Māori member. Non-Māori families have no Māori members.

Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

The number of children living in Māori families where the only income was means-tested benefits remained fairly constant between 2006 and 2013, with the proportion slightly decreasing from 25% to 24%. Children in Māori families were 4 times as likely as non-Māori children to be in this situation.

Table 18: Children and adults living in households with low incomes, Bay of Plenty DHB, 2013

Age group	Māori households			Non-Māori households			Māori/non-Māori ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
Children 0–17 years	6,954	41.7	(40.9, 42.4)	4,488	17.2	(16.7, 17.6)	**2.43**	**(2.35, 2.51)**	24.5
Adults 18 years & over	10,551	36.6	(36.1, 37.2)	14,325	19.0	(18.6, 19.3)	**1.93**	**(1.88, 1.98)**	17.7

Source: 2013 Census, Statistics New Zealand

Notes: % is age-standardised. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.
A Māori household is a household with at least one Māori resident. Non-Māori households have no Māori residents.
Household income is equivalised using the revised Jensen scale. Low income is defined as an equivalised household income under $15,172.

Forty-two percent of children in Māori households (almost 7000) were in households with low equivalised household incomes, 2.4 times the proportion of other children. Thirty-seven percent of adults in Māori households (over 10,500) lived in low income households, almost twice the proportion of other adults.

Table 19: Households with no access to a motor vehicle, Bay of Plenty DHB, 2006 and 2013

Measure	Māori households			Non-Māori households			Māori/non-Māori ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
Households									
2006	1,623	9.9	(9.5, 10.4)	3,021	5.7	(5.5, 5.9)	**1.74**	**(1.64, 1.84)**	4.2
2013	1,881	10.3	(9.9, 10.8)	2,889	5.1	(4.9, 5.3)	**2.02**	**(1.91, 2.14)**	5.2
People (% age-standardised)									
2006	4,338	8.0	(7.7, 8.2)	3,909	1.8	(1.7, 1.9)	**4.46**	**(4.22, 4.73)**	6.2
2013	4,902	8.5	(8.3, 8.8)	3,975	2.1	(2.0, 2.2)	**4.02**	**(3.81, 4.24)**	6.4

Source: 2006 and 2013 Censuses, Statistics New Zealand

Note: A Māori household is a household with at least one Māori resident. Non-Māori households have no Māori residents.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

In 2013, 10% of Māori households had no access to a motor vehicle, twice the proportion of non-Māori households. Residents of Māori households were 4 times as likely as others to be without a vehicle.

Table 20: People in households with no access to telephone, mobile/cell phone, internet, or any telecommunications, Bay of Plenty DHB, 2013

Mode of tele-communication	Māori households			Non-Māori households			Māori/non-Māori ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
No mobile/cell phone	9,348	14.9	(14.6, 15.2)	16,116	8.6	(8.4, 8.8)	**1.73**	**(1.68, 1.78)**	6.2
No telephone	16,296	29.9	(29.6, 30.3)	11,775	11.9	(11.7, 12.2)	**2.51**	**(2.45, 2.56)**	18.0
No internet	20,631	35.2	(34.8, 35.6)	20,505	11.0	(10.8, 11.2)	**3.19**	**(3.12, 3.26)**	24.2
No tele-communications	2,427	4.3	(4.1, 4.4)	1,008	0.8	(0.8, 0.9)	**5.14**	**(4.72, 5.59)**	3.4

Source: 2013 Census, Statistics New Zealand

Note: A Māori household is a household with at least one Māori resident. Non-Māori households have no Māori residents.
% is age–sex-standardised to the 2001 Māori population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

In 2013, 35% of people in Māori households had no access to the internet, 15% did not have a cell phone, 30% had no telephone, and 4% had no access to any telecommunications in the home. The largest absolute gap (excluding any telecommunications) between Bay of Plenty Māori and non-Māori households was in access to the internet (24 percentage points).

Housing

Table 21: Housing problems reported by Māori aged 15 years and over, Bay of Plenty DHB, 2013

Housing problem (a big problem)	Bay of Plenty DHB			New Zealand	
	Estimated number	%	(95% CI)	%	(95% CI)
Too small	1,500*	4.9*	(2.6, 7.2)	5.3	(4.7, 5.9)
Damp	2,500*	7.2*	(4.3, 10.2)	11.3	(10.5, 12.2)
Hard to keep warm	3,500*	10.1*	(6.8, 13.3)	16.5	(15.4, 17.7)
Needs repairs	4,500*	12.3*	(8.6, 16.0)	13.8	(12.7, 14.9)
Pests in the house	1,500*	4.6*	(2.8, 6.5)	5.8	(5.1, 6.5)

Source: Te Kupenga 2013, Statistics New Zealand customised report.
Note: An asterisk (*) shows the sampling error is 30% or more but less than 50%

Housing problems most commonly reported by Bay of Plenty Māori adults in 2013 as a big problem included needing repairs (12%), difficulty keeping the house warm (10%), and dampness (7%). Five percent felt their house was too small, and 5% stated that pests were a big problem in their house.

Housing security

Table 22: Children and adults living in households where rent payment are made, Bay of Plenty DHB, 2013

Measure	Māori households			Non-Māori households			Māori/non-Māori ratio (95% CI)	Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)		
Households	8,403	46.7	(46.0, 47.5)	13,590	24.4	(24.0, 24.7)	**1.92 (1.88, 1.96)**	22.3
Children under 18 years (% age-standardised)	11,595	56.0	(55.4, 56.7)	9,039	32.3	(31.7, 32.8)	**1.74 (1.70, 1.77)**	23.8
Adults 18 years and over (% age-standardised)	16,224	48.3	(47.8, 48.9)	24,147	36.3	(35.9, 36.6)	**1.33 (1.31, 1.35)**	12.1

Source: 2013 Census, Statistics New Zealand
Note: A Māori household is a household with at least one Māori resident. Non-Māori households have no Māori residents.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

In 2013, 8,403 Māori households were rented, making up 47% of all Māori households, compared to 24% of non-Māori households.

Among children living in a Māori household, 56% (over 11,500) were living in rented homes, compared to 32% in non-Māori households.

Just under half of adults living in Māori households were living in rented accommodation (more than 16,000), a third more than the proportion of adults in non-Māori households.

Household crowding

Table 23: People living in crowded households (requiring at least one more bedroom), Bay of Plenty DHB, 2013

Measure	Māori households			Non-Māori households			Māori/non-Māori ratio (95% CI)	Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)		
Households	2,124	11.6	(11.2, 12.1)	1,020	1.8	(1.7, 1.9)	**6.46 (6.00, 6.94)**	9.8
People (% age standardised)	11,619	21.4	(21.1, 21.7)	5,202	6.2	(6.0, 6.3)	**3.47 (3.36, 3.59)**	15.2

Source: 2013 Census, Statistics New Zealand
Crowding was defined as needing at least one additional bedroom according to the Canadian National Occupancy Standard (based on the age, sex and number of people living in the dwelling).

Note: A Māori household is a household with at least one Māori resident. Non-Māori households have no Māori residents.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

In 2013, Māori households were 6.5 times as likely as non-Māori households to be classified as crowded using the Canadian National Occupancy Standard, with over 2,000 homes needing at least one additional bedroom, affecting more than 11,600 people. People living in Māori households were 3.5 times as likely as people living in non-Māori households to be living in crowded conditions.

Fuel poverty

Table 24: People living in households where no heating fuels are used, Bay of Plenty DHB, 2013

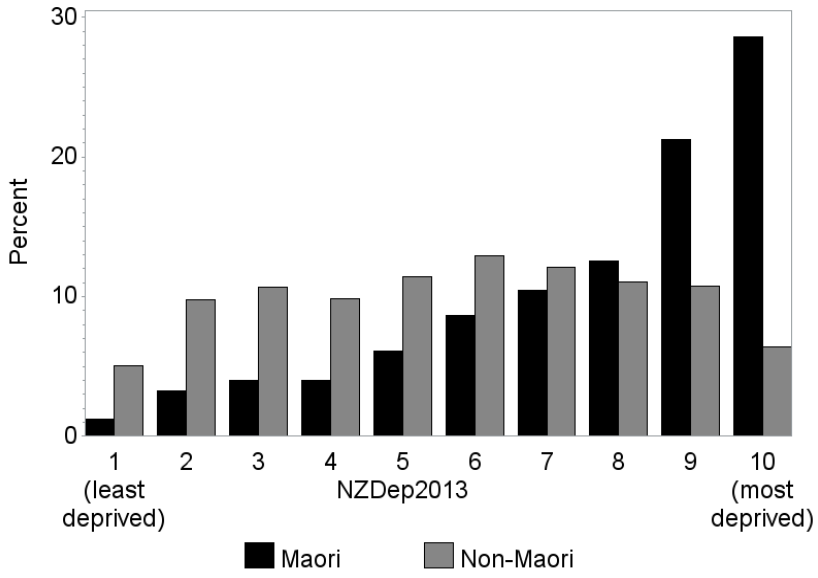
	Māori households			Non-Māori households			Māori/non-Māori ratio (95% CI)	Difference in percentage
Measure	Number	%	(95% CI)	Number	%	(95% CI)		
Households	849	4.7	(4.4, 5.0)	1,485	2.6	(2.5, 2.8)	**1.78 (1.64, 1.93)**	2.0
People (% age standardised)	2,382	4.3	(4.2, 4.5)	3,411	3.5	(3.4, 3.6)	**1.23 (1.17, 1.30)**	0.8

Source: 2013 Census, Statistics New Zealand
Notes: No form of heating used in the dwelling (including electricity, coal, mains or bottled gas, wood, solar heating equipment, other heating).
A Māori household is a household with at least one Māori resident. Non-Māori households have no Māori residents.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

In 2013, 5% of Māori households (849 homes) had no heating, 78% higher than the proportion of non-Māori households (3% or 1,485 homes).

Area deprivation

Figure 1: Distribution by NZDep 2013 decile, Bay of Plenty DHB, 2013



Source: 2013 Census, Statistics New Zealand. Atkinson J, Salmond C, Crampton P. 2014. NZDep2013 Index of Deprivation. University of Otago Wellington.

Bay of Plenty Māori have a more deprived small area profile than the total DHB or national population. In 2013, 50% of Māori lived in the two most deprived decile areas (deciles 9 and 10), compared to 17% of non-Māori. Conversely, only 4% of Māori lived in the two least deprived decile areas, compared to 15% of Bay of Plenty non-Māori (see accompanying Excel table.

Mauri ora: Pepi, tamariki – Infants and children

This section presents information on infants and children. Indicators include birth-weight and gestation, immunisations, breastfeeding and other well-child/tamariki ora indicators, oral health, skin infections, middle ear disease, acute rheumatic fever, and potentially preventable hospitalisations.

Infant mortality, including perinatal mortality and sudden unexpected death in infants (SUDI), are also important indicators of Māori health need. Although the numbers are too small to present at a DHB level, the national data shows that Māori infant mortality and SUDI rates are improving, but significant inequities still remain. The reports of the Perinatal and Maternal Mortality Review Committee (PMMRC) and the Child and Youth Mortality Review Committee (CYMRC) provide useful information and recommendations on preventing infant and child deaths.

Other useful sources of information include the DHB reports by the Child and Youth Epidemiology Service (CYES) on health status (2011), the determinants of health (2012), chronic conditions and disability (2013). The *Te Ohonga Ake* reports by the CYES also include in-depth information on Māori child and youth health at a national level.

Births

Table 25: Birth-weight and gestation, Bay of Plenty DHB, 2009–2013

	Māori			Non-Māori					
Indicator	Ave. no. per year	% of live births (95% CI)		Ave. no. per year	% of live births (95% CI)		Māori/non-Māori ratio (95% CI)		Rate difference
Low birth-weight	93	6.8	(6.3, 7.5)	88	5.6	(5.1, 6.1)	**1.22**	**(1.08, 1.39)**	1.2
High birth-weight	30	2.2	(1.8, 2.6)	42	2.7	(2.3, 3.1)	0.81	(0.66, 1.00)	-0.5
Preterm	103	7.6	(6.9, 8.2)	110	7.0	(6.5, 7.6)	1.08	(0.96, 1.21)	0.6

Source: Birth registrations, Ministry of Health

Notes: Low birth-weight less than 2500g, High birth-weight greater than or equal to 4500g, Preterm less than 37 weeks gestation

During 2009 to 2013 there were 1,360 Māori infants born per year on average in Bay of Plenty, 46% of all live births in the DHB (2,929 per year). On average, 93 Māori babies per year were born with low birth-weight, at a rate of 7%, 22% higher than the rate for non-Māori (or 16 more babies per year on average). Thirty Māori infants per year were born with high birth-weight (2%), and 103 per year (8%) were born preterm.

Well child/Tamariki ora indicators

Table 26: Selected Well Child/Tamariki Ora indicators for Māori children, Bay of Plenty DHB

		Māori	
Indicator	Period	Count	%
1. Babies enrolled with a Primary Health Organisation (PHO) by three months old	20 Aug to 19 Nov 2013	187	66
11. Babies exclusively or fully breastfed at 2 weeks	January to June 2013	451	82
12. Babies exclusively or fully breastfed at 6 weeks		432	78
19. Mothers smoke-free two weeks postnatal		310	60
5. Children under 5 years enrolled with oral health services (PHO enrolled children)	2012	3,939	83
7. Children starting school who have participated in ECE	2013	1,064	86
15. Children with a healthy weight at 4 years, DHB of service	July to Dec 2013	331	68

Source: Well Child/Tamariki Ora Indicators, Ministry of Health, March 2014

Notes: Since the production of this table, the Ministry of Health (2015) has published more recent Well Child/Tamariki Ora Indicators for March 2015 which can be viewed here.

Indicator 1: Source: PHO Enrolment Collection (numerator), National Immunisation Register enrolment (denominator)

Indicator 11: Source: National Maternity Collection. Number of babies with breastfeeding recorded (denominator)
Indicator 12: Source: National Maternity Collection. Number of babies with breastfeeding recorded (denominator)
Indicator 19: Source: National Maternity Collection. Number of mother with tobacco use recorded at 2 weeks postnatal (denominator)
Indicator 5: Source Community Oral Health Services (numerator); PHO enrolments (denominator)
Indicator 7: Source: ENROL Ministry of Education
Indicator 15: Source: B4 School Check Information System. Children who have a BMI recorded at their B4 School Check (denominator)

During late 2013, 66% of Māori babies were enrolled with a PHO by three months of age. In the first half of 2013, 82% of Māori babies were breastfed at two weeks of age and 78% at six weeks. Sixty percent of Māori mothers were smoke-free two weeks after giving birth.

Among pre-school children enrolled with a PHO 83% of Māori were enrolled with oral health services in 2012. In 2013 86% of Māori children who started school had participated in early childhood education. Two-thirds of Māori children who had their BMI recorded at their B4 School Check had a healthy weight.

Table 27: Children fully immunised by the milestone age, Bay of Plenty DHB, 1 Jan 2014 to 31 Dec 2014

	Māori		Non-Māori			
Milestone age	No. fully immunised for age	% fully immunised	No. fully immunised for age	% fully immunised	Māori/non-Māori ratio	Difference in percentage
6 months	714	62%	1,251	77%	0.80	-15%
8 months	973	85%	1,416	88%	0.97	-3%
12 months	1,114	91%	1,495	89%	1.03	2%
18 months	946	75%	1,443	81%	0.93	-6%
24 months	1,189	91%	1,612	89%	1.03	3%
5 years	997	73%	1,438	75%	0.97	-2%

Source: National Immunisation Register

In the 12 months to 31 December 2014, 62% of Māori infants aged six months were fully immunised, compared to 77% of non-Māori infants. However, 85% of Māori children aged eight months and 91% of those aged 24 months had completed their appropriate immunisations. At five years of age 73% of Māori and 75% of non-Māori children were fully immunised.

Oral health

Table 28: Oral health status of children aged 5 or in Year 8 at school, Bay of Plenty DHB, 2013

	Māori				Non-Māori				Māori/non-Māori ratio % with caries (95% CI)		Difference in percentage
Age group	Total	% with caries (95% CI)		Mean DMFT	Total	% with caries (95% CI)		Mean DMFT			
Age 5	1,007	74	(71, 77)	4.6	2,031	44	(41, 46)	1.5	1.71	(1.60, 1.81)	31
Year 8	713	68	(64, 71)	2.8	1,618	50	(47, 52)	1.3	1.36	(1.26, 1.46)	18

Source: Community Oral Health Service, Ministry of Health
Notes: DMFT is Decayed, missing or filled teeth
Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

Three-quarters of Māori children aged five years in 2013 had caries, 71% higher than the proportion of non-Māori children. The mean number of decayed, missing or filled teeth was 4.6 for Māori and 1.5 for non-Māori. Of those in Year 8, 68% of Māori children had caries, a third higher than non-Māori with a mean DMFT of 2.8 compared to 1.3.

Table 29: Hospitalisations for tooth and gum disease, children aged 0–14 years, Bay of Plenty DHB, 2011–2013

	Māori			Non-Māori				
Gender	Ave. no. per year	Rate per 100,000 (95% CI)		Ave. no. per year	Rate per 100,000 (95% CI)		Māori/non-Māori ratio (95% CI)	Rate difference
Female	84	960.7	(849.1, 1,087.0)	92	698.0	(620.1, 785.7)	**1.38 (1.16, 1.63)**	262.7
Male	86	915.1	(809.7, 1,034.1)	99	712.7	(635.9, 798.9)	**1.28 (1.09, 1.52)**	202.3
Total	170	937.9	(859.8, 1,023.1)	190	705.4	(649.7, 765.8)	**1.33 (1.18, 1.50)**	232.5

Source: National Minimum Data Set (NMDS).
Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

There were 170 hospital admissions per year on average for tooth and gum disease among Māori children, at a rate that was 33% higher than non-Māori, or 233 more admissions per 100,000 children per year.

Middle ear disease

Table 30: Hospitalisations for grommet insertions, children aged 0–14 years, Bay of Plenty DHB, 2011–2013

	Māori			Non-Māori				
Gender	Ave. no. per year	Rate per 100,000	(95% CI)	Ave. no. per year	Rate per 100,000	(95% CI)	Māori/non-Māori ratio (95% CI)	Rate difference
Female	55	632.8	(543.5, 736.8)	69	544.2	(474.7, 623.9)	1.16 (0.95, 1.43)	88.5
Male	72	768.5	(672.5, 878.2)	93	694.3	(617.4, 780.8)	1.11 (0.93, 1.32)	74.2
Total	127	700.7	(633.7, 774.6)	162	619.3	(566.5, 677.0)	1.13 (0.99, 1.29)	81.4

Source: NMDS

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average, there were 127 admissions per year for grommet insertions among Māori children per year, at a rate of 700 per 100,000.

Healthy skin

Table 31: Hospitalisations for serious skin infections, children aged 0–14 years, Bay of Plenty DHB, 2011–2013

	Māori			Non-Māori				
Gender	Ave. no. per year	Rate per 100,000	(95% CI)	Ave. no. per year	Rate per 100,000	(95% CI)	Māori/non-Māori ratio (95% CI)	Rate difference
Female	56	634.2	(545.2, 737.8)	27	203.1	(163.1, 253.0)	**3.12 (2.39, 4.08)**	431.1
Male	56	588.9	(506.0, 685.4)	41	292.9	(245.5, 349.4)	**2.01 (1.59, 2.54)**	296.0
Total	112	611.6	(549.4, 680.7)	68	248.0	(216.1, 284.6)	**2.47 (2.07, 2.94)**	363.5

Source: NMDS

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

There were 112 admissions per year for serious skin infections among Māori children on average. The rate was 2.5 times the rate for non-Māori children, or 364 more admissions per 100,000 children per year.

Acute rheumatic fever

Table 32: Individuals admitted to hospital for acute rheumatic fever, ages 0–14 and 15–24 years, Bay of Plenty DHB, 2011–2013

	Māori			Non-Māori				
Age group & Gender	Ave. no. per year	Rate per 100,000	(95% CI)	Ave. no. per year	Rate per 100,000	(95% CI)	Māori/non-Māori ratio (95% CI)	Rate difference
0–14 years								
Female	2	19.0	(7.9, 45.8)	<1	2.3	(0.3, 16.1)	8.41 (0.98, 72.01)	16.8
Male	4	46.6	(27.1, 80.3)	1	4.2	(1.1, 17.0)	**11.00 (2.48, 48.75)**	42.4
Total	6	32.8	(20.7, 52.1)	1	3.3	(1.0, 10.1)	**10.10 (2.97, 34.31)**	29.6
15–24 years								
Female	1	22.1	(7.1, 68.6)	0	0.0	. .	. . .	22.1
Male	1	14.1	(3.5, 56.3)	0	0.0	. .	. . .	14.1
Total	2	18.1	(7.5, 43.5)	0	0.0	. .	. . .	18.1

Source: NMDS

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

Among Bay of Plenty Māori children aged 14 years and under, on average six per year were hospitalised at least once for acute rheumatic fever, at a rate 10 times the rate for non-Māori, or 30 more children per 100,000. Among Māori aged 15 to 24 years, an average of two per year were admitted, at a rate of 18 per 100,000. No non-Māori in this age group were admitted for acute rheumatic fever during this period.

Potentially preventable hospitalisations

Potentially preventable hospitalisations can be categorised into those which are considered potentially avoidable and those more likely to be unavoidable. Potentially avoidable hospitalisations are those resulting from diseases preventable through population-based health promotion strategies and those related to the social determinants of health. Addressing these can require actions beyond the health care system, including intersectoral actions.

A subgroup of potentially avoidable hospitalisations, ambulatory care sensitive hospitalisations (ASH) reflect hospitalisations for conditions considered sensitive to preventive or treatment interventions in primary care. It is also recognised that while access to effective primary care is important in reducing ASH, addressing the factors which drive the underlying burden of disease such as housing, or second hand smoke exposures, is also important.

Table 33: Potentially avoidable hospitalisations for children aged 1 month to 14 years, Bay of Plenty DHB, 2011–2013

	Māori		Non-Māori			
Gender	Ave. no. per year	Rate per 100,000 (95% CI)	Ave. no. per year	Rate per 100,000 (95% CI)	Māori/non-Māori ratio (95% CI)	Rate difference
Female	555	6,323.3 (6,026.8, 6,634.4)	604	4,756.8 (4,542.4, 4,981.3)	**1.33 (1.24, 1.42)**	1,566.5
Male	700	7,376.0 (7,067.0, 7,698.5)	739	5,517.2 (5,291.9, 5,752.0)	**1.34 (1.26, 1.42)**	1,858.8
Total	1,255	6,849.6 (6,634.1, 7,072.2)	1,342	5,137.0 (4,980.5, 5,298.4)	**1.33 (1.28, 1.39)**	1,712.6

Source: NMDS

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

There were 1,255 potentially avoidable hospitalisations per year on average among Māori children aged 14 years and under, at a rate 33% higher than the non-Māori rate, or 1,713 more admissions per 100,000.

Table 34: Ambulatory care sensitive hospitalisations for children aged 1 month to 14 years, Bay of Plenty DHB, 2011–2013

	Māori		Non-Māori			
Gender	Ave. no. per year	Rate per 100,000 (95% CI)	Ave. no. per year	Rate per 100,000 (95% CI)	Māori/non-Māori ratio (95% CI)	Rate difference
Female	398	4,542.6 (4,292.0, 4,807.7)	428	3,355.7 (3,176.9, 3,544.7)	**1.35 (1.25, 1.46)**	1,186.8
Male	452	4,788.6 (4,540.2, 5,050.6)	509	3,786.2 (3,600.6, 3,981.2)	**1.26 (1.18, 1.36)**	1,002.4
Total	850	4,665.6 (4,487.8, 4,850.4)	937	3,570.9 (3,441.1, 3,705.7)	**1.31 (1.24, 1.38)**	1,094.6

Source: NMDS

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average there were 850 admissions per year for ambulatory care sensitive conditions among Māori children, at a rate a third higher than non-Māori children, or 1,095 more admissions per 100,000 children.

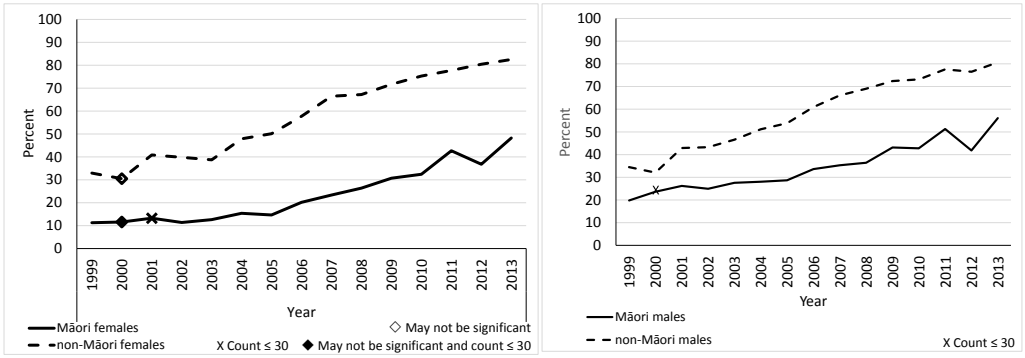
Mauri ora: Rangatahi – Young adults

This section presents data on smoking, immunisations, and self-harm as an indicator of mental health. Nationally, leading causes of hospitalisation among Māori aged 15 to 24 years include pregnancy and childbirth, injury, digestive system diseases, symptoms and signs (unknown causes), and mental disorders. Major causes of death for Māori in this age group include accidents, suicide, cancer, and homicide (Robson and Harris 2007).

Challenges faced by rangatahi Māori that can affect their health and wellbeing include socioeconomic factors, perceived positive school climate, access to healthcare, exposure to violence, and risky health behaviours including suicide attempts (Crengle et al, 2013). Other data related to youth can be found in the CYES reports on child and youth health. The Child and Youth Health Compass provides exemplars of youth specific services.

Smoking

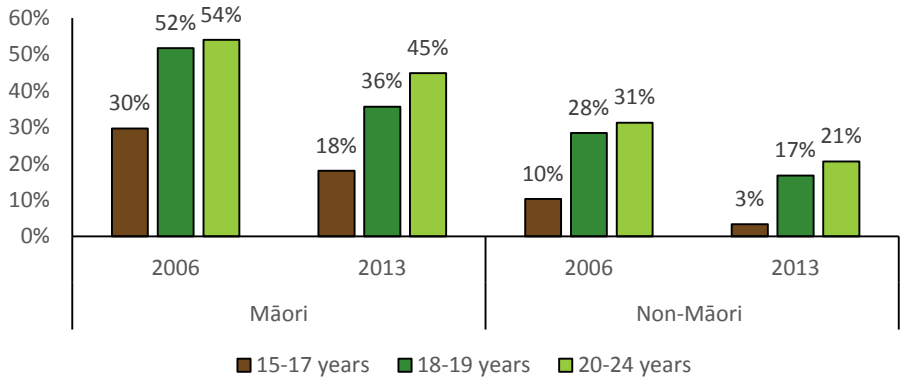
Figure 2: Trends in the proportion of students aged 14–15 years who have never smoked, by gender, Bay of Plenty DHB, 1999–2013



Source: ASH Year 10 Snapshot Survey, 2013

Over the last 15 years the number of Māori aged 14 or 15 who have never smoked has increased although the proportions of never smokers have been consistently lower than non-Māori (Figure 2). In 2013, 53% had never smoked.

Figure 3: Regular smokers, ages 15–17, 18–19, 20–24 years, Bay of Plenty DHB, 2013



Source: 2013 Census, Statistics New Zealand
Note: Regular smoker defined as smoking at least one cigarette daily.

Smoking rates have decreased significantly among young Māori and non-Māori adults in Bay of Plenty since 2006. However, the high smoking rate at ages 18–24 years indicates a sizeable group start smoking in young adulthood. At ages 20–24 years, 45% of Māori were smoking regularly in 2013. Non-Māori in each age group were at least half as likely as Māori to smoke regularly in 2013.

Immunisations

Table 35: Human papilloma virus immunisations (HPV) by birth cohorts, Bay of Plenty DHB, 1 September 2008 to 30 September 2014

			Māori		Non-Māori			
Birth cohort	Age in 2014	Offered HPV vaccine in (year)	Fully immunised	% fully immunised	Fully immunised	% fully immunised	Māori/non-Māori ratio	Difference in percentage
2000	14	2013	358	63.9%	440	44.9%	1.42	19.0%
1999	15	2012	344	60.4%	398	44.2%	1.36	16.1%
1998	16	2011	332	61.5%	386	39.4%	1.56	22.1%
1997	17	2010	313	55.9%	370	39.8%	1.40	16.1%

Source: National Immunisation Register.
Note: Three doses are required to be fully immunised. Young women are eligible for free vaccination up to the age of 20.

By September 2014, 64% of Māori girls aged 14 years in 2014 had received three doses of the HPV vaccine, a higher coverage than non-Māori (45%) or the national coverage (57%). Fifty-six percent of Māori and 40% of non-Māori women aged 17 in 2014 were fully immunised compared to 55% nationally.

Mental health

Table 36: Hospitalisations for injury from intentional self-harm, 15–24 and 25–44 years, Bay of Plenty DHB, 2011–2013

	Māori			Non-Māori				
Age group and gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Māori/non-Māori ratio (95% CI)	Rate difference
15–24 years								
Female	21	465.6	(363.7, 596.0)	59	745.8	(643.4, 864.5)	**0.62 (0.47, 0.83)**	-280.2
Male	9	210.1	(143.9, 306.7)	18	212.3	(162.6, 277.2)	0.99 (0.62, 1.57)	-2.2
Total	30	337.8	(274.7, 415.5)	77	479.0	(420.9, 545.2)	**0.71 (0.55, 0.90)**	-141.2
25–44 years								
Female	14	196.5	(144.4, 267.4)	42	218.0	(182.1, 260.8)	0.90 (0.63, 1.29)	-21.4
Male	8	132.4	(87.8, 199.8)	21	128.3	(99.5, 165.3)	1.03 (0.64, 1.67)	4.2
Total	21	164.5	(128.4, 210.7)	63	173.1	(149.4, 200.5)	0.95 (0.71, 1.27)	-8.6

Source: NMDS.
Note: Ratios in bold show that Māori rates were significantly different from non-Māori rates in the DHB.

Māori aged 15–24 years were less likely than non-Māori to be admitted to hospital for injury from intentional self-harm. There were 30 admissions per year on average among Māori in this age group. Females were more likely to be admitted than males.

Māori aged 25–44 years were about as likely as non-Māori to be admitted. On average 21 Māori per year in this age group were admitted for injury caused by intentional self-harm.

Mauri ora: Pakeke – Adults

This section focuses mainly on long term conditions among adults, including heart disease and stroke, cancer, diabetes, respiratory disease (asthma, chronic obstructive pulmonary disease), mental disorders, and gout. Information is also presented on hip fractures, hip replacements and cataract surgery. Self-assessed health status and smoking status are also included.

Information on other causes of hospitalisation or deaths in Bay of Plenty can be found in the accompanying Excel© tables labelled 'Death registrations' and 'Hospitalisations by principal diagnosis'. For example, the hospitalisations table shows disparities between Bay of Plenty Māori and non-Māori in rates of admission for thyroid disorders, atrial fibrillation and flutter, acute bronchitis and bronchiolitis, bronchiectasis, gastric ulcers, glomerular disease, renal failure, epilepsy, and head injuries.

The New Zealand Health Survey provides other information on long term conditions and risk factors that have been shown to be more common for Māori adults than other adults at a national level, including medicated blood pressure, obesity, chronic pain, arthritis, oral disease, and mental distress (Ministry of Health 2014).

Self-assessed health

Table 37: Health status reported by Māori aged 15 years and over, Bay of Plenty DHB, 2013

	Bay of Plenty DHB			New Zealand	
Health status	Estimated number	%	(95% CI)	%	(95% CI)
Excellent	6,000	17.6	(13.8, 21.5)	18.1	(16.8, 19.3)
Very good	12,500	35.8	(31.3, 40.3)	37.0	(35.5, 38.5)
Good	11,500	32.6	(27.5, 37.7)	28.5	(27.3, 29.7)
Fair / poor	5,000	14.0	(10.3, 17.6)	16.4	(15.3, 17.5)

Source: Te Kupenga 2013, Statistics New Zealand customised report.

In 2013, just over half of Bay of Plenty Māori adults (53%) reported having excellent or very good health and another third described their health as good. Fourteen percent reported having fair or poor health status.

Smoking status

Table 38: Cigarette smoking status, 15 years and over, Bay of Plenty DHB, 2006 and 2013

	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)		Difference in percent
Smoking status	Number	%	(95% CI)	Number	%	(95% CI)			
2006									
Regular smoker	11,763	44.2	(43.6, 44.8)	18,876	21.7	(21.4, 22.0)	**2.03**	**(1.99, 2.07)**	22.4
Ex-smoker	5,298	18.1	(17.7, 18.6)	29,511	20.6	(20.4, 20.9)	**0.88**	**(0.85, 0.90)**	-2.5
Never smoked	10,248	37.6	(37.1, 38.2)	61,530	57.6	(57.3, 58.0)	**0.65**	**(0.64, 0.66)**	-20.0
2013									
Regular smoker	10,062	36.1	(35.5, 36.7)	14,112	14.9	(14.6, 15.1)	**2.43**	**(2.37, 2.48)**	21.2
Ex-smoker	7,041	21.2	(20.8, 21.7)	32,100	20.3	(20.1, 20.6)	**1.04**	**(1.02, 1.07)**	0.9
Never smoked	12,414	42.7	(42.1, 43.3)	71,112	64.8	(64.4, 65.1)	**0.66**	**(0.65, 0.67)**	-22.1

Source: 2006 and 2013 Census, Statistics New Zealand
Notes: % is age-standardised to the 2001 Māori population
Regular smokers smoke one or more cigarettes per day.

Between 2006 and 2013 the proportion of Māori adults who smoked cigarettes regularly decreased from 44% to 36%. The corresponding increase in those who have never smoked was greater than the increase in ex-smokers. However, Māori remain more than twice as likely as non-Māori to smoke regularly.

Heart disease and stroke

Table 39: Hospitalisations for circulatory system diseases, 25 years and over, Bay of Plenty DHB, 2011–2013

	Māori			Non-Māori				
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Māori/non-Māori ratio (95% CI)	Rate difference
Female	337	1,740.9	(1,630.8, 1,858.5)	1,584	868.3	(830.3, 907.9)	**2.01 (1.85, 2.17)**	872.7
Male	379	2,315.8	(2,178.6, 2,461.6)	1,994	1,426.0	(1,375.6, 1,478.2)	**1.62 (1.51, 1.74)**	889.8
Total	716	2,028.4	(1,939.6, 2,121.2)	3,577	1,147.1	(1,115.4, 1,179.7)	**1.77 (1.68, 1.86)**	881.2

Source: NMDS

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average 716 Bay of Plenty Māori were admitted to hospital per year for diseases of the circulatory system (including heart disease and stroke), at a rate 77% higher than non-Māori, or 881 more admissions per 100,000.

Table 40: Ischaemic heart disease indicators, 25 years and over, Bay of Plenty DHB, 2011–2013

	Māori			Non-Māori				
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Māori/non-Māori ratio (95% CI)	Rate difference
Ischaemic heart disease admissions								
Female	74	351.6	(307.1, 402.6)	325	145.3	(133.9, 157.7)	**2.42 (2.07, 2.83)**	206.3
Male	101	567.2	(505.1, 637.0)	616	436.2	(411.6, 462.2)	**1.30 (1.14, 1.48)**	131.1
Total	175	459.4	(420.6, 501.9)	941	290.7	(277.1, 305.1)	**1.58 (1.43, 1.75)**	168.7
Angiography procedures								
Female	43	222.9	(186.7, 266.2)	219	145.4	(132.6, 159.6)	**1.53 (1.25, 1.87)**	77.5
Male	65	374.3	(323.7, 432.8)	433	355.3	(332.2, 379.9)	1.05 (0.90, 1.24)	19.0
Total	107	298.6	(266.8, 334.2)	652	250.4	(237.0, 264.4)	**1.19 (1.05, 1.35)**	48.2
Angioplasty procedures								
Female	9	44.2	(30.2, 64.6)	54	33.6	(28.1, 40.2)	1.31 (0.86, 2.00)	10.5
Male	16	92.7	(69.5, 123.4)	149	126.6	(113.0, 141.8)	**0.73 (0.54, 1.00)**	-33.9
Total	25	68.4	(54.4, 86.1)	203	80.1	(72.7, 88.3)	0.85 (0.67, 1.10)	-11.7
Coronary Artery Bypass Graft (CABG)								
Female	4	21.7	(12.5, 37.6)	17	9.9	(7.2, 13.5)	**2.20 (1.17, 4.15)**	11.8
Male	10	58.4	(40.5, 84.0)	71	56.3	(48.2, 65.7)	1.04 (0.70, 1.54)	2.1
Total	15	40.0	(29.5, 54.3)	88	33.1	(28.7, 38.0)	1.21 (0.87, 1.69)	7.0
Acute coronary syndrome admissions								
Female	54	256.0	(218.4, 300.0)	232	103.9	(94.1, 114.6)	**2.46 (2.04, 2.97)**	152.1
Male	72	408.4	(356.1, 468.4)	418	300.1	(279.2, 322.5)	**1.36 (1.17, 1.59)**	108.3
Total	127	332.2	(299.3, 368.6)	650	202.0	(190.3, 214.3)	**1.64 (1.46, 1.85)**	130.2

Source: NMDS.

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average, 175 Māori per year were admitted to hospital for ischaemic heart disease (IHD), at a rate 58% higher than non-Māori. Of these, 127 were admitted with acute coronary syndrome (64% higher rate than non-Māori).

Māori men had higher rates than Māori women of admissions for IHD, acute coronary syndrome, angiography, angioplasty and CABG. There were 107 angiography procedures conducted for Māori patients per year, at a rate 19% higher than non-Māori. On average, 16 Māori men and 9 Māori women per year had angioplasty procedures, with the rate for Māori men 27% lower than the non-Māori rate. Four Māori women per year had a coronary artery bypass graft on average, at twice the rate of non-Māori women. Ten Māori men per year on average had a CABG, at a similar rate to non-Māori men.

Table 41: Hospitalisations for heart failure, stroke, and hypertensive disease, 25 years and over, Bay of Plenty DHB, 2011–2013

	Māori			Non-Māori				
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Māori/non-Māori ratio (95% CI)	Rate difference
Heart failure								
Female	45	189.8	(158.3, 227.6)	187	52.7	(45.9, 60.5)	**3.60 (2.87, 4.53)**	137.1
Male	63	355.1	(305.8, 412.3)	204	88.1	(78.4, 99.0)	**4.03 (3.33, 4.87)**	267.0
Total	108	272.5	(242.6, 306.0)	391	70.4	(64.4, 77.0)	**3.87 (3.34, 4.48)**	202.1
Stroke								
Female	48	241.4	(203.6, 286.2)	225	106.9	(95.0, 120.2)	**2.26 (1.84, 2.78)**	134.5
Male	30	172.1	(138.5, 214.0)	229	113.8	(102.6, 126.1)	**1.51 (1.19, 1.93)**	58.4
Total	78	206.8	(180.7, 236.5)	454	110.3	(102.1, 119.3)	**1.87 (1.60, 2.19)**	96.4
Hypertensive disease								
Female	8	47.8	(31.5, 72.7)	47	21.8	(16.7, 28.5)	**2.19 (1.33, 3.61)**	26.0
Male	5	35.0	(21.0, 58.4)	19	14.3	(10.1, 20.2)	**2.45 (1.32, 4.54)**	20.7
Total	14	41.4	(29.9, 57.3)	66	18.0	(14.6, 22.3)	**2.29 (1.56, 3.38)**	23.4

Source: NMDS.

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

There were 108 admissions per year on average for Māori with heart failure, at close to 4 times the rate for non-Māori, or 202 more admissions per 100,000.

On average, 78 Māori per year were admitted for stroke, almost twice the non-Māori rate, or 96 more admissions per 100,000.

There were 14 Māori admissions per year on average for hypertensive disease, over twice the rate of non-Māori, or 23 more admissions per 100,000.

Table 42: Hospitalisations for chronic rheumatic heart disease and heart valve replacements, 25 years and over, Bay of Plenty DHB, 2011–2013

	Māori			Non-Māori				
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Māori/non-Māori ratio (95% CI)	Rate difference
Chronic rheumatic heart disease								
Female	8	48.7	(31.8, 74.7)	12	7.8	(4.7, 13.1)	**6.22 (3.19, 12.15)**	40.9
Male	4	33.1	(18.4, 59.6)	11	9.7	(5.9, 16.0)	**3.40 (1.57, 7.33)**	23.3
Total	12	40.9	(28.9, 58.0)	23	8.8	(6.1, 12.6)	**4.66 (2.83, 7.67)**	32.1
Heart valve replacements								
Female	3	19.1	(10.0, 36.5)	15	8.2	(5.5, 12.1)	**2.34 (1.10, 4.99)**	10.9
Male	5	32.7	(18.6, 57.4)	26	15.6	(11.5, 21.2)	**2.09 (1.10, 3.96)**	17.0
Total	8	25.9	(16.9, 39.7)	42	11.9	(9.3, 15.1)	**2.18 (1.33, 3.56)**	14.0

Source: NMDS.

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average, there were 12 hospital admissions per year for Māori with chronic rheumatic heart disease, at a rate 4.7 times that of non-Māori, or 32 more admissions per 100,000.

Heart valve replacements were conducted on eight Māori per year on average, twice the rate for non-Māori, or 14 more per 100,000.

Table 43: Early deaths from circulatory system disease, Bay of Plenty DHB, 2007–2011

	Māori			Non-Māori					
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Māori/non-Māori ratio (95% CI)		Rate difference
Female	21	55.1	(45.2, 67.1)	24	9.6	(7.5, 12.2)	**5.77**	**(4.22, 7.88)**	45.5
Male	34	99.8	(85.5, 116.5)	61	28.0	(24.5, 32.0)	**3.56**	**(2.90, 4.38)**	71.8
Total	54	77.5	(68.6, 87.5)	85	18.8	(16.7, 21.1)	**4.12**	**(3.48, 4.89)**	58.7

Source: Mortality data, Ministry of Health

Notes: "Early deaths" are defined as those occurring under 75 years of age.

Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average 54 Māori per year died early from circulatory system disease, at a rate 4 times as high as the non-Māori rate, or 59 more deaths per 100,000. Men had a higher mortality rate than women.

Diabetes

Table 44: Diabetes prevalence, medication use, monitoring of blood glucose levels, screening for renal disease, Bay of Plenty DHB, 2013

	Māori		Non-Māori			
Indicator	Count	% (crude)	Count	% (crude)	Māori/non-Māori ratio	Difference in percentage
Prevalence of diabetes (all ages)	2,843	5.3	8,773	5.4	0.98	-0.1
People with diabetes regularly receiving metformin or insulin, 25+	1,461	51.4	4,242	48.4	1.06	3.0
People with diabetes having regular Hb1Ac monitoring, 25+	2,206	77.6	7,210	80.0	0.97	-2.4
People with diabetes having regular screening for renal disease, 25+	1,677	59.0	5,580	63.6	0.93	-4.6

Source: NZ Atlas of Healthcare Variation

Note: The 'crude' percentage is not adjusted for differences in the age structure of the Māori and non-Māori populations.

Around 2,840 Māori were estimated to have diabetes in 2013, giving a crude prevalence of 5.3% (not adjusted for age). Half of Māori with diabetes were regularly receiving metformin or insulin in 2013. Three-quarters were having regular monitoring of blood glucose levels and 59% were being screened regularly for renal disease.

Table 45: Hospitalisations for lower limb amputations for people with concurrent diabetes, 15 years and over, Bay of Plenty DHB, 2011–2013

	Māori			Non-Māori					
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Māori/non-Māori ratio (95% CI)		Rate difference
Female	3	10.1	(5.1, 19.9)	7	2.4	(1.3, 4.4)	**4.17**	**(1.68, 10.33)**	7.6
Male	5	20.3	(12.1, 33.9)	14	6.7	(4.2, 10.8)	**3.01**	**(1.49, 6.05)**	13.5
Total	8	15.2	(10.0, 22.9)	20	4.6	(3.1, 6.7)	**3.31**	**(1.89, 5.81)**	10.6

Source: NMDS

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average eight Māori with diabetes had lower limbs amputated per year, at a rate 3.3 times that of non-Māori.

Cancer

Table 46: Most common cancer registrations for Māori by site, all ages, Bay of Plenty DHB, 2008–2012

Gender and site	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)		Rate difference
	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)				
Female									
All cancers	96	249.2	(227.0, 273.6)	472	186.4	(176.0, 197.5)	**1.34**	**(1.20, 1.49)**	62.8
Breast	30	83.5	(70.8, 98.4)	126	60.5	(54.9, 66.8)	**1.38**	**(1.14, 1.67)**	22.9
Lung	22	49.6	(41.0, 59.9)	43	11.2	(9.3, 13.5)	**4.41**	**(3.38, 5.74)**	38.3
Uterus	13	35.4	(27.4, 45.9)	40	19.3	(15.8, 23.6)	**1.84**	**(1.33, 2.55)**	16.2
Colorectal	4	11.6	(7.4, 18.2)	76	19.8	(17.2, 22.7)	**0.59**	**(0.37, 0.94)**	-8.1
Male									
All cancers	82	230.1	(208.4, 254.1)	578	206.9	(196.6, 217.7)	1.11	(0.99, 1.24)	23.2
Lung	20	52.3	(42.8, 64.0)	50	13.7	(11.8, 16.0)	**3.81**	**(2.96, 4.92)**	38.6
Prostate	18	45.5	(36.9, 56.1)	154	50.2	(46.4, 54.4)	0.91	(0.72, 1.13)	-4.7
Colorectal	7	17.7	(12.5, 25.0)	89	25.6	(22.6, 28.9)	**0.69**	**(0.48, 1.00)**	-7.9
Liver	6	17.0	(11.7, 24.8)	5	1.6	(1.0, 2.5)	**10.66**	**(5.98, 18.98)**	15.4

Source: Cancer Registry, Ministry of Health

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

There were 96 cancer registrations per year on average among Bay of Plenty Māori females during 2008–2012, at a rate 34% higher than non-Māori. The most common cancers registered for Māori females were breast, lung, uterine, and colorectal cancers. Registration rates were higher for Māori than for non-Māori women for cancers of the lung (4.4 times as high), uterus (84% higher) and breast (38% higher), and around 40% lower for colorectal cancer.

Among Bay of Plenty Māori males there were 82 cancer registrations per year on average. Lung, prostate, colorectal, and liver cancer were the most common. Māori registration rates were higher than those of non-Māori for cancers of the lung (close to 4 times as high) and liver (10.7 times as high) but they were around 30% lower for colorectal cancer.

Table 47: Most common cancer deaths for Māori by site, all ages, Bay of Plenty DHB, 2007–2011

Gender and site	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)		Rate difference
	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)				
Female									
All cancers	46	113.9	(99.7, 130.0)	192	48.0	(43.8, 52.6)	**2.37**	**(2.02, 2.79)**	65.8
Lung	16	38.9	(31.2, 48.5)	32	7.7	(6.3, 9.4)	**5.04**	**(3.75, 6.77)**	31.2
Breast	7	19.0	(13.7, 26.4)	29	10.0	(8.1, 12.5)	**1.89**	**(1.27, 2.80)**	8.9
Uterus	6	15.6	(10.7, 22.7)	19	5.8	(4.3, 7.8)	**2.67**	**(1.65, 4.31)**	9.7
Stomach	3	7.9	(4.6, 13.8)	3	0.6	(0.2, 1.3)	**14.25**	**(5.12, 39.67)**	7.4
Male									
All cancers	43	120.7	(105.3, 138.4)	247	67.9	(62.6, 73.6)	**1.78**	**(1.52, 2.08)**	52.8
Lung	14	39.8	(31.5, 50.3)	40	10.4	(8.7, 12.4)	**3.82**	**(2.85, 5.12)**	29.4
Liver	5	13.8	(9.2, 20.7)	6	2.0	(1.3, 3.1)	**6.82**	**(3.79, 12.28)**	11.8
Prostate	3	8.7	(5.4, 14.0)	41	7.4	(6.3, 8.7)	1.18	(0.71, 1.95)	1.3
Stomach	3	7.4	(4.3, 13.0)	10	3.1	(2.0, 4.8)	**2.41**	**(1.19, 4.88)**	4.4
Colorectal	2	5.5	(2.9, 10.2)	35	9.6	(7.8, 11.8)	0.57	(0.30, 1.10)	-4.1

Source: Death registrations, Ministry of Health

Note Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

For Māori females, deaths from cancer accounted for 34% of all deaths, with a rate 2.4 times that of non-Māori. Lung cancer was the most common cause of cancer death, at a rate 5 times the rate of non-Māori women. Cancers

of the breast, uterus and stomach were the next most frequent. Māori mortality rates for each of these cancers were significantly higher than non-Māori rates, with mortality from stomach cancer notably being 14 times as high.

For Māori males, cancer deaths accounted for 29% of all deaths, with a rate nearly twice that of non-Māori males. Lung cancer was the most common cause of cancer death at a rate 3.8 times the non-Māori rate. The next most common causes were colorectal, prostate, stomach, and liver cancers. Liver cancer mortality was at a rate almost 7 times that of non-Māori.

Breast and cervical cancer screening

Table 48: BreastScreen Aotearoa breast screening coverage, women aged 45–69 years, Bay of Plenty DHB, 24 months to 31 December 2014

Māori			Non-Māori		
Number screened	Eligible population	% screened	Number screened	Eligible population	% screened
3,668	6,395	57.4	20,942	30,095	69.6

Source: National Screening Unit, Ministry of Health

BreastScreen Aotearoa provides free mammography screening for breast cancer to women aged 45 to 69 years, with a target of at least 70% of eligible women screened every two years. During the two years up to the end of 2014, 57% of Māori women and 70% of non-Māori women in Bay of Plenty had been screened.

Table 49: Cervical screening coverage, women aged 25–69 years, Bay of Plenty DHB, 3 years and 5 years to 31 December 2014

Māori					Non-Māori				
Eligible population	Women screened in last 5 years	5-year coverage %	Women screened in last 3 years	3-year coverage %	Eligible population	Women screened in last 5 years	5-year coverage %	Women screened in last 3 years	3-year coverage %
12,008	9,401	78.3	7,440	62.0	42,873	41,601	97.0	35,762	83.4

Source: National Screening Unit, Ministry of Health
Note: Population is adjusted for hysterectomy.

Among women aged 25 to 69 years, 78% of Māori women and 97% of non-Māori women had had a cervical smear test during the five years prior to December 2014. The three year cervical screening coverage was 62% for Māori women and 83% for non-Māori women. The National Cervical Screening Programme has a three year screening coverage target of 80% of eligible women aged 25 to 69 years.

Respiratory disease

Table 50: Hospitalisations for asthma, by age group, Bay of Plenty DHB, 2011–2013

Gender and age group	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)	Rate difference
	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)			
0–14 years								
Female	61	698.2	(604.3, 806.8)	47	364.4	(308.7, 430.2)	**1.92 (1.54, 2.39)**	333.8
Male	97	1,029.9	(918.2, 1155.1)	68	502.5	(438.0, 576.5)	**2.05 (1.71, 2.45)**	527.3
Total	159	864.1	(789.8, 945.4)	115	433.5	(389.9, 481.9)	**1.99 (1.73, 2.29)**	430.6
15–34 years								
Female	30	384.0	(311.7, 473.0)	25	155.9	(124.2, 195.7)	**2.46 (1.81, 3.35)**	228.1
Male	11	146.7	(103.2, 208.4)	12	78.6	(56.9, 108.5)	**1.87 (1.16, 3.01)**	68.1
Total	40	265.3	(221.7, 317.5)	37	117.2	(97.4, 141.2)	**2.26 (1.75, 2.93)**	148.1
35–64 years								
Female	28	322.9	(258.9, 402.8)	35	104.3	(84.3, 129.1)	**3.10 (2.28, 4.21)**	218.6
Male	14	174.0	(127.6, 237.4)	13	46.7	(32.8, 66.4)	**3.73 (2.33, 5.96)**	127.3
Total	42	248.5	(207.5, 297.5)	49	75.5	(62.9, 90.7)	**3.29 (2.55, 4.25)**	173.0
65 years and over								
Female	6	303.5	(186.3, 494.2)	15	81.6	(59.1, 112.7)	**3.72 (2.07, 6.67)**	221.8
Male	1	102.9	(38.6, 274.3)	5	27.6	(15.9, 47.7)	**3.73 (1.21, 11.49)**	75.3
Total	7	203.2	(130.7, 315.7)	20	54.6	(41.3, 72.1)	**3.72 (2.21, 6.27)**	148.6

Source: NMDS.
Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

There were 159 admissions for asthma per year among Māori children aged 0–14 years, at a rate twice that of non-Māori. Young Māori adults were admitted at a rate 2.3 times the non-Māori rate, with an average of 40 admissions per year. Among Māori adults aged 35–64 years, there were 42 admissions per year on average, at 3.3 times the rate of non-Māori. Māori aged 65 years and over were admitted at a rate 3.7 times the non-Māori rate, with seven admissions per year on average.

Table 51: Hospitalisations for chronic obstructive pulmonary disease (COPD), 45 years and over, Bay of Plenty DHB, 2011–2013

Gender	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)	Rate difference
	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)			
Female	133	1,599.9	(1,447.3, 1,768.5)	225	287.3	(261.4, 315.8)	**5.57 (4.85, 6.39)**	1,312.6
Male	75	1,075.6	(942.8, 1,227.1)	292	369.3	(341.1, 399.8)	**2.91 (2.50, 3.40)**	706.3
Total	209	1,337.7	(1,234.9, 1,449.1)	517	328.3	(308.9, 348.9)	**4.07 (3.69, 4.51)**	1,009.4

Source: NMDS.
Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

There were 209 hospitalisations per year on average for Māori with COPD, at a rate 4 times that of non-Māori, or 1,009 more admissions per 100,000.

Table 52: Early deaths from respiratory disease, Bay of Plenty DHB, 2007–2011

Gender	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)	Rate difference
	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)			
Female	9	24.9	(18.4, 33.8)	11	4.8	(3.3, 7.1)	**5.16 (3.17, 8.39)**	20.1
Male	6	18.5	(13.0, 26.3)	13	5.7	(4.0, 8.1)	**3.23 (1.96, 5.31)**	12.7
Total	15	21.7	(17.2, 27.3)	24	5.3	(4.1, 6.8)	**4.11 (2.91, 5.81)**	16.4

Source: Mortality data, Ministry of Health
"Early deaths" defined as those occurring under 75 years of age.
Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average, 15 Māori per year died early from respiratory disease, at a rate 4 times the non-Māori rate, or 16 more deaths per 100,000.

Mental disorders

Table 53: Hospitalisations for mental disorders, all ages, Bay of Plenty DHB, 2011–2013

	Māori			Non-Māori				
Disorder	Ave. no. per year	Age-standardised rate (95% CI)		Ave. no. per year	Age-standardised rate (95% CI)		Māori/non-Māori ratio (95% CI)	Rate difference
Female								
All disorders	137	477.3	(431.8, 527.6)	474	438.4	(408.9, 470.1)	1.09 (0.96, 1.23)	38.9
Schizophrenia	55	197.6	(168.8, 231.3)	66	65.3	(55.2, 77.2)	**3.03 (2.41, 3.81)**	132.3
Mood (affective)	27	89.7	(71.6, 112.3)	132	82.5	(71.1, 95.7)	1.09 (0.83, 1.42)	7.2
—Bipolar	16	47.5	(35.4, 63.8)	35	30.4	(23.8, 38.9)	**1.56 (1.06, 2.29)**	17.1
—Depressive episode	7	26.1	(16.8, 40.5)	70	32.1	(25.4, 40.5)	0.81 (0.50, 1.34)	-6.0
Substance use	21	76.3	(59.2, 98.4)	62	85.3	(72.4, 100.4)	0.89 (0.66, 1.21)	-9.0
—Alcohol	14	52.6	(38.8, 71.5)	51	68.0	(56.8, 81.5)	0.77 (0.54, 1.10)	-15.4
Anxiety, stress-related	19	65.2	(49.8, 85.5)	89	87.8	(75.2, 102.5)	0.74 (0.54, 1.01)	-22.6
Male								
All disorders	233	954.7	(883.8, 1031.4)	433	483.1	(451.9, 516.5)	**1.98 (1.78, 2.19)**	471.6
Schizophrenia	102	482.6	(430.8, 540.8)	76	109.4	(94.8, 126.3)	**4.41 (3.67, 5.29)**	373.2
Mood (affective)	60	191.6	(163.9, 224.1)	87	89.8	(77.5, 104.1)	**2.13 (1.72, 2.65)**	101.8
—Bipolar	20	81.3	(62.4, 105.7)	40	36.2	(29.0, 45.2)	**2.24 (1.59, 3.17)**	45.1
—Depressive episode	36	93.9	(76.9, 114.5)	34	38.5	(30.6, 48.5)	**2.44 (1.80, 3.31)**	55.4
Substance use	39	160.1	(133.0, 192.8)	125	154.6	(137.5, 173.9)	1.04 (0.83, 1.29)	5.5
—Alcohol	15	61.2	(45.5, 82.4)	101	114.9	(100.6, 131.2)	**0.53 (0.38, 0.74)**	-53.7
Anxiety, stress-related	12	47.5	(33.9, 66.5)	54	62.8	(52.2, 75.7)	0.76 (0.51, 1.11)	-15.3
Total								
All disorders	371	716.0	(673.4, 761.3)	907	460.8	(439.1, 483.5)	**1.55 (1.44, 1.68)**	255.3
Schizophrenia	157	340.1	(310.0, 373.2)	141	87.3	(78.3, 97.4)	**3.89 (3.37, 4.49)**	252.8
Mood (affective)	87	140.7	(123.7, 159.9)	219	86.1	(77.6, 95.6)	**1.63 (1.38, 1.93)**	54.5
—Bipolar	36	64.4	(52.8, 78.5)	75	33.3	(28.3, 39.3)	**1.93 (1.49, 2.50)**	31.1
—Depressive episode	43	60.0	(50.0, 72.0)	104	35.3	(29.9, 41.6)	**1.70 (1.33, 2.17)**	24.7
Substance use	60	118.2	(101.7, 137.4)	187	120.0	(109.1, 132.0)	0.99 (0.82, 1.18)	-1.8
—Alcohol	30	56.9	(46.0, 70.5)	152	91.5	(82.2, 101.8)	**0.62 (0.49, 0.79)**	-34.5
Anxiety, stress-related	31	56.4	(45.6, 69.6)	143	75.3	(66.9, 84.8)	**0.75 (0.59, 0.95)**	-19.0

Source: NMDS

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

Rates of hospitalisation for mental disorders were one and a half times as high for Māori as for non-Māori.

Among Māori females, the most common cause of admission was schizophrenia related disorders, with 55 admissions per year on average, at a rate 3 times that of non-Māori females. Admissions for bipolar disorders were also higher for Māori women.

Among Māori males, the overall admission rate was twice the non-Māori rate. Admissions for schizophrenia type disorders were the most common, at a rate over 4 times the non-Māori rate. The Māori male admission rates for mood disorders was twice the non-Māori rate.

Gout

Table 54: Gout prevalence and treatment, 20–79 years, Bay of Plenty DHB, 2011

Indicator	Māori		Non-Māori		Māori/non-Māori ratio	Difference in percentage
	Count	%	Count	%		
Gout prevalence	2,661	8.0	3,367	4.2	1.90	3.8
People with gout who received allopurinol regularly	1,012	38.0	1,320	39.2	0.97	-1.2
Colchicine use by people with gout not dispensed allopurinol	256	9.6	352	10.5	0.92	-0.8
NSAID use by people with gout	1,283	48.2	1,439	42.7	1.13	5.5
Serum urate test within six months following allopurinol dispensing	565	35.8	653	35.9	1.00	-0.1

Source: NZ Atlas of Healthcare Variation, Ministry of Health.
Notes: Denominator is people in contact with health services (using Health Tracker). Prevalence may be underestimated by up to 20%. Prevalence rates are not age adjusted. NSAID is non-steroidal anti-inflammatory drug.

Around 2,660 Māori were estimated to have gout in 2011, a prevalence of 8%, 90% higher than the prevalence in non-Māori. Thirty-eight percent of Māori with gout regularly received allopurinol, a preventive therapy to lower urate levels. Of those who received allopurinol, only 36% had a lab test for serum urate levels within the following six months.

Table 55: Hospitalisations for gout, 25 years and over, Bay of Plenty DHB, 2011–2013

Gender	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)		Rate difference
	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)				
Female	11	44.4	(30.7, 64.2)	11	4.7	(3.1, 7.1)	**9.42**	**(5.41, 16.39)**	39.7
Male	42	261.8	(217.7, 314.9)	45	42.6	(33.8, 53.8)	**6.14**	**(4.56, 8.27)**	219.2
Total	53	153.1	(129.6, 180.8)	56	23.7	(19.1, 29.3)	**6.47**	**(4.93, 8.48)**	129.4

Source: NMDS
Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

There were 53 hospital admissions for gout per year on average among Bay of Plenty Māori, more frequent among males than females. The rate of admission was 6.5 times the non-Māori rate, or 129 more admissions per 100,000.

Hip fractures

Table 56: Hospitalisations for hip fractures, 65 years and over, Bay of Plenty DHB, 2011–2013

Gender	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)		Rate difference
	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)				
Female	4	189.7	(109.0, 330.2)	133	363.4	(322.9, 409.0)	**0.52**	**(0.30, 0.92)**	-173.7
Male	1	55.8	(18.0, 173.0)	58	209.4	(177.2, 247.3)	**0.27**	**(0.08, 0.84)**	-153.6
Total	5	122.7	(74.5, 202.3)	191	286.4	(260.0, 315.4)	**0.43**	**(0.26, 0.71)**	-163.7

Source: NMDS
Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average, five Māori per year aged 65 and over were admitted to hospital for hip fractures, at a rate just under half that of non-Māori.

Elective surgery

Table 57: Hospitalisations for hip replacements, 50 years and over, Bay of Plenty DHB, 2011–2013

	Māori			Non-Māori					
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Māori/non-Māori ratio (95% CI)		Rate difference
Female	22	379.0	(296.7, 484.1)	146	290.6	(260.9, 323.8)	1.30	(1.00, 1.70)	88.4
Male	23	459.5	(363.1, 581.5)	135	313.9	(280.8, 350.8)	**1.46**	**(1.13, 1.90)**	145.6
Total	45	419.2	(353.7, 496.9)	281	302.3	(279.7, 326.7)	**1.39**	**(1.15, 1.67)**	117.0

Source: NMDS
Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average, 45 Māori aged 50 years and over were admitted to hospital per year for a hip replacement, at a rate 39% higher than that of non-Māori, or 117 more admissions per 100,000.

Table 58: Publicly funded hospitalisations for cataract surgery, 45 years and over, Bay of Plenty DHB, 2011–2013

	Māori			Non-Māori					
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Māori/non-Māori ratio (95% CI)		Rate difference
Female	54	604.9	(516.7, 708.3)	282	294.3	(270.6, 320.2)	**2.06**	**(1.72, 2.46)**	310.6
Male	51	708.2	(603.1, 831.5)	227	266.3	(242.9, 292.0)	**2.66**	**(2.21, 3.20)**	441.9
Total	105	656.6	(586.4, 735.1)	510	280.3	(263.4, 298.3)	**2.34**	**(2.06, 2.66)**	376.2

Source: NMDS
Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average, 105 Bay of Plenty Māori aged 45 years and over were admitted to hospital per year for cataract surgery. The rate was 2.3 times the rate for non-Māori, or 376 more admissions per 100,000.

Mauri ora: All ages

This section presents information on overall hospitalisations, potentially avoidable and ambulatory sensitive hospitalisations, overall mortality rates, potentially avoidable mortality and mortality amenable to health care, and injuries. ICD codes for these classifications are provided in Appendix 2. Life expectancy at birth is presented for the Bay of Plenty Region.

Hospitalisations

Table 59: All-cause hospitalisations, all ages, Bay of Plenty DHB, 2011–2013

	Māori		Non-Māori			
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)	Māori/non-Māori ratio (95% CI)	Rate difference
Female	7,565	26,734.7 (26,375.8, 27,098.6)	22,088	22,697.2 (22,456.5, 22,940.5)	**1.18 (1.16, 1.20)**	4,037.5
Male	5,911	20,908.9 (20,592.0, 21,230.7)	18,935	17,933.1 (17,719.2, 18,149.6)	**1.17 (1.14, 1.19)**	2,975.8
Total	13,476	23,821.8 (23,581.9, 24,064.2)	41,024	20,315.2 (20,153.9, 20,477.7)	**1.17 (1.16, 1.19)**	3,506.6

Source: NMDS
Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average, there were just under 13,500 Māori hospital admissions per year and over 41,000 non-Māori admissions. All-cause admission rates were 17% higher for Māori than non-Māori, or around 3,500 more admissions per 100,000.

Data on hospital admissions by principal diagnosis are available in the accompanying Excel tables.

Potentially avoidable hospitalisations

Table 60: Potentially avoidable hospitalisations, 0–74 years, Bay of Plenty DHB, 2011–2013

	Māori		Non-Māori			
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)	Māori/non-Māori ratio (95% CI)	Rate difference
Female	1,775	6,114.3 (5,946.4, 6,287.0)	3,290	4,193.4 (4,088.5, 4,301.0)	**1.46 (1.40,1.51)**	1,920.9
Male	1,613	5,848.0 (5,680.6, 6,020.4)	3,517	4,373.1 (4,267.4, 4,481.4)	**1.34 (1.29,1.39)**	1,474.9
Total	3,388	5,981.2 (5,862.1, 6,102.6)	6,807	4,283.3 (4,208.5, 4,359.3)	**1.40 (1.36,1.43)**	1,697.9

Source: NMDS
Notes: Ratios in **bold** show t Māori rates were significantly different from non-Māori rates in the DHB. Table revised April 2016.

Close to 3,400 Māori hospital admissions per year were potentially avoidable through population based prevention strategies, at a rate 40% higher than for non-Māori, or around 1,700 more admissions per 100,000.

Table 61: Ambulatory care sensitive hospitalisations, 0–74 years, Bay of Plenty DHB, 2011–2013

	Māori		Non-Māori			
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)	Māori/non-Māori ratio (95% CI)	Rate difference
Female	1,024	6,168.5 (5,999.1, 6,342.7)	1,631	4,230.6 (4,124.7, 4,339.1)	**1.66 (1.58, 1.75)**	1,938.0
Male	985	5,899.8 (5,730.9, 6,073.7)	1,813	4,411.9 (4,305.3, 4,521.1)	**1.57 (1.49, 1.65)**	1,487.9
Total	2,009	6,034.2 (5,914.0, 6,156.7)	3,444	4,321.2 (4,245.8, 4,397.9)	**1.62 (1.56, 1.68)**	1,712.9

Source: NMDS
Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average, there were 2,009 ambulatory care sensitive hospitalisations per year among Māori, at a rate that was 62% higher than the non-Māori rate, or 1,713 more admissions per 100,000.

Mortality

Table 62: Life expectancy at birth, Bay of Plenty Region, 2012–2014

Gender	Māori	Non-Māori	Difference in years
	Years (95% credible interval)	Years (95% credible interval)	
Female	76.7 (76.0, 77.5)	84.5 (84.2, 84.7)	-7.8
Male	72.3 (71.6, 73.1)	80.7 (80.4, 81.0)	-8.4

Source: Statistics New Zealand Subnational Period Life Tables: 2012–14

Notes: This data is for the Bay of Plenty Region which includes the Rotorua District. A map of Regional Council boundaries can be found here. The credible interval is the 2.5th percentile and the 97.5th percentile, the years of expected life at birth is the 50th percentile. Further information on the regional life tables and methods can be found here.

Life expectancy at birth is a summary measure of age-specific mortality rates during a specific period. During 2012–2014, among residents of the Bay of Plenty Region, life expectancy at birth was 76.7 years for Māori females, 7.8 years lower than for non-Māori females (84.5 years). For Māori males, life expectancy was 72.3 years, 8.4 years lower than that of non-Māori males (80.7 years).

Table 63: All-cause deaths, all ages, Bay of Plenty DHB, 2008–2012

Gender	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)			Rate difference
	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)					
Female	126	327.1	(308.8, 346.5)	668	133.1	(126.8, 139.7)	**2.46**	**(2.28,**	**2.65)**	194.1
Male	151	491.6	(466.7, 517.7)	716	222.8	(213.9, 232.0)	**2.21**	**(2.07,**	**2.36)**	268.8
Total	277	409.4	(393.8, 425.5)	1,384	177.9	(172.5, 183.6)	**2.30**	**(2.19,**	**2.42)**	231.4

Source: Mortality dataset, Ministry of Health.

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

There were 277 Māori deaths per year on average in Bay of Plenty from 2008 to 2012. The Māori mortality rate was over twice the non-Māori rate, or 231 more deaths per 100,000.

Table 64: Leading causes of death for Māori, all ages, Bay of Plenty DHB, 2007–2011

Gender and cause	Māori			Non-Māori			Māori/non-Māori ratio (95% CI)			Rate difference
	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)					
Female										
IHD	16	33.6	(26.8, 42.1)	119	11.3	(10.1, 12.6)	**2.97**	**(2.31,**	**3.82)**	22.3
Lung cancer	16	38.9	(31.2, 48.5)	32	7.7	(6.3, 9.4)	**5.04**	**(3.75,**	**6.77)**	31.2
COPD	10	20.5	(15.5, 27.3)	35	5.0	(4.1, 6.0)	**4.15**	**(2.95,**	**5.83)**	15.6
Stroke	9	20.7	(15.3, 28.1)	79	8.5	(7.2, 10.1)	**2.43**	**(1.72,**	**3.44)**	12.2
Diabetes	9	19.6	(14.4, 26.5)	16	2.9	(1.9, 4.3)	**6.74**	**(4.08,**	**11.13)**	16.7
Male										
IHD	26	74.2	(62.4, 88.3)	150	30.2	(27.5, 33.3)	**2.45**	**(2.01,**	**2.99)**	44.0
Accidents	15	58.5	(46.3, 73.9)	30	29.2	(23.5, 36.3)	**2.00**	**(1.46,**	**2.76)**	29.3
Lung cancer	14	39.8	(31.5, 50.3)	40	10.4	(8.7, 12.4)	**3.82**	**(2.85,**	**5.12)**	29.4
Diabetes	11	32.1	(24.6, 41.9)	17	3.3	(2.6, 4.3)	**9.65**	**(6.69,**	**13.92)**	28.8
Suicide	8	32.5	(23.5, 44.8)	15	15.4	(11.6, 20.3)	**2.11**	**(1.38,**	**3.24)**	17.1
Total										
IHD	43	53.9	(46.9, 61.9)	268	20.8	(19.2, 22.4)	**2.60**	**(2.22,**	**3.04)**	33.1
Lung cancer	31	39.3	(33.5, 46.2)	72	9.1	(8.0, 10.3)	**4.34**	**(3.53,**	**5.34)**	30.3
Accidents	20	38.6	(31.6, 47.2)	53	19.4	(16.2, 23.4)	**1.99**	**(1.51,**	**2.61)**	19.2
Diabetes	20	25.8	(21.1, 31.6)	33	3.1	(2.5, 3.9)	**8.29**	**(6.11,**	**11.25)**	22.7
COPD	17	19.6	(15.7, 24.3)	77	5.9	(5.2, 6.7)	**3.32**	**(2.59,**	**4.26)**	13.7

Source: Mortality dataset, Ministry of Health.

Notes: IHD is ischaemic heart disease, COPD is chronic obstructive pulmonary disease.

Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

The leading causes of death for Bay of Plenty Māori women were ischaemic heart disease, lung cancer, chronic obstructive pulmonary disease, stroke, and diabetes mellitus. Mortality rates for these conditions were 2.4 to 6.8 times as high for Māori women as for non-Māori women. Absolute differences ranged from 12 per 100,000 for stroke to 31 per 100,000 for lung cancer.

For Bay of Plenty Māori men, the leading causes of death were ischaemic heart disease, accidents, lung cancer, diabetes mellitus, and suicide. Mortality rates for these conditions were all at least twice as high as non-Māori, and Māori men were notably found to have a mortality rate from diabetes close to 10 times as high as for non-Māori men. The highest absolute difference was for IHD at 44 more deaths per 100,000.

Data on leading causes of death by ICD chapter are available in the accompanying Excel tables.

Potentially avoidable mortality

Avoidable mortality includes deaths occurring among those less than 75 years old that could potentially have been avoided through population-based interventions (including actions to address the social determinants of health) or through preventive and curative interventions at an individual level.

Amenable mortality is a subset of avoidable mortality and is restricted to deaths from conditions that are amenable to health care.

Table 65: Potentially avoidable mortality, 0–74 years, Bay of Plenty DHB, 2007–2011

	Māori			Non-Māori				
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Māori/non-Māori ratio (95% CI)	Rate difference
Female	72	207.8	(186.9, 231.1)	116	64.5	(57.4, 72.6)	**3.22 (2.75, 3.77)**	143.3
Male	94	308.4	(280.9, 338.6)	176	119.7	(109.2, 131.3)	**2.58 (2.26, 2.94)**	188.7
Total	166	258.1	(240.6, 276.9)	291	92.1	(85.7, 99.1)	**2.80 (2.53, 3.10)**	166.0

Source: Mortality, Ministry of Health
Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

There were 166 potentially avoidable Māori deaths per year in Bay of Plenty, at a rate 2.8 times the non-Māori rate, or 166 more deaths per 100,000.

Table 66: Amenable mortality, 0–74 years, Bay of Plenty DHB, 2007–2011

	Māori			Non-Māori				
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Ave. no. per year	Age-standardised rate per 100,000 (95% CI)		Māori/non-Māori ratio (95% CI)	Rate difference
Female	50	144.1	(126.8, 163.9)	72	42.0	(36.3, 48.6)	**3.43 (2.83, 4.17)**	102.2
Male	67	222.0	(198.7, 247.9)	129	88.7	(79.7, 98.7)	**2.50 (2.15, 2.92)**	133.3
Total	117	183.1	(168.3, 199.1)	202	65.3	(59.9, 71.2)	**2.80 (2.48, 3.16)**	117.7

Source: Mortality, Ministry of Health
Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

Amenable mortality was 2.8 times as high for Māori as for non-Māori in Bay of Plenty, or 118 more deaths per 100,000. On average, there were 117 Māori deaths per year from conditions amenable to health care.

Injuries

A table on the causes of hospital admissions for injuries can be found in the accompanying Excel tables. The most common causes of injury among Bay of Plenty Māori were falls, complications of medical and surgical care, exposure to mechanical forces, transport accidents, and assault.

Table 67: Hospitalisations for injuries, all ages, Bay of Plenty DHB, 2011–2013

	Māori		Non-Māori			
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)	Māori/non-Māori ratio (95% CI)	Rate difference
Female	592	2,118.7 (2,019.2, 2,223.2)	2,020	1,882.8 (1,814.6, 1,953.5)	**1.13 (1.06, 1.20)**	236.0
Male	913	3,577.3 (3,442.0, 3,717.9)	2,307	2,724.3 (2,643.3, 2,807.7)	**1.31 (1.25, 1.38)**	853.0
Total	1,505	2,848.0 (2,763.5, 2,935.1)	4,326	2,303.5 (2,250.3, 2,357.9)	**1.24 (1.19, 1.28)**	544.5

Source: NMDS

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average, there were just over 1,500 hospital admissions for injury per year, at a rate 24% higher than non-Māori or 545 more admissions per 100,000.

Table 68: Hospitalisations for assault, all ages, Bay of Plenty DHB, 2011–2013

	Māori		Non-Māori			
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)	Māori/non-Māori ratio (95% CI)	Rate difference
Female	49	193.6 (164.4, 228.0)	30	46.6 (37.0, 58.7)	**4.15 (3.13, 5.51)**	147.0
Male	104	447.5 (399.6, 501.1)	102	174.1 (154.6, 196.0)	**2.57 (2.18, 3.03)**	273.4
Total	153	320.5 (292.0, 351.8)	132	110.4 (99.3, 122.6)	**2.90 (2.52, 3.34)**	210.2

Source: NMDS

Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average 153 Māori per year were admitted to hospital for injury caused by assault, at a rate close to 3 times the non-Māori rate, or 210 more admissions per 100,000. Males had higher admission rates than females.

Table 69: Deaths from injury, all ages, Bay of Plenty DHB, 2007–2011

	Māori		Non-Māori			
Gender	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)	Ave. no. per year	Age-standardised rate per 100,000 (95% CI)	Māori/non-Māori ratio (95% CI)	Rate difference
Female	8	29.3 (21.3, 40.4)	28	16.3 (12.3, 21.5)	**1.80 (1.18, 2.75)**	13.0
Male	25	100.8 (84.2, 120.7)	47	47.7 (40.4, 56.4)	**2.11 (1.65, 2.70)**	53.1
Total	33	65.1 (55.6, 76.1)	75	32.0 (27.7, 36.9)	**2.03 (1.64, 2.51)**	33.1

Source: Mortality dataset, Ministry of Health.

Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB.

On average, 33 Bay of Plenty Māori died from injuries per year at a rate twice that of non-Māori, or 33 more deaths per 100,000. Injury mortality rates were higher for males than for females.

References

Anderson P, Craig E, Jackson G, Jackson C. 2012. Developing a tool to monitor potentially avoidable and ambulatory care sensitive hospitalisations in New Zealand children. *New Zealand Medical Journal* 125(1366): 25–37.

Clayton D, Hills M. 1993. *Statistical Methods in Epidemiology*. Oxford: Oxford University Press.

Crengle S, Clark T C., Robinson E, Bullen P, Dyson B, Denny S, Fleming T, Fortune S, Peiris-John R, Utter J, Rossen F, Sheridan J, Teevale T, & The Adolescent Health Research Group (2013). *The health and wellbeing of Māori New Zealand secondary school students in 2012. Te Ara Whakapiki Taitamariki: Youth'12.* Auckland: The University of Auckland.

Ministry of Health. 2010. *Saving Lives: Amenable mortality in New Zealand, 1996–2006*. Wellington: Ministry of Health.

Ministry of Health. 2013. *New Zealand Health Survey: Annual update of key findings 2012/13*. Wellington: Ministry of Health.

Ministry of Health. 2014. *The Health of Māori Adults and Children, 2011–2013*. Wellington: Ministry of Health.

Robson B, Harris R. 2007. *Hauora: Māori Standards of Health IV. A study of the years 2000–2005.* Wellington: Te Rōpū Rangahau Hauora a Eru Pōmare.

Robson B, Purdie G, Cram F, Simmonds S. 2007. Age standardisation: an indigenous standard? *Emerging Themes in Epidemiology* 4:3.

Appendix 1: Population projections

Table 70: Māori population projections, single year by age group, Bay of Plenty DHB, 2013 to 2020

Projected Māori Ethnic Group Population by Age and Sex at 30 June 2014–33 (2013-Base)

*** Medium Projection : Assuming Medium Fertility, Medium Mortality, Medium Inter-Ethnic Mobility, and Medium Migration ***

Age	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
		2013(Base)			2014			2015			2016	
0	620	600	1,220	640	610	1,250	630	600	1,230	630	600	1,220
1-4	2,640	2,360	5,000	2,590	2,380	4,970	2,580	2,380	4,960	2,530	2,400	4,920
5-9	3,180	2,980	6,160	3,250	2,990	6,240	3,310	3,050	6,360	3,410	3,060	6,470
10-14	2,990	2,850	5,840	2,990	2,850	5,840	2,930	2,830	5,760	2,930	2,800	5,730
15-19	2,630	2,490	5,120	2,710	2,550	5,270	2,830	2,580	5,410	2,830	2,610	5,440
20-24	1,800	2,000	3,800	1,870	1,990	3,860	1,930	2,010	3,940	2,010	2,040	4,050
25-29	1,390	1,670	3,060	1,440	1,720	3,160	1,490	1,770	3,260	1,570	1,840	3,410
30-34	1,360	1,660	3,020	1,350	1,630	2,990	1,320	1,630	2,950	1,330	1,630	2,960
35-39	1,440	1,740	3,190	1,400	1,740	3,140	1,370	1,700	3,070	1,300	1,650	2,940
40-44	1,510	1,770	3,270	1,460	1,790	3,250	1,470	1,790	3,260	1,480	1,800	3,280
45-49	1,380	1,650	3,030	1,400	1,620	3,020	1,380	1,630	3,010	1,380	1,650	3,030
50-54	1,490	1,630	3,130	1,470	1,660	3,130	1,480	1,680	3,160	1,430	1,630	3,060
55-59	1,140	1,350	2,490	1,180	1,390	2,570	1,190	1,420	2,610	1,270	1,480	2,760
60-64	920	1,000	1,910	950	1,060	2,010	990	1,110	2,090	990	1,170	2,170
65-69	650	690	1,340	700	740	1,430	740	800	1,550	790	850	1,640
70-74	470	540	1,010	490	530	1,020	480	540	1,020	490	520	1,020
75-79	280	340	610	290	340	630	300	370	670	310	410	720
80-84	130	220	340	140	250	390	160	250	410	170	240	410
85-89	40	90	140	40	90	130	50	80	130	50	100	150
90+	10	30	40	10	30	50	10	50	60	10	50	70
All Ages	**26,100**	**27,700**	**53,700**	**26,400**	**28,000**	**54,300**	**26,700**	**28,300**	**54,900**	**26,900**	**28,500**	**55,400**
		2017			2018			2019			2020	
0	620	590	1,220	620	590	1,210	620	590	1,210	620	590	1,210
1-4	2,520	2,420	4,950	2,530	2,410	4,930	2,510	2,390	4,900	2,500	2,380	4,880
5-9	3,370	3,000	6,370	3,310	2,990	6,300	3,280	3,020	6,290	3,260	3,000	6,260
10-14	3,000	2,860	5,860	3,140	2,920	6,060	3,200	2,930	6,140	3,260	2,990	6,250
15-19	2,810	2,610	5,420	2,740	2,590	5,330	2,740	2,570	5,310	2,680	2,550	5,220
20-24	2,120	2,100	4,220	2,220	2,110	4,330	2,290	2,170	4,460	2,400	2,190	4,600
25-29	1,590	1,850	3,440	1,630	1,880	3,510	1,700	1,870	3,570	1,760	1,880	3,650
30-34	1,340	1,610	2,950	1,320	1,640	2,960	1,370	1,690	3,050	1,420	1,730	3,150
35-39	1,310	1,670	2,980	1,300	1,630	2,930	1,290	1,600	2,900	1,260	1,590	2,860
40-44	1,430	1,740	3,170	1,380	1,700	3,080	1,340	1,690	3,030	1,300	1,650	2,950
45-49	1,380	1,700	3,080	1,430	1,710	3,140	1,390	1,730	3,120	1,390	1,730	3,130
50-54	1,340	1,610	2,940	1,310	1,590	2,900	1,320	1,560	2,880	1,310	1,560	2,870
55-59	1,380	1,500	2,880	1,390	1,560	2,950	1,370	1,580	2,950	1,390	1,600	2,990
60-64	1,020	1,210	2,230	1,030	1,270	2,300	1,070	1,300	2,370	1,070	1,330	2,400
65-69	810	900	1,710	810	910	1,720	840	970	1,810	880	1,010	1,890
70-74	500	560	1,060	550	600	1,150	590	640	1,230	630	710	1,330
75-79	340	420	750	360	440	800	380	430	810	370	440	810
80-84	190	250	440	180	240	420	190	240	430	200	270	460
85-89	50	110	160	50	120	180	60	160	220	80	160	250
90+	20	50	70	20	50	70	10	40	60	20	50	60
All Ages	**27,100**	**28,800**	**55,900**	**27,300**	**28,900**	**56,300**	**27,600**	**29,200**	**56,700**	**27,800**	**29,400**	**57,200**

These projections were derived in October 2014.

Source: Statistics New Zealand

Table 71: Total population projections, single year, by age group, Bay of Plenty DHB, 2013 to 2020

Projected Total Population by Age and Sex at 30 June 2014–43 (2013-Base)

*** Medium Projection : Assuming Medium Fertility, Medium Mortality, and Medium Migration ***

Age	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
		2013(Base)			2014			2015			2016	
0	1,450	1,400	2,840	1,420	1,360	2,780	1,450	1,380	2,820	1,460	1,390	2,850
1-4	6,270	5,840	12,110	6,140	5,820	11,960	6,060	5,720	11,790	5,960	5,650	11,610
5-9	7,830	7,370	15,200	8,020	7,480	15,500	8,150	7,660	15,810	8,290	7,800	16,090
10-14	7,910	7,480	15,400	7,750	7,440	15,190	7,630	7,380	15,010	7,540	7,270	14,810
15-19	7,230	6,700	13,940	7,470	6,700	14,160	7,630	6,720	14,360	7,620	6,730	14,350
20-24	5,710	5,640	11,350	5,850	5,740	11,590	5,920	5,790	11,710	5,960	5,730	11,690
25-29	5,010	5,500	10,500	5,310	5,770	11,080	5,720	6,060	11,780	6,080	6,420	12,500
30-34	5,000	5,760	10,760	5,120	5,860	10,980	5,210	5,990	11,200	5,380	6,100	11,480
35-39	5,680	6,510	12,190	5,500	6,400	11,900	5,400	6,230	11,630	5,390	6,240	11,630
40-44	6,770	7,810	14,580	6,710	7,760	14,470	6,580	7,640	14,220	6,330	7,300	13,640
45-49	6,810	7,720	14,530	6,750	7,730	14,480	6,820	7,910	14,730	6,890	7,940	14,830
50-54	7,240	8,070	15,310	7,330	8,090	15,410	7,360	8,100	15,460	7,260	8,020	15,280
55-59	6,650	7,420	14,080	6,760	7,530	14,290	6,860	7,700	14,560	7,050	7,990	15,040
60-64	6,240	6,680	12,930	6,360	7,000	13,360	6,560	7,180	13,740	6,660	7,390	14,050
65-69	5,870	6,280	12,150	6,150	6,470	12,620	6,330	6,750	13,080	6,500	7,000	13,500
70-74	4,640	5,180	9,820	4,760	5,380	10,140	4,910	5,560	10,460	5,080	5,560	10,640
75-79	3,380	3,830	7,200	3,600	3,940	7,540	3,770	4,190	7,960	3,980	4,550	8,540
80-84	2,490	2,900	5,390	2,450	3,010	5,470	2,500	3,000	5,500	2,510	3,020	5,530
85-89	1,280	1,880	3,160	1,340	1,890	3,230	1,440	1,940	3,370	1,530	2,010	3,540
90+	480	1,040	1,520	560	1,110	1,660	600	1,220	1,820	650	1,270	1,920
All Ages	103,900	111,000	215,000	105,300	112,500	217,800	106,900	114,100	221,000	108,100	115,400	223,500
		2017			2018			2019			2020	
0	1,470	1,400	2,870	1,480	1,410	2,890	1,490	1,420	2,920	1,510	1,440	2,950
1-4	5,910	5,660	11,570	5,930	5,660	11,580	5,970	5,700	11,680	6,020	5,750	11,770
5-9	8,240	7,710	15,950	8,120	7,660	15,780	7,950	7,580	15,520	7,850	7,470	15,320
10-14	7,640	7,360	15,000	7,860	7,510	15,370	8,030	7,610	15,640	8,140	7,760	15,890
15-19	7,530	6,680	14,220	7,320	6,540	13,860	7,130	6,480	13,620	6,980	6,390	13,370
20-24	6,020	5,740	11,760	6,180	5,730	11,910	6,380	5,690	12,060	6,490	5,670	12,150
25-29	6,370	6,620	12,990	6,500	6,740	13,240	6,580	6,780	13,360	6,590	6,770	13,350
30-34	5,530	6,230	11,760	5,750	6,450	12,200	6,000	6,680	12,680	6,360	6,920	13,280
35-39	5,410	6,290	11,700	5,390	6,350	11,730	5,480	6,410	11,890	5,540	6,500	12,050
40-44	6,150	7,060	13,210	5,960	6,740	12,700	5,750	6,610	12,360	5,610	6,410	12,020
45-49	6,900	7,920	14,830	6,910	7,940	14,850	6,840	7,870	14,710	6,690	7,720	14,410
50-54	7,020	7,880	14,900	6,960	7,860	14,820	6,880	7,860	14,740	6,920	8,010	14,930
55-59	7,300	8,120	15,430	7,430	8,310	15,740	7,510	8,320	15,830	7,530	8,310	15,830
60-64	6,830	7,700	14,530	6,930	7,840	14,760	7,030	7,930	14,960	7,100	8,070	15,180
65-69	6,490	6,960	13,450	6,490	7,020	13,510	6,600	7,320	13,920	6,790	7,480	14,270
70-74	5,370	5,850	11,220	5,740	6,260	12,000	6,020	6,440	12,470	6,190	6,710	12,900
75-79	4,180	4,840	9,020	4,240	4,860	9,110	4,340	5,050	9,390	4,460	5,210	9,670
80-84	2,550	3,110	5,660	2,680	3,270	5,950	2,870	3,360	6,240	3,010	3,580	6,590
85-89	1,590	2,040	3,630	1,610	2,100	3,710	1,580	2,210	3,790	1,630	2,190	3,810
90+	690	1,320	2,020	740	1,370	2,110	800	1,390	2,200	870	1,490	2,360
All Ages	109,200	116,500	225,700	110,200	117,600	227,800	111,200	118,700	230,000	112,300	119,800	232,100

These projections were derived in October 2014.

Source: Statistics New Zealand

Appendix 2: Technical notes

This appendix provides a list of data sources and technical information on the analyses of deaths, cancer registrations, and hospitalisations, Census data and data from Te Kupenga 2013.

Data sources

Table 72: Data sources

Source (agency or collection)	Data	Period
Action on Smoking and Health (ASH)	ASH Year 10 Snapshot Survey	2013
Health Quality and Safety Commission	New Zealand Atlas of Healthcare Variation	2011, 2013
Ministry of Education	ENROL (Education Counts)	2013
Ministry of Health	Birth registrations	2009–2013
	B4 School Check Information System	2013
	Cancer Registry	2008–2012
	Community Oral Health Service	2013
	Death registrations	2007–2012*
	National Immunisation Register	2008–2014
	National Maternity Collection	2013
	National Screening Unit	2010–2014
	PHO Enrolment Collection	2012–2013
	Well Child/Tamariki Ora Indicators	2014
	National Minimum Data Set (NMDS) – hospital discharges	2011–2013
Plunket	Breastfeeding rates	2013
Statistics New Zealand	Census of Population and Dwellings	2006
	Census of Population and Dwellings	2013
	NZ Population projections for the Ministry of Health (2013 Census base)	2014
	Te Kupenga 2013, the Māori Social Survey	2013
	Subnational Period Life Tables	2012–2014

Note: *no causes for 2012

Data from the Census of Population and Dwellings

Indicators using data from the Census of Population and Dwellings include the Census usually resident population.

Prioritised ethnicity was used to identify Māori individuals (any person who identified Māori as any of their ethnic groups) and non-Māori included people who had at least one valid ethnic response, none of which was Māori.

Households were classified as Māori if any usual resident was Māori. Households were counted if they were in private occupied dwellings.

People living in households included the population resident in permanent private households.

Standard Census definitions and forms can be found here.

Data on proportions of people were age-standardised to the 2001 Māori population.

Data from Te Kupenga 2013

Te Kupenga 2013 was a post-census survey of individuals who identified with Māori ethnicity or Māori descent in the 2013 Census. The target population was the usually resident Māori population of New Zealand, living in

occupied private dwellings on the 2013 Census night and aged 15 years or older. The data was collected during June to August 2013.

All estimates of numbers, percentages, and confidence intervals for data presented from Te Kupenga were calculated by Statistics New Zealand. The estimates of numbers of people in the DHB were rounded to the nearest five hundred in order to provide a more appropriate level of precision to the sample survey. All percentages were calculated from unrounded data.

Further details on the survey measures are available in the Te Kupenga 2013 Data Dictionary.

Deaths, hospitalisations and cancer registrations

Ethnicity

Most indicators are presented for Māori and non-Māori. In each data set a person was classified as Māori if any one of their recorded ethnicity was Māori. No adjusters for undercount of hospitalisations, cancer registrations, or deaths were applied.

Residence

The DHB of residence was determined from the domicile code attached to the public hospital discharge record, the death registration, or the cancer registration.

Hospital transfers

For ambulatory sensitive hospitalisations and analyses of hospitalisations by cause (such as asthma, ischaemic heart disease) transfers to other services or others hospitals were not counted as an admission if the admission had an ambulatory sensitive diagnosis or had the same principal diagnosis group respectively, was on the same day or the following day as the initial admission and either had its admission source code as 'transfer from another hospital facility' or initial admission had its event end type code indicating a discharge to an acute facility, another healthcare facility, or other service within same facility. For avoidable hospitalisations, all admissions, the tables of hospitalisations for mental disorders, causes of hospital admissions for injuries and causes of admissions, admissions were not counted if the admission had its admission source code as 'transfer from another hospital facility'.

Suppression of causes of death or hospitalisation

In tables presenting data on causes of death, hospitalisation, or cancer registrations by site, data is not presented where there were fewer than five Māori events during the period represented by the data.

Ninety-five percent confidence intervals

The rates and ratios presented are estimates of the 'true' rate or ratio, calculated using data available. The 95% confidence interval (CI) indicates the interval that has a 95% probability of enclosing the 'true' value.

The CI is influenced by the population size of the group. When the population is small, the CI becomes wider and there is less certainty about the rate.

When the CIs of two groups do not overlap, the difference in rates between the groups is statistically significant. Sometimes, even when there are overlapping CIs, the difference between the groups may be statistically significant. In this report, if CIs overlap but a difference has been reported, a test of statistical significance (the log-transformation method) was performed (Clayton and Hills 1993).

Age standardisation

Age-standardised rates adjust for differences in age distribution of the populations being compared. They are artificial rates created to allow comparisons to be made with differing groups. Age-standardised rates are calculated by applying age-specific rates to a standard population; they should only be compared with other adjusted rates that were calculated using the same 'standard' population. The standard population used in this report was the 2001 Census Māori population (shown below).

Rates for the total Māori and non-Māori populations were age–sex-standardised. This means the rates were standardised to a population with equal numbers of males and females and the age distribution of the total Māori population from the 2001 Census (Robson, Purdie et al 2007).

Standardising to the Māori population provides age-standardised rates that closely approximate the crude Māori rates (the actual rates among the Māori population) while also allowing comparisons with the non-Māori population. Care should be taken when using data from another source that are standardised using a different standard population, as they are not comparable.

Table 73: 2001 Census total Māori population

Age group (years)	2001 Census total Māori population	Weighting
0–4	67,404	12.81
5–9	66,186	12.58
10–14	62,838	11.94
15–19	49,587	9.42
20–24	42,153	8.01
25–29	40,218	7.64
30–34	39,231	7.46
35–39	38,412	7.30
40–44	32,832	6.24
45–49	25,101	4.77
50–54	19,335	3.67
55–59	13,740	2.61
60–64	11,424	2.17
65–69	8,043	1.53
70–74	5,046	0.96
75–79	2,736	0.52
80–84	1,251	0.24
85 and over	699	0.13

ICD-10 codes

The International Classification of Diseases (ICD-10) codes used for the calculation of avoidable and ambulatory sensitive hospitalisations and avoidable and amenable mortality are presented in Tables 45 to 49 below. For the Excel tables of deaths by cause, hospitalisations by cause, mental disorders, hospitalisations for injuries by external cause, and cancer registrations, the codes are listed in Appendix 2 of Hauora: Māori Standards of Health IV. For other tables, the ICD codes are listed in the accompanying Excel tables.

Table 74: Potentially avoidable hospitalisation ICD-10 codes for children aged 1 month to 14 years

Condition	ICD-10-AM code
Acute bronchiolitis	J21
Acute rheumatic fever	I00–I02
Acute upper respiratory tract infection excluding croup	J00–J03, J06
Asthma	J45, J46
Bacterial meningitis*	G00, G01

Bacterial/Unspecified pneumonia	J13–J16, J18
Bronchiectasis	J47
Constipation	K59.0
Chronic rheumatic heart disease	I05–I09
Croup, acute laryngitis, tracheitis	J04, J05.0
Dental (dental caries, pulp, periodontal)	K02, K04, K05
Dermatitis/eczema	L20–L30
Febrile convulsions	R560
Gastroenteritis	A00–A09, K529, R11,
Gastro oesophageal reflux	K21
Meningococcal disease	A39
Nutritional deficiency	D50–D53, E40–E64,
Otitis media	H65–H67
Osteomyelitis	M86
Skin infection	H00.0, H01.0, J34.0, L00–L05, L08, L98.0
Tuberculosis	A15–A19
Urinary tract infection ≥ 5 years	N10, N12, N13.6, N30.0, N30.9, N39.0,
Vaccine preventable diseases: tetanus neonatorum congenital rubella	P350, A33, A34
tetanus, diphtheria, pertussis, polio, hepatitis B	A35, A36, A37, A80, B16, B18.0, B18.1
measles, rubella, mumps	B05, B06, B26, M01.4
Viral pneumonia	J12, J10.0, J11.0
Viral /other / unspecified meningitis	A87, G02, G03
Viral infection of unspecified site	B34

Source: Anderson et al (2012)

Notes:

Includes all acute admissions and arranged admissions that were admitted within 7 days.

Waiting list admissions were excluded, apart from dental admissions which were all included.

Admissions were included for patients aged 29 days through to 14 years, at admission.

Table 75: Ambulatory care sensitive hospitalisation ICD-10 codes for children aged 1 month to 14 years

Condition	ICD-10-AM code
Acute rheumatic fever	I00–I02
Acute upper respiratory tract infections excluding croup	J00–J03, J06
Asthma	J45, J46
Bacterial/Unspecified pneumonia	J13–J16, J18
Bronchiectasis	J47
Constipation	K59.0
Chronic rheumatic heart disease	I05–I09
Dental (dental caries, pulp, periodontal)	K02, K04, K05
Dermatitis/eczema	L20–L30
Gastroenteritis	A02–A09, K529, R11
Gastro oesophageal reflux	K21
Nutritional deficiency	D50–D53, E40–E64
Otitis media	H65–H67
Skin infection	L00–L04, L08, L98.0, J34.0, H01.0, H00.0
Urinary tract infection ≥ 5 years	N10, N12, N136, N30.0, N30.9, N39.0
Vaccine preventable diseases: tetanus neonatorum congenital rubella	P350, A33, A34
> 6 months: tetanus, diphtheria, pertussis, polio, hepatitis B	A35, A36, A37, A80, B16, B18.0, B18.1
> 16 months: measles, rubella, mumps	B05, B06, B26, M01.4

Source: Anderson et al (2012)

Notes:

Includes all acute admissions and arranged admissions that were admitted within 7 days.

Waiting list admissions were excluded, apart from dental admissions which were all included.

Admissions were included for patients aged 29 days through to 14 years, at admission.

Table 76: Ambulatory care sensitive hospitalisation ICD-10 codes for people aged 1 month to 74 years

Condition	ICD-10 code
Gastroenteritis/dehydration	A02–A09, K52.9, R11
Vaccine preventable disease MMR	B05*, B06*, B26*, M01.4*, P35.0
Vaccine preventable disease Other ‡	A33–A37, A40.3, A80, B16, B18
Sexually transmitted infections §	A50–A59, A60, A63, A64, I98.0, M02.3, M03.1, M73.0, M73.1, N29.0, N34.1
Cervical cancer §	C53
Nutrition deficiency and anaemia	D50–D53, E40–E46, E50–E64, M83.3§
Diabetes §	E10–E14, E162
Epilepsy §	G40, G41, O15, R56.0, R56.8
Upper respiratory and ENT	H65, H66, H67, J00–J04, J06
Rheumatic fever/heart disease	I00, I01, I02, I05–I09
Hypertensive disease §	I10–I15, I67.4
Angina and chest pain † §	I20, R07.2–R07.4
Myocardial infarction † §	I21–I23, I24.1
Other ischaemic heart disease † §	I24.0, I24.8, I24.9, I25
Congestive heart failure §	I50, J81
Stroke † §	I61, I63–I66
Pneumonia	J13–J16, J18
Asthma	J45, J46
Bronchiectasis ||	J47
Dental conditions	K02, K04, K05
Gastro-oesophageal reflux disease	K21
Peptic ulcer §	K25–K28
Constipation	K590
Cellulitis	H00.0, H01.0, J34.0, L01–L04, L08, L98.0
Dermatitis and eczema	L20–L30
Kidney/urinary infection ¶	N10, N12, N13.6, N30.9, N39.0

Source: Ministry of Health

Notes:

Acute and arranged (occurring in less than 7 days of decision) admissions, except dental where elective admission are also included.

Excluding discharges from an emergency department with one day of stay or shorter.

* Aged 15 months to 14 years.

† Each admission counts as a half.

‡ Aged six months to 14 years.

§ Aged 15 years and over.

|| Aged more than 15 years.

¶ Aged 5 years and over.

Table 77: Avoidable mortality ICD-10 codes

Condition	ICD-10-AM
Tuberculosis	A15–A19, B90
Selected invasive bacterial and protozoal infection	A38–A41, A46, A48.1, B50–B54, G00, G03, J02.0, J13–J15, J18, L03
Hepatitis	B15–B19
HIV/AIDS	B20–B24
Viral pneumonia and influenza	J10, J12, J17.1, J21
Lip, oral cavity and pharynx cancers	C00–C14
Oesophageal cancer	C15
Stomach cancer	C16
Colorectal cancer	C18–C21
Liver cancer	C22
Lung cancer	C33–C34
Bone and cartilage cancer	C40–C41*
Melanoma of skin	C43
Non-melanotic skin cancer	C44
Breast cancer (female only)	C50
Uterine cancer	C54–C55
Cervical cancer	C53
Prostate	C61*

Testis	C62*
Bladder cancer	C67
Thyroid cancer	C73
Hodgkin's disease	C81
Lymphoid leukaemia, acute/chronic	C91.0, C91.1
Benign tumours	D10–D36
Thyroid disorders	E00–E07
Diabetes	E10–E14**
Alcohol-related diseases	F10, I42.6, K29.2, K70
Illicit drug use disorders	F11–F16, F18–F19
Epilepsy	G40–G41
Rheumatic and other valvular heart diseases	I01–I09, I33–I37*
Hypertensive heart disease	I10*, I11
Ischaemic heart disease	I20–I25
Heart failure	I50*
Cerebrovascular diseases	I60–I69
Aortic aneurysm	I71
Nephritis and nephrosis	I12–I13, N00–N09, N17–N19
Obstructive uropathy and prostatic hyperplasia	N13, N20–N21, N35, N40, N99.1
DVT with pulmonary embolism	I26, I80.2
COPD	J40–J44***
Asthma	J45–J46***
Peptic ulcer disease	K25–K28
Acute abdomen, appendicitis, intestinal obstruction, cholecystitis/lithiasis, pancreatitis, hernia	K35–K38, K40–K46, K80–K83, K85–K86, K91.5
Chronic liver disease (excluding alcohol related disease)	K73, K74
Complications of pregnancy	O00–O96*, O98–O99*
Birth defects	H31.1, P00, P04, Q00–Q99
Complications of perinatal period	P01–P02*, P03, P05–P95
Road traffic injuries	V01–V04, V06, V09–V80, V82–V86*, V87, V88.0–V88.5*, V88.7–V88.9*, V89, V98*, V99
Accidental poisonings	X40–X49
Falls	W00–W19
Fires	X00–X09
Drownings	W65–W74
Suicide and self-inflicted injuries	X60–X84, Y87.0
Violence	X85–Y09, Y87.1
Event of undetermined intent	Y10–Y34, Y87.2****
Treatment injury	Y60–Y82*

Notes: *Added from amenable mortality

**E09 should be added if using ICD-10 AM version 3 or higher.

***All ages added from amenable mortality

****Y87.2 added by authors for completeness

Table 78: **Amenable mortality ICD-10 codes**

Group	Condition	ICD-10
Infections	Pulmonary tuberculosis	A15–A16
	Meningococcal disease	A39
	Pneumococcal disease	A40.3, G00.1, J13
	HIV/AIDS	B20–B24
Cancers	Stomach	C16
	Rectum	C19–C21
	Bone and cartilage	C40–C41
	Melanoma	C43
	Female breast	C50
	Cervix	C53
	Testis	C62
	Prostate	C61
	Thyroid	C73
	Hodgkin's	C81
	Acute lymphoblastic leukaemia (age 0–44 years)	C91.0
Maternal and infant	Complications of pregnancy	O00–O96, O98–O99
	Complications of the perinatal period	P01–P03, P05–P94
	Cardiac septal defect	Q21
Chronic disorders	Diabetes	E10–E14*
	Valvular heart disease	I01, I05–I09, I33–I37
	Hypertensive diseases	I10–I13
	Coronary disease	I20–I25
	Heart failure	I50
	Cerebrovascular diseases	I60–I69
	Renal failure	N17–N19
	Pulmonary embolism	I26
	COPD	J40-J44
	Asthma	J45–J46
	Peptic ulcer disease	K25–K27
	Cholelithiasis	K80
Injuries	Suicide	X60–X84
	Land transport accidents (excluding trains)	V01–V04,V06–V14, V16–V24, V26–V34, V36–V44, V46–V54, V56–V64, V66–V74, V76–V79, V80.0–V80.5, V80.7–V80.9, V82–V86, V87.0–V87.5, V87.7–V87.9, V88.0–V88.5, V88.7–V88.9, V89, V98–V99
	Falls (accidental fall on same level)	W00–W08, W18
	Fire, smoke or flames	X00–X09
	Treatment injury	Y60–Y82

Source: Ministry of Health 2010

Note: * E09 should be added if using ICD-10 AM version 3 or higher.

TE RŌPŪ RANGAHAU HAUORA A ERU PŌMARE

UNIVERSITY of OTĀGO
Te Whare Wānanga o Otāgo
NEW ZEALAND

MANATŪ HAUORA
MINISTRY OF HEALTH