MANATŪ
HAUORA
MINISTRY OF HEALTH

# Tatau Kahukura

## Māori Health Chart Book

*2006*

***Public Health Intelligence***
***Monitoring Report No.5***

The title of this publication, *Tatau Kahukura,* refers to valuable, high-quality information that has been woven and gathered from a variety of sources to be presented as a whole. It can be used by many different people to give knowledge and tools to assist in working towards the achievement of whānau ora: Māori families supported to achieve their maximum health and wellbeing.

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for permission to use on the cover her creation of a korowai taonga.

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# Ihirangi: Contents

# Whakamōhiotanga: Introduction

*Tatau Kahukura: Māori Health Chart Book* is part of a series of monitoring reports on the current health status of the New Zealand population. Each report in the series includes key indicators relating to the socio-economic determinants of health, risk and protective factors for health, health status, and health service utilisation. This report provides a picture of the health status of the Māori population compared with non-Māori.

The publication provides a descriptive analysis of the data, with the statistical information accessible in an easy-to-use format. The most recent data available are presented for each indicator. This chart book will be repeated at three-yearly intervals to monitor progress.

## *Background*

As a population group, Māori have on average the poorest health status of any ethnic group in New Zealand. This is not acceptable, and the Government and the Ministry of Health have made it a key priority to reduce the health inequalities that affect Māori. If Māori are to live longer, have healthier lives, and fulfil their potential to participate in New Zealand society, then the factors that cause inequalities in health need to be addressed (Ministry of Health 2002).

*He Korowai Oranga: The Māori Health Strategy* (Minister of Health and Associate Minister of Health 2002a) sets the direction for Māori health development in the health and disability sector for the next five to ten years. The strategy provides a framework for the public sector to take responsibility for the part it plays in supporting the health status of whānau. At the heart of He Korowai Oranga is the achievement of whānau ora, or healthy families.

Accompanying the strategy is *Whakatātaka: Māori Health Action Plan 2002–2005* (Minister of Health and Associate Minister of Health 2002b), which outlines what the health and disability sector will do to implement the strategy (including programmes, policies and interventions). This will be followed by Whakatātaka 2006–2011, which is currently under development.

Within He Korowai Oranga and Whakatātaka, the Ministry of Health is developing a monitoring framework to measure progress towards whānau ora. One of the key findings from the submission process for this framework was that people want easy access to a wide range of health information in varied formats, and at both a local and a national level.[1] *Tatau Kahukura: Māori Health Chart Book* presents selected key indicators that can be used to monitor progress, and is also a means to disseminate this information to a wide audience. As such, it stands as one of the first outputs of the monitoring framework for He Korowai Oranga.

The New Zealand Health Strategy highlights the need for better access to relevant information to improve decision-making at both the health and disability sector level, and at the community level. Reducing inequalities in health is a key goal of the strategy (Minister of Health 2000), and this document aims to provide the kind of information that can help to achieve this goal.

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[1] *Fo*

A focus on inequalities means that the analysis for this chart book examines disparities between Māori and non-Māori. Reid et al (2000) propose that a vigorous exploration of Māori and non-Māori differences in health data can provide important clues to understanding the causes of disease and contribute to primary prevention initiatives.

It is not the intention or purpose of this publication to provide in-depth interpretation and discussion of results. However, users should consider any inequalities in Māori health outcomes and individual risk and protective factors within the context of the broader determinants of health, including inequalities in the distribution of and access to material resources, as well as institutional racism and historical influences (Ministry of Health 2002).

For more in-depth discussion of inequalities, users are directed to publications such as:

- *Hauora: Māori Standards of Health III* (Te Rōpū Rangahau Hauora a Eru Pōmare 1995) which provides a Māori analysis of health information. A new edition of this publication is currently being drafted.
- Reducing Inequalities: Tools and resources available on the Ministry website (http://www.moh.govt.nz/inequalities).

## *The New Zealand health and disability system*

The organisation of health and disability support services in New Zealand has undergone a number of changes in the last decade. These have ranged from a 'purchaser/provider' market-oriented model introduced in 1993, to the more community-oriented model that is currently in place. The current system was implemented through the New Zealand Public Health and Disability Act 2000 which allowed for the creation of District Health Boards – a key step in moving to a population based health system.

All parts of the health and disability sectors are responsible for improving Māori health outcomes and reducing inequalities. The key players, Ministry of Health directorates, District Health Boards (DHBs) and the Māori health sector engage with each other and other sectors to improve Māori health outcomes and reduce inequalities. Within the Ministry of Health all directorates and teams include responsibility for Māori health outcomes as part of their work programmes and operational activities. The DHBs similarly take responsibility for Māori health outcomes. The District Strategic Plans and District Annual Plans of DHBs describe their plans for improving Māori health and reducing inequalities.

Estimated funding specifically for Māori health providers accounts for only about 3 percent of health and disability expenditure with the overwhelming proportion of health and disability funding going to mainstream providers (Ministry of Health 2005b).

## District Health Boards

District Health Boards (DHBs) are responsible for providing, or funding the provision of, health and disability services in their district. There are 21 DHBs in New Zealand and they have existed since 1 January 2001.

The activities of District Health Boards are guided by two overarching strategies for the health and disability sector: the New Zealand Health Strategy (Minister of Health 2000) and the New Zealand Disability Strategy (Minister for Disability Issues 2001). The District Health Boards are supported by the Ministry of Health, which provides national policy advice, regulation, funding, and monitoring the performance of agency.[2]

## Primary health care

Primary health care covers a broad range of out-of-hospital services, although not all of them are Government funded. It aims to improve the health of the people in communities by working with them through health improvement and preventative services, such as health education and counselling, disease prevention and screening.

Primary health care includes first level services such as general practice services, mobile nursing services and community health services targeted especially for certain conditions, for example maternity, family planning and sexual health services, mental health services and dentistry, or those using particular therapies such as physiotherapy, chiropractic and osteopathy services. Chronic diseases, such as diabetes are best managed by primary health care services so that complications can be prevented or mitigated.

The way primary health care is delivered to New Zealanders is covered in the Primary Health Care Strategy (Minister of Health 2001). A key part of the strategy is the creation of Primary Health Organisations (PHOs).

## PHOs (Primary Health Organisations)

A PHO is a new way of arranging health care in the community to make sure people get the first level health care they need. It's a group of health providers whose job it is to look after all the people enrolled with them.

A PHO is a team of doctors, nurses and other health professionals (such as Māori health workers and health promotion workers) who are working with communities to ensure a better health service.[3]

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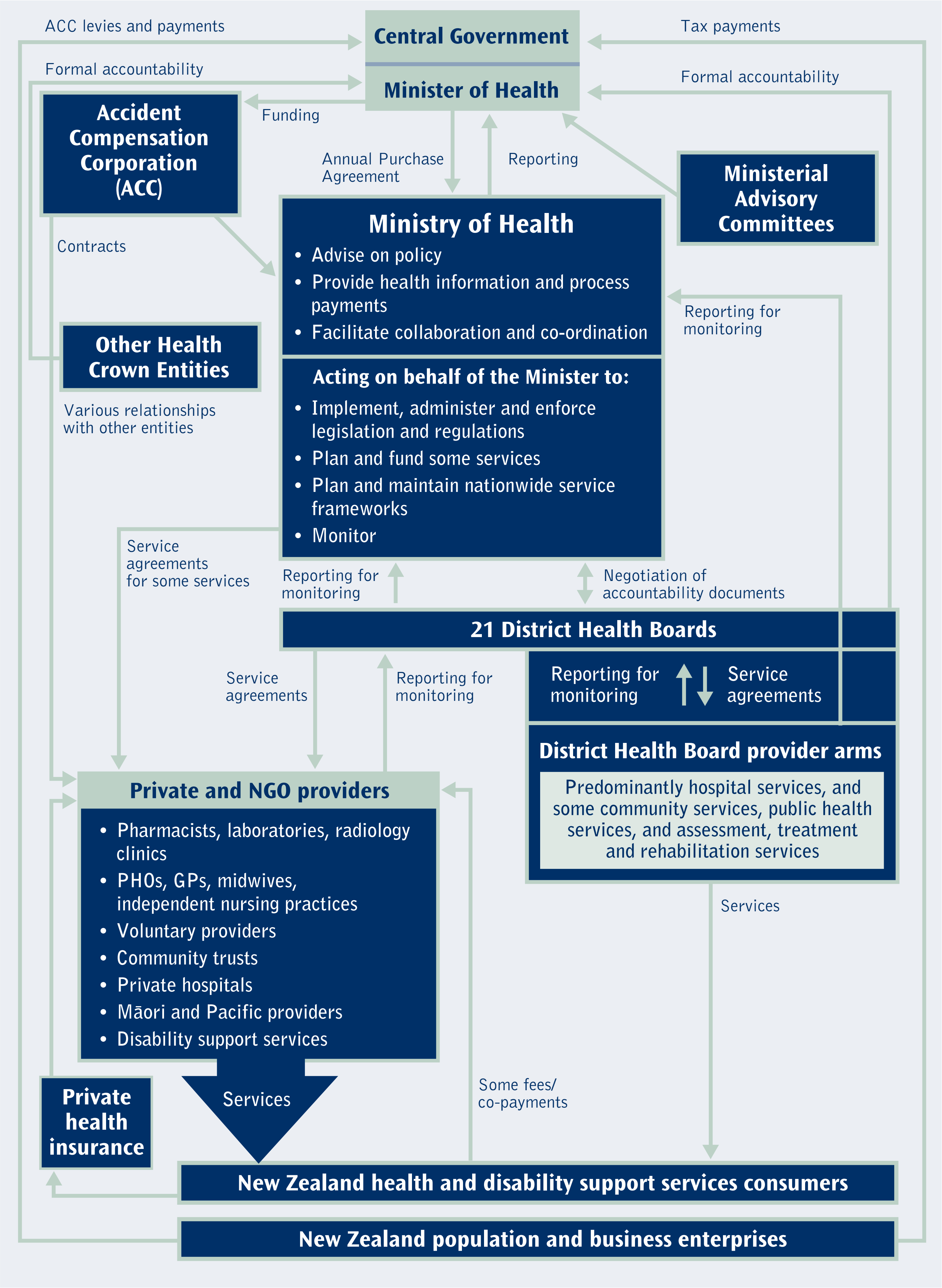
[2] *For more information about District Health Boards refer to: http://www.moh.govt.nz/districthealthboards*

[3] *For more information about PHOs refer to: http://www.moh.govt.nz/moh.nsf/wpg_index/-Primary+Health+Care+Established+PHOs+by+DHB*

# Structure of the New Zealand health and disability sector



## Indicator selection and presentation

Health indicators are summary measures that provide an indication of wider health concerns and serve to focus attention on key issues. The format of this publication focuses on presenting key information through graphs and tables, with short explanations that document the results. It is intended to complement other sources of Māori health information (see page 6 'Other useful resources').

Indicators were selected using conventional criteria relating to their ability to signal wider health concerns, to focus on salient health issues, to be reliably and validly monitored, and for their responsiveness to change. In particular, indicators were chosen that relate to Māori health priority areas as identified in He Korowai Oranga and the New Zealand Health Strategy. Additional indicators were selected to align with those already in use in annual monitoring at a national level. Where required, advice was sought from experts in the areas.

Indicators are divided into the following sections:

- tatauranga taupori: demographics
- ngā awe o te hauora: socioeconomic determinants of health
- ngā tauwehe tūpono me te marumaru: risk and protective factors
- ngā mana hauora tūtohu: health status indicators
- ngā ratonga hauora kua mahia: health service utilisation indicators
- ngā pūnaha hauora tūtohu: health system indicators.

## Accessing information

This document will be available on the Ministry of Health's website www.moh.govt.nz, along with the full suite of data tables that accompany the figures and text. Further national-level information will become available shortly, including fact sheets and associated data tables on the Māori health workforce and Māori smoking. All resources will be available on the Ministry and Māori Health Directorate websites.

Local-level data at the DHB level is available on PHI Online (see page 7 under web resources). PHI Online consists of an interactive map with linked tables and charts of data. It is an easy-to-use website presenting health data, including data from the New Zealand Health Survey, and routine hospitalisation, registration and mortality data. More information at the DHB level can be found via health needs assessments, which are available on individual DHB websites or on request from individual DHBs (http://www.moh.govt.nz/districthealthboards).

The New Zealand Health Information Service (NZHIS) is the custodian for a number of national collections of health information and can extract customised data sets from within and across these collections on request. Extracts can include breakdowns by ethnicity and by DHB. The national collections include mental health, cancer, maternity, laboratories, pharmaceuticals, immunisation, morbidity, mortality, health workforce and primary health organisation enrolment. The NZHIS has expertise in, and can provide advice on, the coding, data quality and definitions of information within the collections. The NZHIS also produces detailed data dictionaries and code tables for the collections. These are available on the NZHIS website (http://www.nzhis.govt.nz).

## *Other useful resources*

### Ministry of Health publications

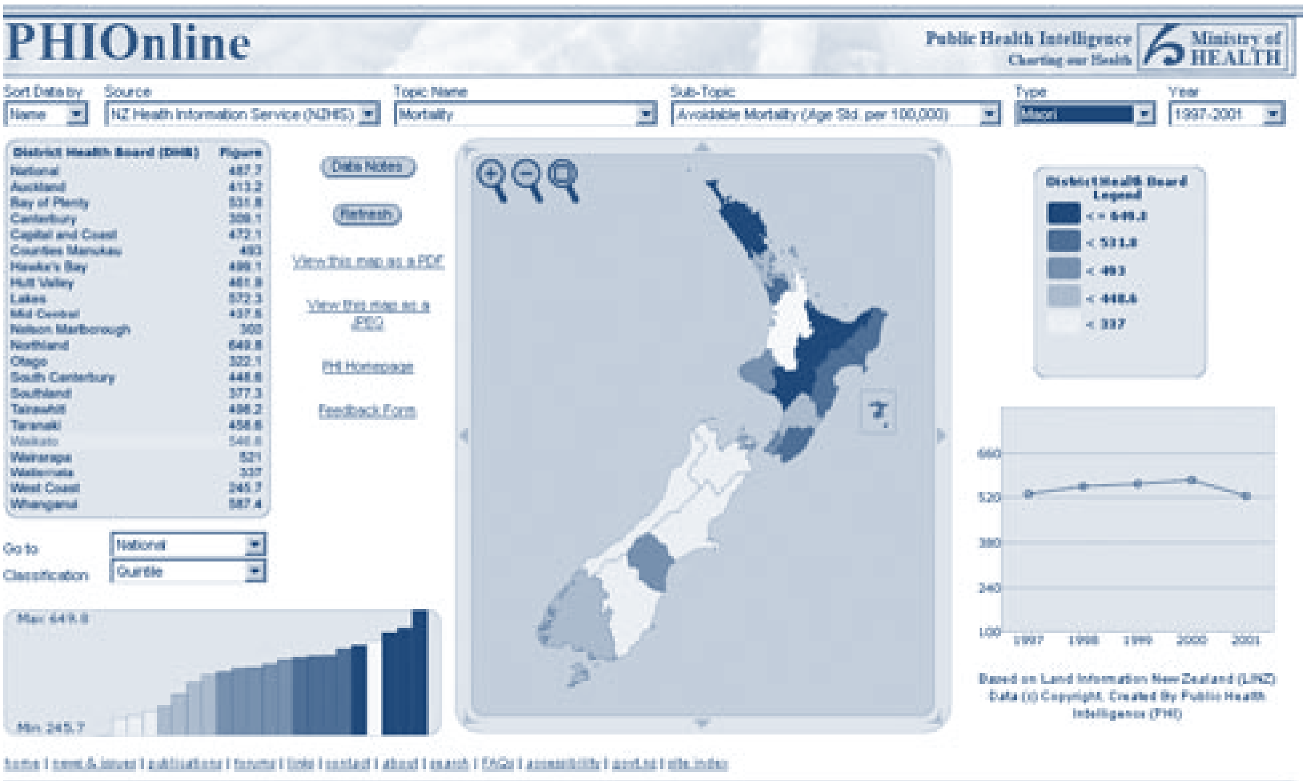
- Ministry of Health. 2004. *An Indication of New Zealanders' Health.* Wellington: Ministry of Health.
- Ministry of Health. 2004. *The Health of New Zealand: Total population.* Wellington: Ministry of Health.
- Ministry of Health. 2004. *A Portrait of Health: Key results of the 2002/03 New Zealand Health Survey.* Wellington: Ministry of Health.

### Other publications

- Te Rōpū Rangahau Hauora a Eru Pōmare. 1995. *Hauora: Māori Standards of Health III.* Wellington: Wellington School of Medicine.
- Ministry of Social Development. 2005. *The Social Report 2005.* Wellington: Ministry of Social Development.

## Web resources

- Māori health website: http://www.moh.govt.nz/maori.html
- NZHIS website: http://www.nzhis.govt.nz/
- Statistical annexe: tables of all data presented in this report http://www.moh.govt.nz
- PHI website: http://www.moh.govt.nz/phi
- PHI Online: http://www.phionline.moh.govt.nz/



Sort Data by: Name
Source: NZ Health Information Service (NZHIS)
Topic Name: Mortality
Sub-Topic: Avoidable Mortality (Age Std. per 100,000)
Type: Maori
Year: 1997-2001

| District Health Board (DHB) | Figure |
|---|---|
| National | 487.7 |
| Auckland | 413.2 |
| Bay of Plenty | 531.8 |
| Canterbury | 309.1 |
| Capital and Coast | 472.1 |
| Counties Manukau | 493 |
| Hawke's Bay | 499.1 |
| Hutt Valley | 461.9 |
| Lakes | 572.3 |
| Mid Central | 437.6 |
| Nelson Marlborough | 300 |
| Northland | 649.8 |
| Otago | 322.1 |
| South Canterbury | 448.6 |
| Southland | 377.3 |
| Tairawhiti | 498.2 |
| Taranaki | 458.6 |
| Waikato | 546.6 |
| Wairarapa | 521 |
| Waitemata | 337 |
| West Coast | 245.7 |
| Whanganui | 587.4 |

Go to: National
Classification: Quintile

Based on Land Information New Zealand (LINZ) Data (c) Copyright. Created By Public Health Intelligence (PHI)

PHI Online consists of an interactive map with linked tables and charts of data. It is an easy-to-use website presenting health data, including data from the New Zealand Health Survey, and routine hospitalisation, mortality and cancer registration data. DHB-level data can be accessed via this website.

Sources of further information relevant to particular priority areas are noted within the relevant sections.

# Ngā tapuae me ngā raraunga: Methods and data sources

## *Data*

### Numerator

Data sources for the indicators are listed below.

**Table 1: Data sources for numerators**

| Source (agency or collection) | Data | Period |
|---|---|---|
| New Zealand Health Information Service | Mortality collection data set – mortality | 2000–2002 |
| | National Minimum Data Set (NMDS) – hospitalisations | 2002–2004 |
| New Zealand Cancer Registry | Cancer registrations | 1999–2001 |
| Statistics New Zealand | Infant mortality | 2000–2002 |
| | Low birthweight | 2000–2002 |
| | Life expectancy | 1951–2001 |
| | Disability | 2001 |
| | Demographics | 2001 |
| | Population projections | 2006–2021 |
| | Socioeconomic indicators | 2001 |
| Institute of Environmental Science and Research Limited (ESR) | Infectious disease notifications | 2001–2003 |
| 2002/03 New Zealand Health Survey | Risk and protective factors, disease prevalences, health service utilisation and self-rated health | 2002/03 |
| 2002 Children's Nutrition Survey | Risk and protective factors | 2002 |
| Action on Smoking and Health (ASH) | Smoking prevalence for youth | 2003 |
| Youth 2000 | School violence indicators | 2000 |
| Get Checked Programme, Ministry of Health | Diabetes indicators | 2004 |
| Plunket | Breastfeeding rates | 2003/04 |
| National Audiology | Hearing failure rates | 2003/04 |

Full details of ICD-9 codes used for administrative data are given in Appendix 1. For administrative data the most recent three years of data were aggregated to provide stable rate estimates. For survey data the most recent survey year was presented.

### Denominator

Population information was sourced from 2001 Census data from Statistics New Zealand. The relevant Census count multiplied by 3 (for a three-year period) was used as the denominator.

## *Statistical methods*

Age standardisation allows comparison between ethnic groups with different age distributions. Most of the indicators are presented as age-standardised rates and are expressed as a rate per 100, per 1000 or per 100,000. Direct age standardisation was used in this report, with most rates (unless noted otherwise) standardised to the total Māori population from the 2001 Census. The 2001 Census Māori population can be found in Appendix 2. For counts less than 5, the age-standardised rate was not calculated.

Standardising to the Māori population provides rates that closely approximate the crude Māori rates (ie, the actual rates among the Māori population) while also allowing comparison to the non-Māori population and the monitoring of inequalities. Readers should note that the use of different standard populations in other reports means that results obtained may differ from those presented in this report, affecting comparability. Also note that some data could not be standardised; these are indicated under relevant tables or figures.

Standardised rate ratios (SRRs) presented in this report are calculated for the Māori population compared to the non-Māori population. Ninety-five percent confidence intervals (CIs) are presented for both rates and rate ratios.

## Ethnicity

Most indicators are presented comparing Māori with non-Māori. For data from surveys, prioritised ethnicity was used. A person was classified as Māori if any one of their recorded ethnicities was Māori. So for Māori, prioritised and total response outputs are the same. All other people were recorded as non-Māori. This applies to data derived from the 2002/03 New Zealand Health Survey, 2002 National Nutrition Survey, ASH survey, Youth 2000 Survey and Plunket data.

Official data sets have been shown to undercount Māori (Te Rōpū Rangahau Hauora a Eru Pōmare 2000; Ajwani et al 2003; Cormack et al 2005). Therefore, to improve Māori estimates, analyses of data sourced from NZHIS (including cancer registrations, hospitalisations and mortality) utilised the 'ever Māori' method of classification of ethnicity. This involved linking individuals across data sets as outlined below.

Mortality (any causes) from 2000–2002, hospitalisation from 2002–2004, cancer registration from 1999–2001 and a recent copy of the National Health Index (NHI) were obtained from NZHIS. Each record in these data sets has three ethnicity fields, and individuals were classified as Māori if Māori was coded as one of the ethnic groups in any ethnicity field over the time periods described. The remaining people were determined to be non-Māori. Further details on the effect of the 'ever Māori' analysis can be found in Appendix 3.

The method of ethnicity classification is indicated under each table or figure.

## Age groups

For most indicators in the report, the data are presented across all ages in the population. For a selection of indicators, age-specific rates are presented (eg, for meningococcal disease). For all indicators, the relevant age group is noted under each table or figure. Sometimes the term 'adult' is used to include the entire population aged 15 years or older.

## *How to interpret results – tables*

Tells us about the indicator giving name, age group, years of data, type of measure

Prevalence or other rate; eg, proportion of Māori population at a given time with the disease/condition (prevalence)

Tells us what the table is about

**Table 7: Tobacco smoking indicators**

| | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | **Males** | **Females** | **Total** | **Males** | **Females** | **Total** |
| Current smoking (at least daily) (self-reported), 14–15 years, 2003, percent[1] * | 27.6<br>(25.3–29.9) | 40.2<br>(37.8–42.8) | 34.6<br>(32.9–36.3) | 15.5<br>(14.6–16.4) | 17.8<br>(16.9–18.8) | 16.7<br>(16.1–17.4) |
| Current smoking (at least daily) (self-reported), 15+ years, 2002/03 percent[1,2] ** | 45.9<br>(40.3–51.4) | 52.9<br>(48.3–57.5) | 49.8<br>(46.1–53.5) | 23.1<br>(20.9–25.4) | 19.9<br>(18.3–21.5) | 21.5<br>(20.1–22.9) |

Tells us information about the indicators

*Notes:*

[1] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[2] *Age standardised to 2001 Census total Māori population.*

*Sources:*

* *Action on Smoking and Health 2003*

** *2002/03 New Zealand Health Survey*

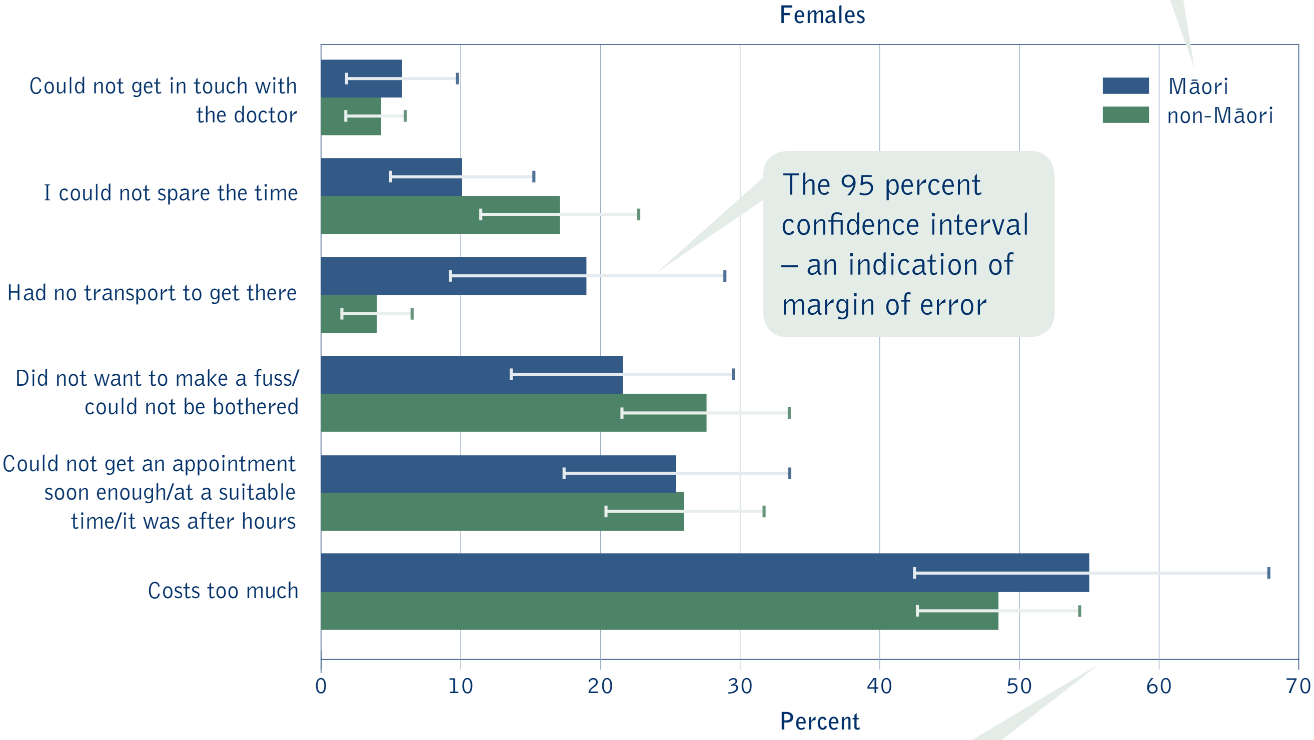
Tells us where the data for each indicator comes from

The 95 percent confidence interval – and indication of margin of error

## *How to interpret results – figures*

Tells us what the graph is about

**Figure 12: Top six reasons for not seeing GP when needed to, females, 15+ years**



Ethnicity

The 95 percent confidence interval – an indication of margin of error

The scale of the prevalence (x) axis is generally 0–100%, but for sections in which prevalences are very small, smaller axes are used eg 0–70%

## Ninety-five percent confidence intervals

The results presented have a margin of error. The 95 percent confidence interval (CI) gives an indication of this error. It indicates the interval that has a 95 percent probability of enclosing the 'true' value.

The confidence interval is influenced by the sample size of the group. When the sample size is small, the confidence interval becomes wider. Thus, although it may look as if there is no statistically significant difference between Māori and non-Māori, wide confidence intervals would mean we could not exclude the possibility.

When the confidence intervals of two groups do not overlap, the difference in rates between the groups is statistically significant. For example, in the figure above, the proportion of Māori females stating lack of transport as a reason for not seeing the GP is significantly higher than that of non-Māori females. If the confidence intervals do overlap, the difference could be due to chance (ie, is not statistically significant). The word 'significant' is used throughout this report to refer to the 5 percent significance level.

## Rate ratios

Age-standardised ratios (see page 9 for an explanation of age standardisation) are used to compare the age-standardised rates between Māori and non-Māori. The rate ratio is equal to the age-standardised Māori rate divided by the age-standardised non-Māori rate. Thus the non-Māori population is used as the reference population. For example, an age-standardised rate ratio of 1.5 means that the rate is 50 percent (or 1.5 times) higher in Māori than in non-Māori, after taking into account the different age structures of these two populations. Rate ratios and their 95 percent confidence intervals are given in the text sections of the document. In this report, if the 95 percent confidence interval of the rate ratio does not include 1, the rates are said to be significantly different from each other.

# Tatauranga taupori: Demographics

## *Age structure*

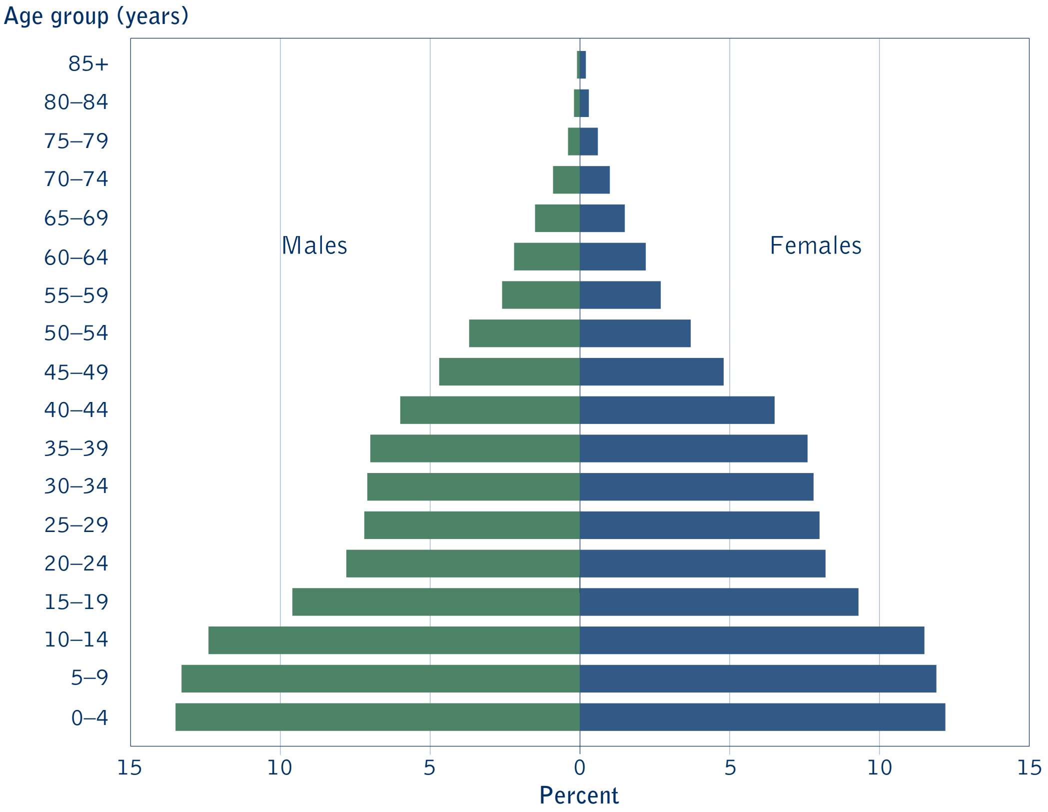
**Table 2:** Age distribution, by life-cycle age group, Māori and non-Māori, 2001

| Age Group (years) | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| 0–14 | 100,656 | 95,772 | 196,428 | 333,852 | 317,097 | 650,949 |
| 15–24 | 44,901 | 46,839 | 91,740 | 208,950 | 204,486 | 413,436 |
| 25–44 | 70,287 | 80,406 | 150,693 | 460,659 | 497,511 | 958,170 |
| 45–64 | 33,633 | 35,967 | 69,600 | 372,501 | 382,125 | 754,626 |
| 65+ | 8058 | 9717 | 17,775 | 188,694 | 244,158 | 432,852 |
| Total | 257,535 | 268,701 | 526,236 | 1,564,656 | 1,645,377 | 3,210,033 |

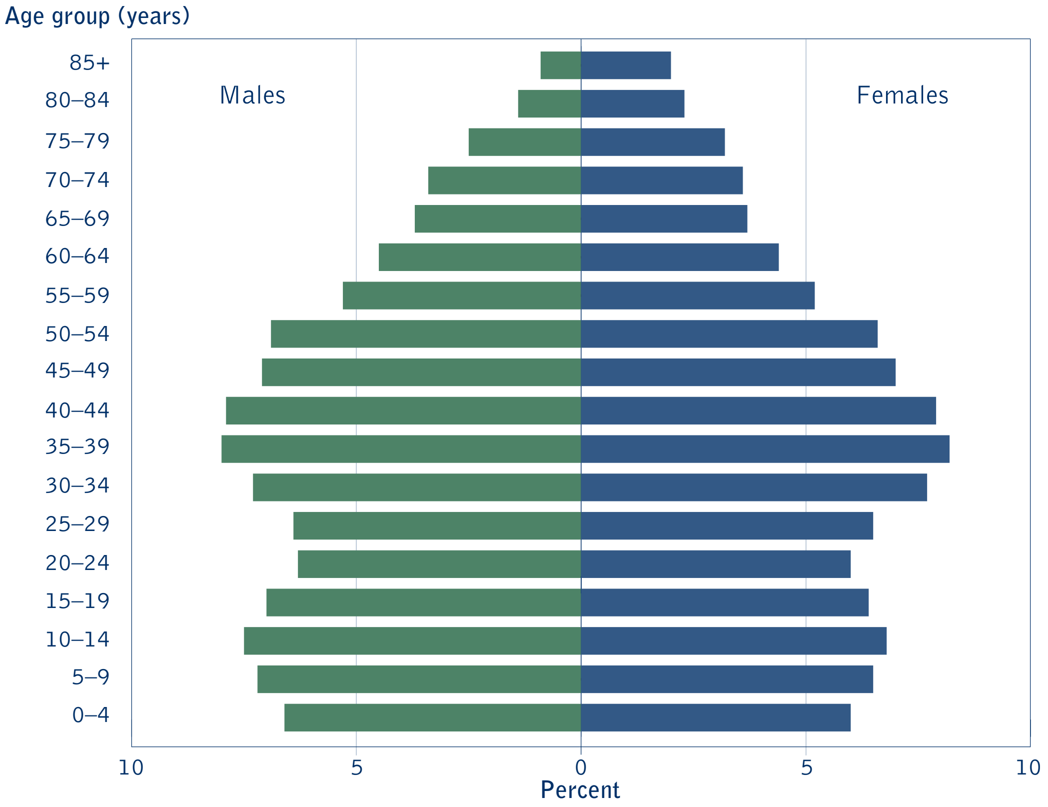
Source: Statistics New Zealand

In 2001, Māori comprised 14 percent of the New Zealand population. Females made up 51 percent of the Māori population, and males 49 percent. In comparison with non-Māori, Māori constituted a very youthful population (Figures 1 and 2): 37 percent of Māori were aged less than 15 years, compared with only 20 percent of non-Māori.

## Figure 1: Age distribution of the Māori population, males and females, 2001



## Figure 2: Age distribution of the non-Māori population, males and females, 2001



*Source:* *Statistics New Zealand*

## *Population projections*

### Table 3: Projected populations,[1] Māori and non-Māori, 2006–2021

| Year | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| 2006 | 311,400 | 318,500 | 629,900 | 1,719,600 | 1,777,100 | 3,496,700 |
| 2011 | 333,700 | 340,100 | 673,800 | 1,781,200 | 1,837,000 | 3,618,100 |
| 2016 | 355,000 | 360,600 | 715,700 | 1,839,100 | 1,893,800 | 3,732,800 |
| 2021 | 376,700 | 381,500 | 758,100 | 1,890,400 | 1,945,400 | 3,835,900 |

***Notes:***

[1] *Māori figures ar*
*medium inter-ethnic mobility. Non-Māori figures are derived from national series 5 projections based on the 2001 Census, and assume medium fertility, medium mortality and long-term annual net migration of 10,000. The two series are designed to be directly comparable.*

***Source:*** *Statistics New Zealand*

The Māori population has a high growth rate (average annual increase of 1.2 percent) relative to non-Māori (average annual increase of 0.6 percent). Between 2006 and 2021 the Māori population is expected to grow by 20 percent, whereas the non-Māori population is predicted to increase by 10 percent.

There are a number of drivers of this higher population growth for Māori, including a higher fertility rate for Māori females compared to non-Māori females (a higher number of births per woman of childbearing age): in 2004 the Māori fertility rate was 2.7, compared with 1.9 for non-Māori (Statistics New Zealand 2005a). Another factor is that the Māori population has a younger age structure, with a relatively large proportion in the main reproductive ages (15–44 years). This provides built-in momentum for future population growth (Statistics New Zealand 2005b).

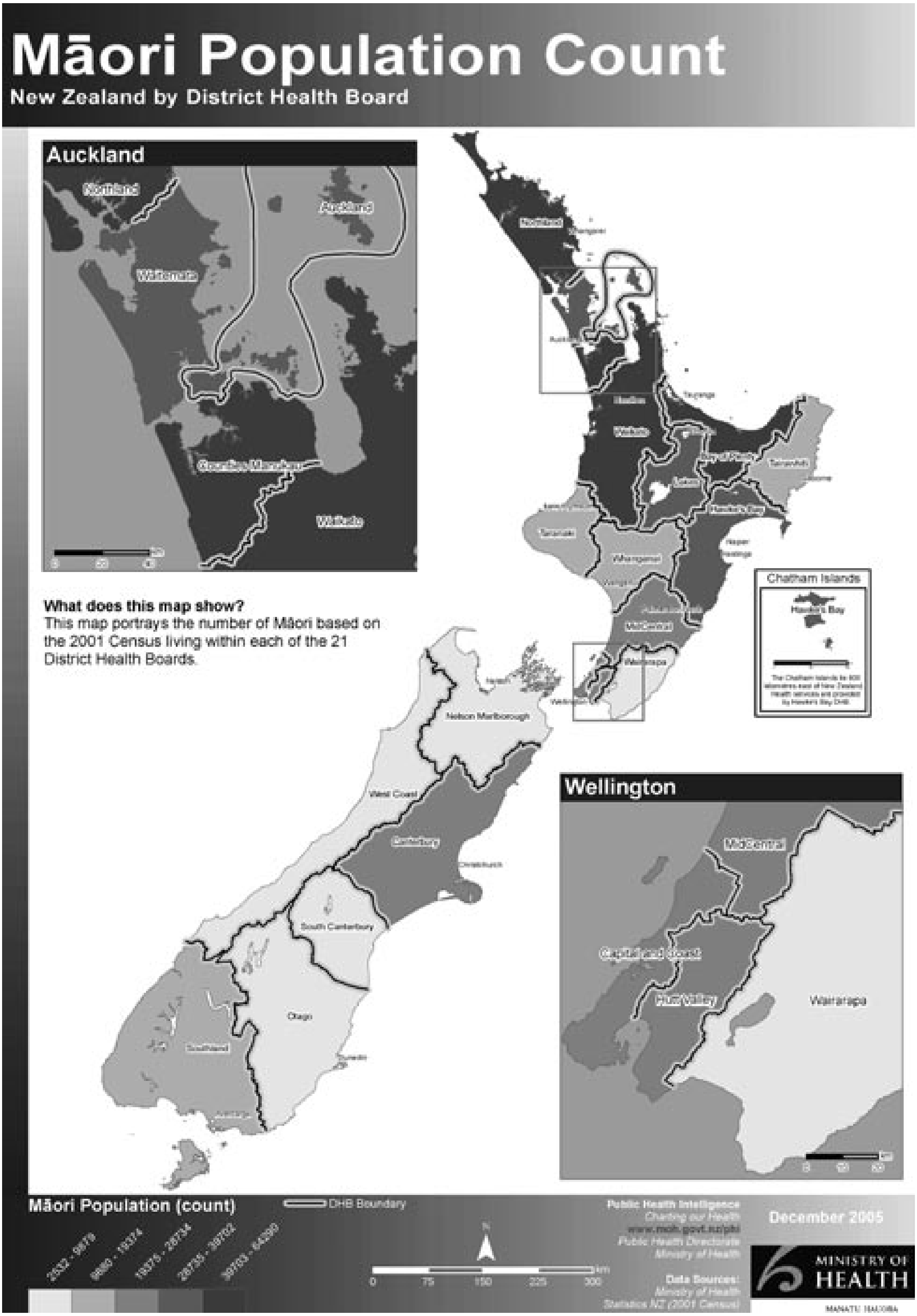
## Population by DHB

Table 4 contains the Māori and non-Māori populations of each District Health Board (DHB), by life-cycle age group. This is followed by two maps: the first showing the number of Māori living in each DHB, and the second showing the proportion of each DHBs population that is Māori.

## Table 4: District Health Board age distributions, Māori and non-Māori, 2001

| DHB | 0–14 years |  | 15–24 years |  | 25–44 years |  | 45–64 years |  | 65+ years |  | Total |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Māori | non-Māori | Māori | non-Māori | Māori | non-Māori | Māori | non-Māori | Māori | non-Māori | Māori | non-Māori |
| Northland | 15,588 | 19,464 | 5979 | 9489 | 10,932 | 25,923 | 6132 | 27,657 | 2112 | 16,674 | 40, 743 | 99, 207 |
| Waitemata | 14,784 | 82,635 | 7206 | 50,277 | 12,246 | 121,215 | 4593 | 90,786 | 933 | 45,393 | 39, 762 | 390, 306 |
| Auckland | 9012 | 63,297 | 5568 | 50,766 | 9642 | 117,042 | 4011 | 70,578 | 915 | 36,909 | 29, 148 | 338, 592 |
| Counties Manukau | 23,922 | 75,972 | 10,803 | 42,858 | 17,679 | 94,359 | 7590 | 69,519 | 1392 | 31,311 | 61, 386 | 314, 019 |
| Waikato | 24,306 | 52,668 | 11,586 | 32,751 | 17,793 | 72,147 | 8337 | 60,405 | 2247 | 35,451 | 64, 269 | 253, 422 |
| Lakes | 11,211 | 13,038 | 5223 | 7074 | 8649 | 19,404 | 4098 | 16,623 | 1164 | 9462 | 30, 345 | 65, 631 |
| Bay of Plenty | 16,242 | 26,469 | 6633 | 13,242 | 11,772 | 36,054 | 6186 | 34,689 | 1764 | 24,900 | 42, 594 | 135, 354 |
| Tairāwhiti | 6987 | 5097 | 2967 | 2550 | 5346 | 6702 | 3051 | 6201 | 1047 | 4086 | 19, 398 | 24, 636 |
| Taranaki | 5655 | 18,687 | 2481 | 9972 | 3948 | 24,438 | 1944 | 21,270 | 597 | 14,052 | 14, 625 | 88, 419 |
| Hawkes Bay | 12,288 | 22,677 | 5529 | 11,811 | 8919 | 30,381 | 4506 | 28,428 | 1248 | 17,898 | 32, 490 | 111, 195 |
| Whanganui | 5412 | 10, 005 | 2289 | 5529 | 3948 | 13,128 | 1914 | 12,153 | 531 | 8637 | 14, 094 | 49, 452 |
| MidCentral | 9087 | 26,025 | 4332 | 18,207 | 6504 | 36,201 | 2841 | 30,720 | 789 | 20,079 | 23, 553 | 131, 232 |
| Hutt Valley | 7275 | 24,117 | 3609 | 13,695 | 5871 | 34,542 | 2400 | 25,881 | 432 | 13,986 | 19, 587 | 112, 221 |
| Capital and Coast | 8442 | 42,372 | 4533 | 31,830 | 7758 | 74,373 | 3048 | 48,327 | 549 | 24,684 | 24, 330 | 221, 586 |
| Wairarapa | 2205 | 6612 | 876 | 3291 | 1371 | 8556 | 717 | 8844 | 216 | 5577 | 5385 | 32, 880 |
| Nelson Marlborough | 3840 | 22,554 | 1605 | 11,994 | 2877 | 31,977 | 1278 | 28,749 | 276 | 17,184 | 9876 | 112, 458 |
| West Coast | 1065 | 5712 | 360 | 2739 | 696 | 8040 | 351 | 7191 | 84 | 3978 | 2556 | 27, 660 |
| Canterbury | 10,521 | 75,564 | 5418 | 53,691 | 8508 | 119,073 | 3477 | 93,585 | 768 | 56,505 | 28, 692 | 398, 418 |
| South Canterbury | 1098 | 9948 | 504 | 4986 | 717 | 13,128 | 426 | 12,795 | 111 | 9048 | 2856 | 49, 905 |
| Otago | 3444 | 29,295 | 2292 | 25,695 | 2595 | 43,467 | 1206 | 38,073 | 255 | 24,414 | 9792 | 160, 944 |
| Southland | 4044 | 18,741 | 1947 | 10,989 | 2922 | 28,020 | 1494 | 22,152 | 348 | 12,594 | 10, 755 | 92, 496 |

**Source:** *Statistics New Zealand*



# Māori Population Count

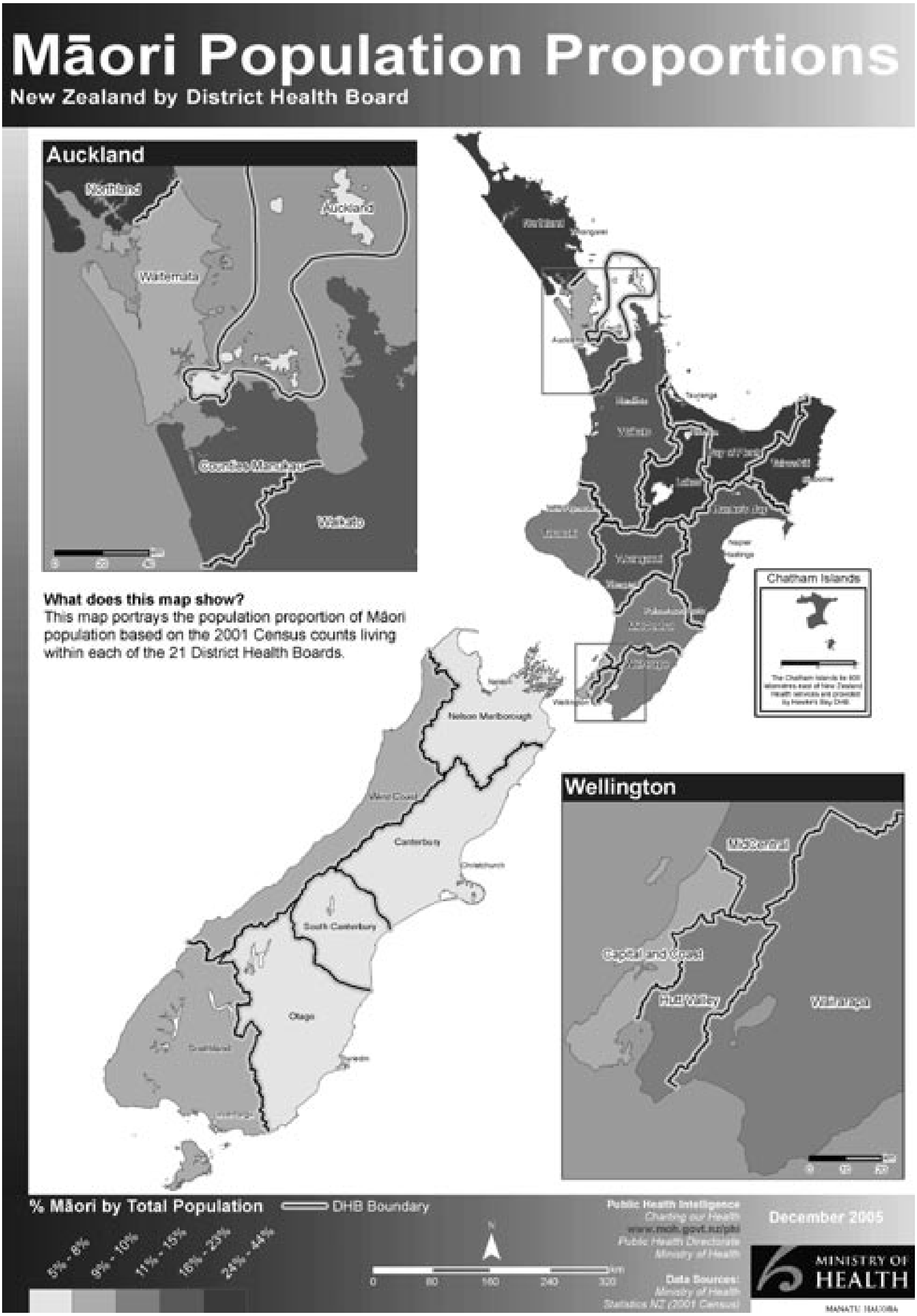
## New Zealand by District Health Board

**What does this map show?**
This map portrays the number of Māori based on the 2001 Census living within each of the 21 District Health Boards.

Public Health Intelligence
*Charting our Health*
www.moh.govt.nz/phi
*Public Health Directorate*
*Ministry of Health*

**Data Sources:**
*Ministry of Health*
*Statistics NZ (2001 Census)*

December 2005



**What does this map show?**
This map portrays the population proportion of Māori population based on the 2001 Census counts living within each of the 21 District Health Boards.

# Ngā awe o te hauora: Socioeconomic determinants of health

Socioeconomic position is a major determinant of health. In this section, deprivation is presented as an area-based measure of socioeconomic position, followed by specific individual socioeconomic indicators.

## Deprivation

NZDep2001 is a small-area deprivation index based on nine socioeconomic variables from the 2001 Census. NZDep scores are usually categorised into tenths (deciles) numbered from 1 (least deprived) to 10 (most deprived).

**Table 5: Māori and non-Māori populations, by deprivation decile, 2001**

| Decile | Māori | | non-Māori | |
|---|---|---|---|---|
| Unknown [1] | 15,669 | (3%) | 130,218 | (4%) |
| 1 | 16,629 | (3%) | 338,700 | (11%) |
| 2 | 21,027 | (4%) | 329,952 | (10%) |
| 3 | 26,508 | (5%) | 347,385 | (11%) |
| 4 | 30,552 | (6%) | 324,507 | (10%) |
| 5 | 41,478 | (8%) | 326,130 | (10%) |
| 6 | 48,591 | (9%) | 317,841 | (10%) |
| 7 | 53,148 | (10%) | 306,519 | (10%) |
| 8 | 66,216 | (13%) | 294,441 | (9%) |
| 9 | 85,191 | (16%) | 268,932 | (8%) |
| 10 | 121,227 | (23%) | 225,408 | (7%) |
| Total | 526,236 | (100%) | 3,210,033 | (100%) |

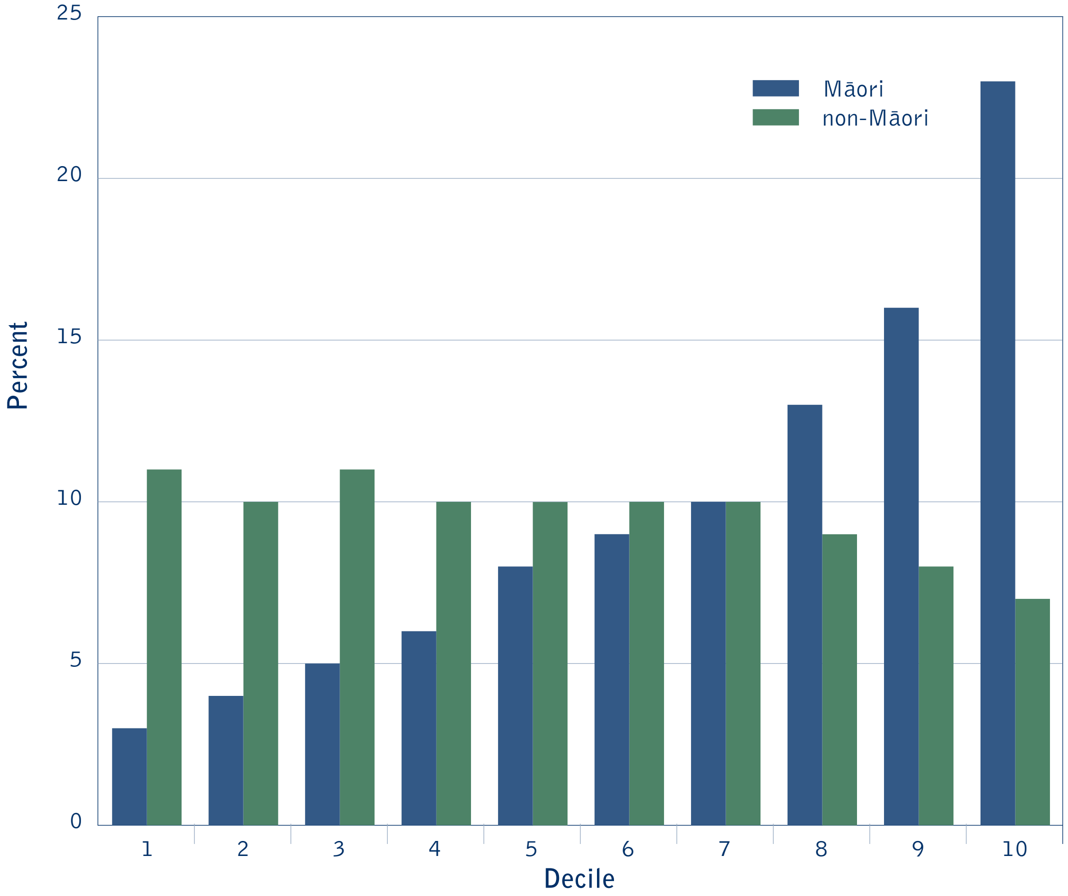
*Notes:*

[1] *The population for whom an NZDep score was not ascertained.*

*Source: Statistics New Zealand*

Higher proportions of Māori live in areas that have the most deprived NZDep scores; that is, the Māori population is highly skewed towards the most deprived deciles. In 2001, 23 percent of Māori lived in decile 10 areas (compared with 7 percent of non-Māori), while only 3 percent of Māori lived in decile 1 areas (compared with 11 percent of non-Māori).

**Figure 3: Deprivation distribution, Māori and non-Māori, 2001**



*Source: Statistics New Zealand*

NZDep2001 is a small-area deprivation index based on nine socioeconomic variables from the 2001 Census. NZDep scores are usually categorised into tenths (deciles) numbered from 1 (least deprived) to 10 (most deprived).

## *Socioeconomic indicators*

Table 6 presents crude rates rather than age-standardised rates, so caution should be taken when comparing Māori with non-Māori results. Crude rates accurately portray the situation in each population, but make comparisons difficult, because they do not take into account different age distributions in each of the populations (the Māori population is much younger than the non-Māori population). The results show that non-Māori are more advantaged than Māori across all socioeconomic indicators presented.

### Table 6: Socioeconomic indicators: percentage of each ethnic group[1]

| | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| **Indicator** | **Males** | **Females** | **Total** | **Males** | **Females** | **Total** |
| School completion (6th form cert. or higher), 15+ years, 2001, percent | 30.4 | 34.5 | 32.5 | 51.7 | 49.9 | 50.8 |
| Unemployed, 15+ years, 2001, percent | 11.3 | 11.4 | 11.4 | 4.2 | 3.8 | 4.0 |
| Total personal income less than $10,000, 15+ years, 2001, percent | 27.8 | 32.1 | 30.1 | 19.2 | 28.6 | 24.1 |
| Receiving means-tested benefit,[2] 15+ years, 2001, percent | 24.8 | 36.1 | 30.7 | 10.2 | 12.8 | 11.5 |
| Living in household without telephone access,[3] 15+ years, 2001, percent | 12.2 | 12.8 | 12.5 | 6.5 | 5.7 | 6.1 |
| Living in household without motor vehicle access, 15+ years, 2001, percent | 10.1 | 13.5 | 11.9 | 4.2 | 6.9 | 5.6 |
| Not living in own home, 15+ years, 2001, percent | 64.4 | 65.2 | 64.8 | 40.3 | 38.1 | 39.1 |
| Household crowding,[4] all age groups, 2001, percent | 20.3 | 21.6 | 21.0 | 6.9 | 6.9 | 6.9 |

***Notes:***

[1] *Prioritised Māori ethnic group – see the 'Methods and data sources' section for further information.*

[2] *Includes Community Wage (Job Seeker and Sickness Benefit), Domestic Purposes Benefit, Invalid's Benefit, and Student Allowance.*

[3] *Household with no telephone access includes households stating no telephone access and households for which it was not stated.*

[4] *Based on the Canadia*
*people living in the d*
*than required.*

***Source:*** *Statistics New Zealand*

# Ngā tauwehe tūpono me te marumaru: Risk and protective factors

The indicators in this section are individual-level risk and protective factors. They are often in between socioeconomic determinants and health outcomes. Consequently, inequalities in socioeconomic position between Māori and non-Māori are likely to contribute to inequalities in individual risk and protective factors.

## *Tobacco smoking*

### Table 7: Tobacco smoking indicators

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Current smoking (at least daily) (self-reported), 14–15 years, 2003, percent [1] * | 27.6<br>(25.3–29.9) | 40.2<br>(37.8–42.8) | 34.6<br>(32.9–36.3) | 15.5<br>(14.6–16.4) | 17.8<br>(16.9–18.8) | 16.7<br>(16.1–17.4) |
| Current smoking (at least daily) (self-reported), 15+ years, 2002/03 percent [1,2] ** | 45.9<br>(40.3–51.4) | 52.9<br>(48.3–57.5) | 49.8<br>(46.1–53.5) | 23.1<br>(20.9–25.4) | 19.9<br>(18.3–21.5) | 21.5<br>(20.1–22.9) |

*Notes:*

[1] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[2] *Age standardised to 2001 Census total Māori population.*

*Sources:*

* *Action on Smoking and Health 2003*

** *2002/03 New Zealand Health Survey*

For young people, the prevalence of self-reported tobacco smoking (at least daily) among Māori was twice that of non-Māori (RR 2.1, CI 1.9–2.2). Māori adults were also twice as likely as non-Māori adults to smoke tobacco (RR 2.3, CI 2.1–2.5). Māori females had the highest prevalence of tobacco smoking, with 53 percent reporting being a current smoker.

## *Alcohol and drug use*

### Table 8: Alcohol and drug use indicators

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Have not drunk alcohol in past year (self-reported), 15+ years, 2002/03, percent [1,2] * | 15.9<br>(12.2–19.6) | 21.8<br>(17.5–26.2) | 19.3<br>(16.6–21.9) | 9.9<br>(8.7–11.1) | 18.7<br>(17.2–20.1) | 14.4<br>(13.5–15.4) |
| Potentially hazardous drinking pattern (self-reported), 15+ years, 2002/03, percent [1,2, 3] * | 38.2<br>(32.8–43.5) | 20.9<br>(16.6–25.1) | 28.7<br>(25.0–32.3) | 27.9<br>(25.4–30.4) | 11.9<br>(10.4–13.5) | 19.6<br>(18.1–21.1) |
| Regular (at least monthly) marijuana smoking (self-reported), 15+ years, 2002/03, percent [1,2] * | 26.4<br>(21.3–31.5) | 13.3<br>(10.3–16.3) | 19.1<br>(16.0–22.1) | 10.2<br>(8.6–11.8) | 4.1<br>(3.0–5.2) | 7.1<br>(6.1–8.1) |

*Notes:*

[1] *Age standardised to 2001 Census total Māori population.*

[2] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[3] *'Potentially hazardous drinking' is defined as an established pattern of drinking that carries with it a high risk of future damage to physical or mental health, but has not yet resulted in significant medical or psychiatric effects. Potentially hazardous drinking is defined as an Alcohol Use Disorder Identification Test (AUDIT) score greater than or equal to 8 (out of 40).*

*Source:*

* *2002/03 New Zealand Health Survey*

Māori adults were less likely to have consumed alcohol in the past year than non-Māori adults. Māori males, for example, were more than one-and-a-half times more likely not to have drunk alcohol in the past year than non-Māori males (RR 1.6, CI 1.2–2.0). Among drinkers, however, Māori adults were more likely to have potentially hazardous drinking patterns: the prevalence of potentially hazardous drinking patterns was one-and-a-half times higher for Māori compared with non-Māori adults (RR 1.5, CI 1.3–1.7).

Regular marijuana smoking was significantly more prevalent among Māori adults than among non-Māori adults.

## *Nutrition*

### Table 9: Nutrition indicators

| Indicator | Māori |  |  | non-Māori |  |  |
|---|---|---|---|---|---|---|
|  | Males | Females | Total | Males | Females | Total |
| 3 or more servings of vegetables and 2 or more servings of fruit per day (self-reported), 5–14 years, 2002, percent[1,2] * | 27.5<br>(23.5–31.5) | 28.7<br>(22.5–34.8) | 28.0<br>(24.1–31.9) | 30.0<br>(26.6–33.4) | 34.5<br>(30.6–38.5) | 32.2<br>(29.5–34.9) |
| 3 or more servings of vegetables and 2 or more servings of fruit per day (self-reported), 15+ years, 2002/03, percent[1,2] ** | 24.6<br>(19.9–29.3) | 41.2<br>(36.5–45.8) | 34.0<br>(30.7–37.2) | 29.8<br>(27.3–32.3) | 48.4<br>(46.1–50.7) | 39.3<br>(37.6–41.1) |

*Notes:*

[1] *Age standardised to 2001 Census total Māori population.*

[2] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

*Sources:*

* *2002 Children's Nutrition Survey*

** *2002/03 New Zealand Health Survey*

The prevalence of eating the recommended number of vegetables and fruit was similar for both Māori and non-Māori children. Among adults, Māori were slightly less likely than non-Māori to meet the recommended daily intake (RR 0.9, CI 0.8–1.0). For adults, females of both ethnic groups were significantly more likely than males to eat the recommended number of vegetables and fruit. This gender disparity was not observed for children.

It is recommended that New Zealanders eat at least three servings of vegetables and at least two servings of fruit per day (Ministry of Health 2003). A substantial proportion of both Māori and non-Māori did not meet this minimum recommended vegetable and fruit intake.

Having consistent access to affordable foods of high nutritional value is a key determinant for whether such foods will be consumed (food security).

## *Body weight*

Body mass index (BMI) provides a useful population-level indicator of excess body weight. It is a measure of weight adjusted for height, and is calculated by dividing weight in kilograms by the square of height in metres ($kg/m^2$).

Higher BMI cut-offs were used to classify overweight and obesity in Māori and Pacific peoples (Swinburn 1998), due to different body composition, as given in Table 10. For example, obesity is defined as a BMI of ≥ 32 for Māori and Pacific peoples, compared to ≥ 30 for European and Other. However, it is acknowledged that ethnic-specific cut-offs are controversial (WHO Expert Consultation 2004).

**Table 10: Classification of body weight according to BMI ($kg/m^2$) in adults**

| Classification | European and Other | Māori and Pacific peoples |
|---|---|---|
| Underweight | < 18.5 | < 18.5 |
| Overweight | 25.0–29.9 | 26.0–31.9 |
| Obese | ≥ 30.0 | ≥ 32.0 |

Details on the classification of overweight and obesity in children can be found in Cole et al (2000).

The association between BMI and health risk is continuous (Asia Pacific Cohort Studies Collaboration 2004), and therefore it is useful to have some information about the BMI distribution, rather than relying on BMI cut-offs alone. For this reason, this report presents data on BMI percentiles, as well as underweight, overweight and obesity. For example, a 10th percentile BMI of 22 means that 10 percent of the population have a BMI of 22 or less; a 50th percentile BMI of 28 means that 50 percent of the population have a BMI of 28 or less.

## Table 11: Body weight indicators

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Overweight, 5–14 years, 2002, percent [1,2] * | 19.8<br>(16.8–22.7) | 30.5<br>(26.4–34.6) | 25.0<br>(22.6–27.5) | 20.2<br>(17.3–23.2) | 20.4<br>(17.0–23.7) | 20.3<br>(18.1–22.4) |
| Obese, 5–14 years, 2002, percent [1,2] * | 15.7<br>(11.9–19.6) | 16.8<br>(13.1–20.6) | 16.2<br>(13.1–19.3) | 7.1<br>(5.3–8.9) | 8.8<br>(6.5–11.1) | 7.9<br>(6.5–9.3) |
| BMI 10th percentile, 5–14 years, 2002, BMI value [1,2] * | 15.7<br>(15.5–16.0) | 15.8<br>(15.6–16.0) | 15.8<br>(15.7–16.0) | 15.3<br>(15–15.6) | 15.3<br>(15.1–15.5) | 15.3<br>(15.1–15.3) |
| BMI 50th percentile, 5–14 years, 2002, BMI value [1,2] * | 18.6<br>(18.3–19) | 19.4<br>(18.9–19.9) | 18.9<br>(18.7–19.2) | 17.8<br>(17.6–18.1) | 18.2<br>(17.9–18.5) | 18.0<br>(17.8–18.2) |
| BMI 90th percentile, 5–14 years, 2002, BMI value [1,2] * | 25.1<br>(23.8–26.4) | 27.0<br>(25.4–28.6) | 26.2<br>(24.9–27.5) | 23.7<br>(23.1–24.4) | 24.1<br>(23.2–25.0) | 24.0<br>(23.6–24.4) |
| Underweight, 15+ years, 2002/03, percent [1,2] ** | – | 2.7<br>(0.8–4.7) | 1.3<br>(0.5–2.1) | 3.0<br>(2.0–4.0) | 4.6<br>(3.5–5.7) | 3.8<br>(3.1–4.5) |
| Overweight, 15+ years, 2002/03, percent [1,2] ** | 37.2<br>(31.9–42.4) | 31.1<br>(26.4–35.9) | 34.3<br>(31.3–37.2) | 39.2<br>(36.9–41.6) | 25.2<br>(23.3–27.2) | 32.2<br>(30.8–33.7) |
| Obese, 15+ years, 2002/03, percent [1,2] ** | 26.5<br>(21.5–31.4) | 26.1<br>(21.8–30.3) | 27.0<br>(23.8–30.3) | 16.9<br>(15.3–18.5) | 19.1<br>(17.5–20.8) | 18.0<br>(16.8–19.1) |
| BMI 10th percentile, 15+ years, 2002/03, BMI value [1,2] ** | 22.1<br>(21.5–22.6) | 20.8<br>(20.0–21.7) | 21.6<br>(21.2–21.9) | 20.6<br>(20.1–21.0) | 19.6<br>(19.4–19.8) | 20.0<br>(19.9–20.2) |
| BMI 50th percentile, 15+ years, 2002/03, BMI value [1,2] ** | 28.1<br>(27.1–29.1) | 27.9<br>(26.9–28.8) | 27.9<br>(27.2–28.7) | 25.7<br>(25.4–26.0) | 24.2<br>(23.9–24.5) | 25.1<br>(24.9–25.3) |
| BMI 90th percentile, 15+ years, 2002/03, BMI value [1,2] ** | 37.9<br>(35.9–39.8) | 37.8<br>(35.6–39.9) | 37.9<br>(36.6–39.1) | 32.1<br>(31.7–32.5) | 33.4<br>(32.8–34.0) | 32.7<br>(32.4–33.0) |

*Notes:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[3] *Indicates that the count was < 5 and therefore the age-standardised rate was not calculated.*

*Sources:*

* *2002 Children's Nutrition Survey*

** *2002/03 New Zealand Health Survey*

For children, Māori and non-Māori males had a similar prevalence of overweight, but Māori females were one-and-a-half times more likely to be overweight than non-Māori females (RR 1.5, CI 1.2–1.8). Overall, the prevalence of obesity in Māori children was twice that of non-Māori children (RR 2.0, CI 1.5–2.6). Both the BMI 10th and 50th percentiles for Māori and non-Māori children were similar, although Māori children had a higher BMI 90th percentile.

Māori and non-Māori adults had a similar prevalence of overweight, but Māori adults were one-and-a-half times more likely to be obese than non-Māori (RR 1.5, CI 1.3–1.7). Māori adults were significantly less likely to be underweight than non-Māori adults (RR 0.3, CI 0.1–0.5), and Māori adults had higher 10th, 50th and 90th percentiles for BMI than non-Māori adults.

## Physical activity

### Table 12: Physical activity indicators

| Indicator | Māori |  |  | non-Māori |  |  |
|---|---|---|---|---|---|---|
|  | Males | Females | Total | Males | Females | Total |
| Physically active (self-reported), 15+ years, percent [1,2,3] * | 80.6<br>(76.2–85.0) | 72.2<br>(66.7–77.6) | 76.0<br>(72.2–79.7) | 79.5<br>(77.5–81.5) | 70.6<br>(68.3–72.9) | 74.9<br>(73.3–76.6) |

*Notes:*

[1] *Age standardised to 2001 Census total Māori population.*

[2] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[3] *Physically active is defined as at least 2.5 hours of physical activity in the last week, with exercise accumulated on one or more days of the week.*

*Source:*

* *2002/03 New Zealand Health Survey*

Table 12 shows that Māori and non-Māori adults were just as likely to be physically active.

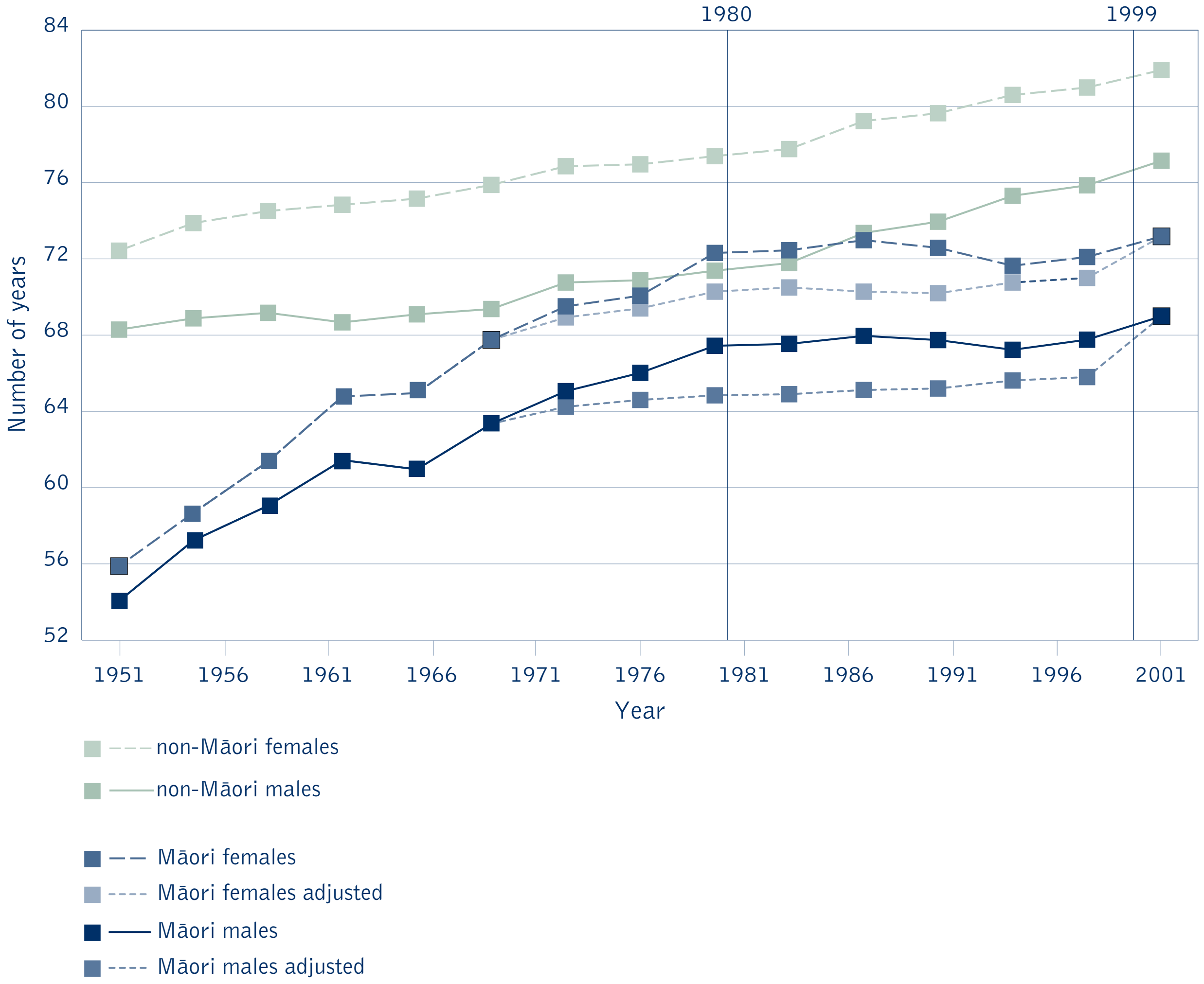
SPARC also ran three New Zealand Sport and Physical Activity Surveys in 1997/98, 1998/99 and 2000/01. Data from these three surveys have been combined to produce estimates for young people (5–17 years) and adults (18+ years). The results were not age standardised, and non-Māori estimates were unavailable, but the results for adults were similar to those presented above. Māori adults were as likely to be physically active as all New Zealand adults (67 percent and 68 percent, respectively), and Māori young people were more likely to be physically active than all young people combined (71 percent and 68 percent, respectively). For further information, see: http://www.sparc.org.nz/research-policy/research-/sparc-facts-97-01

## Ngā mana hauora tūtohu: Health status indicators

This section presents a range of indicators relating to health status. The indicators in this section include; life expectancy, disability, major causes of death, self-rated health, cardiovascular disease, cancer, respiratory disease, diabetes, infectious disease, suicide and intentional self-harm, mental health, interpersonal violence, oral health, infant health, hearing and unintentional injury.

### *Life expectancy*

**Figure 4: Life expectancy at birth, by gender and ethnicity, 1951–2001**



***Note:*** *Adjusted life*
*each time period.*

***Source:*** *Ajwani et al 2003; Statistics New Zealand*

In 2001, life expectancy at birth was 69 years for Māori males and 73 years for Māori females, while life expectancy at birth was 77 years for non-Māori males and 82 years for non-Māori females. Overall, Māori life expectancy at birth was more than eight years less than non-Māori in 2001, for both genders.

During the 1980s and early 1990s Māori mortality was seriously undercounted due to different ethnicity data recording on death registration forms compared with the Census.

The broken lines on Figure 4 for Māori males and females represent adjusted life expectancy from the New Zealand Census Mortality Study. This adjusted life expectancy takes into account the undercounting of Māori deaths, thereby providing more reliable life expectancy estimates over this period (Ajwani et al 2003).

Most notably, Figure 4 shows that Māori life expectancy rapidly increased up until the late 1970s or early 1980s, however since then Māori life expectancy has been (mostly) static while non-Māori life expectancy continued to increase.

## *Disability*

In 2001 there were an estimated 106,500 Māori adults and children with disability living in households as opposed to managed care facilities. Twenty-one percent of Māori had a disability, compared to 19 percent of non-Māori adults and children living in households.

Adjusting for the different age structures of the population, Māori had a higher rate of disability (24 percent) compared to non-Māori (17 percent). Māori were also more likely to have a functional disability requiring assistance[4] than non-Māori living in households (age-standardised rate of 14 percent compared to 9 percent).

Fifteen percent of Māori children aged 0–14 years living in households had a disability, compared to 10 percent of non-Māori. The most common disability type experienced by Māori children was chronic conditions/health problems.

The prevalence of disability increases with age, with the highest rates among those aged 65 years and older. The age-standardised rate of disability in Māori aged 65 and older living in households was the same as that for non-Māori at 61 percent. Mobility and agility were the most common disability types experienced by Māori adults.

For further information on the experience of disability for Māori, please refer to the chapter 'Māori and disability' in *Living with Disability in New Zealand* (Ministry of Health 2004c). These data are based on the 2001 Household Disability Survey (Statistics New Zealand).

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[4] *Functional disability requiring assistance relates to limitations around activity that have lasted more than six months.*

## *Major causes of death*

The major causes of death are presented here according to rank, for each ethnicity and gender. Causes of death have been ranked in two different ways: first simply by number of deaths (Table 13), and then by years of life lost (YLL) (Table 14).

Growing old is a natural biological process, and death, being inevitable, reflects population health status only to a limited extent. Therefore, YLL has been used to provide a measure of the social burden of premature mortality across the life span, including deaths in old age.

Using the 'remaining life expectancy' method, YLL is defined as the gap between the age at death and the life expectancy remaining at that age ($YLL_e$). All years of life are valued equally, and life expectancy does not decline to zero at any age. However, to reflect society's preference for present benefits, health losses that occur in the future have been discounted (3 percent discount rate) relative to those that occur in the past. Model life table West level 26 (female), selected for the monitoring of $YLL_e$ in New Zealand, provides a life expectancy at birth of 82.5 years. The same standard is used for all, regardless of gender and ethnicity, in order to enhance comparability, and because using different age standards on the basis of gender and ethnicity would be incompatible with the values of most New Zealanders (Ministry of Health 1999).

**Table 13: Major causes of death, 2000–2002, ranked by number of deaths**

| | Males | Females |
|---|---|---|
| **Māori** | Ischaemic heart disease<br>Lung cancer<br>Diabetes<br>Chronic obstructive pulmonary disease<br>Other heart disease | Ischaemic heart disease<br>Lung cancer<br>Chronic obstructive pulmonary disease<br>Cerebrovascular disease<br>Diabetes |
| **non-Māori** | Ischaemic heart disease<br>Cerebrovascular disease<br>Chronic obstructive pulmonary disease<br>Lung cancer<br>Colorectal cancer | Ischaemic heart disease<br>Cerebrovascular disease<br>Chronic obstructive pulmonary disease<br>Other heart disease<br>Breast cancer |

*Note:* *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

*Source:* *New Zealand Health Information Service*

The major causes of death were all chronic diseases. Ischaemic heart disease was the leading cause of death for both Māori and non-Māori. Lung cancer was the second leading cause of death for Māori. Diabetes featured in the top five causes for both Māori males and Māori females, but did not feature in the top five for non-Māori of either gender.

### Table 14: Major causes of death, 2000–2002, ranked by YLL

| | Males | Females |
|---|---|---|
| **Māori** | Ischaemic heart disease<br>Motor vehicle injury<br>Suicide<br>Lung cancer<br>Diabetes | Ischaemic heart disease<br>Lung cancer<br>Breast cancer<br>Chronic obstructive pulmonary disease<br>Cerebrovascular disease |
| **non-Māori** | Ischaemic heart disease<br>Cerebrovascular disease<br>Lung cancer<br>Chronic obstructive pulmonary disease<br>Suicide | Ischaemic heart disease<br>Cerebrovascular disease<br>Breast cancer<br>Chronic obstructive pulmonary disease<br>Colorectal cancer |

***Note:*** *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

***Source:*** *New Zealand Health Information Service*

The major causes of *premature* death were still dominated by chronic diseases (ischaemic heart disease was the leading cause for all groups).

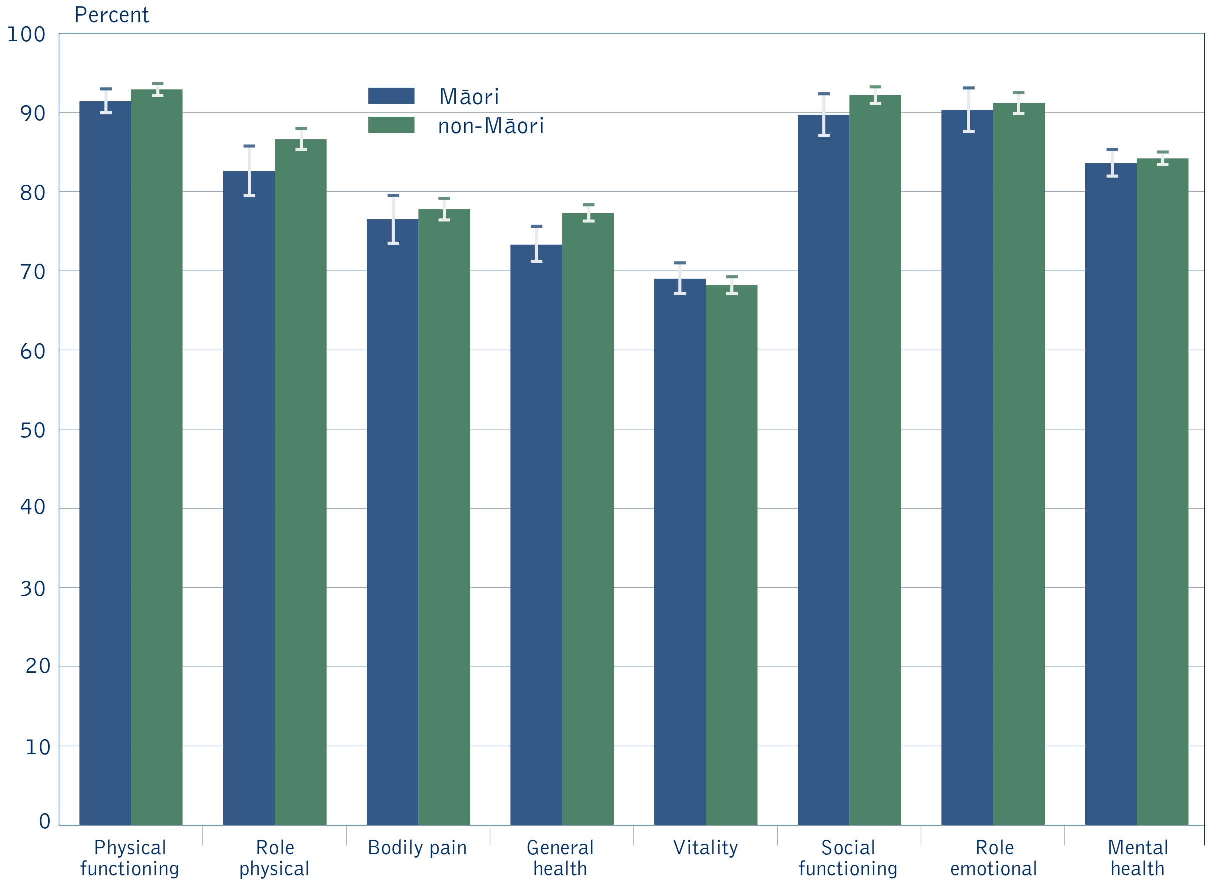
For Māori males, motor vehicle injury was the second leading cause of premature death, and suicide the third ranked. Suicide is also a major cause of premature death for non-Māori males.

Breast cancer was the third leading cause of premature death for both Māori and non-Māori females.

## *Self-rated health*

The SF-36 is one of the most widely used questionnaires for measuring self-reported physical and mental health status. The SF-36 questionnaire consists of 36 questions measuring physical and mental health status in relation to eight health scales. Scores are expressed on a 1–100 scale for each of the eight health scales, with higher scores representing better self-perceived health (Ministry of Health 2004a).

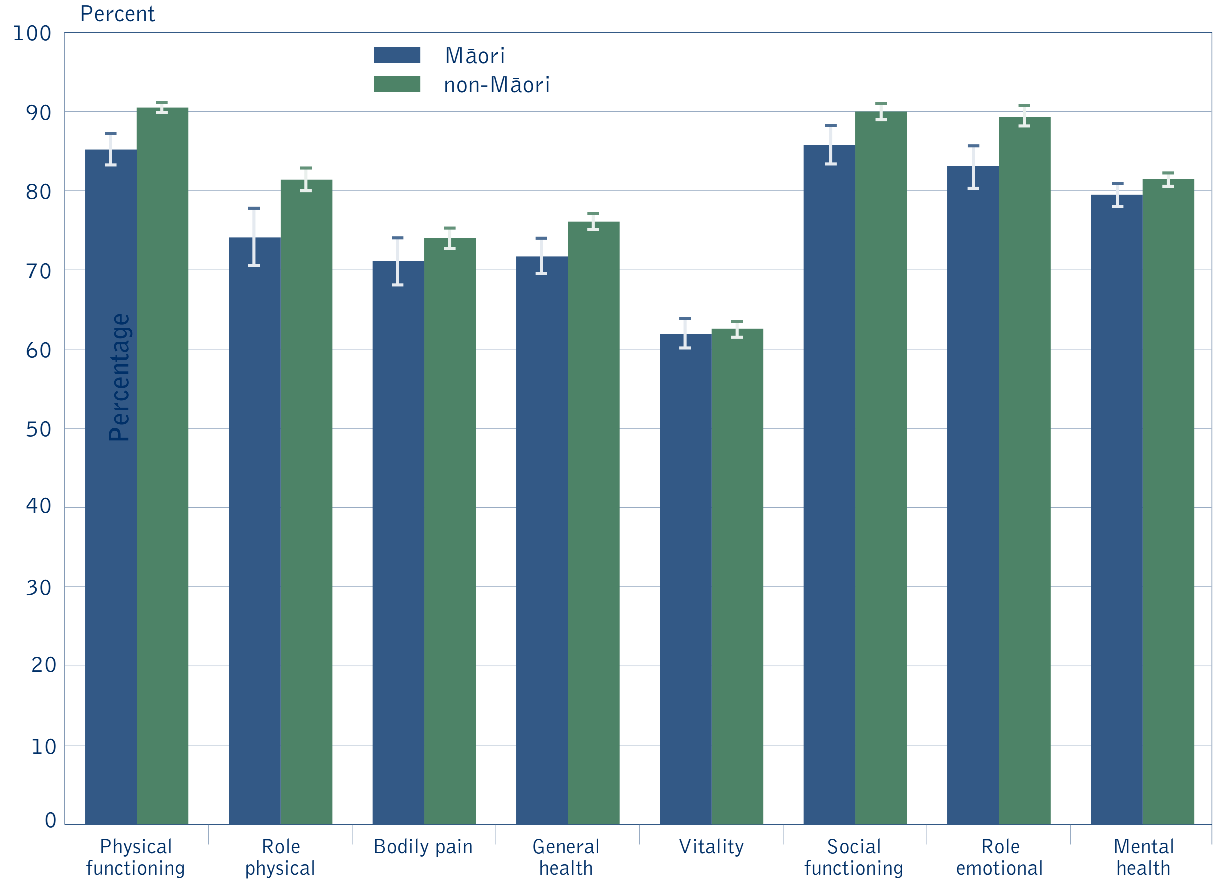
**Figure 5: Mean SF-36 scores, males, 15+ years**



***Notes:*** *Age standard information.*

***Source:*** *2002/03 New Zealand Health Survey*

## Figure 6: Mean SF-36 scores, females, 15+ years



***Notes:*** *Age standard information.*

***Source:*** *2002/03 New Zealand Health Survey*

Non-Māori adults generally rated their health higher than Māori adults. Non-Māori males rated their health higher than Māori males on all scales except vitality, but the only significant difference was for general health (Figure 5).

Non-Māori females rated their health higher than Māori females on all scales. This difference was significant for physical functioning, role physical, general health, social functioning and role emotional (Figure 6).

## Cardiovascular disease

### Table 15:  Cardiovascular disease indicators

| Indicator | Māori |  |  | non-Māori |  |  |
|---|---|---|---|---|---|---|
|  | Males | Females | Total | Males | Females | Total |
| Total cardiovascular disease mortality, 35+ years, 2000–02, rate per 100,000 [1,3] * | 691.4<br>(656.9–727.4) | 459.8<br>(434.3–486.4) | 569.4<br>(548.2–591.2) | 267.9<br>(263.6–272.3) | 149.3<br>(147.1–151.7) | 204.5<br>(202.2–206.8) |
| Total cardiovascular disease hospitalisation, 35+ years, 2002–04, rate per 100,000 [1,3] * | 4284.2<br>(4198.7–4371.0) | 3402.2<br>(3330.7–3474.8) | 3819.7<br>(3764.3–3875.6) | 2478.1<br>(2462.4–2493.9) | 1395.4<br>(1385.4–1405.4) | 1913.3<br>(1904.2–1922.4) |
| Stroke mortality, 35+ years, 2000–02, rate per 100,000 [1,3] * | 80.7<br>(69.0–93.9) | 95.0<br>(83.6–107.5) | 87.9<br>(79.7–96.8) | 48.9<br>(47.1–50.7) | 43.4<br>(42.2–44.7) | 46.2<br>(45.2–47.3) |
| Stroke hospitalisation, 35+ years, 2002–04, rate per 100,000 [1,3] * | 429.0<br>(402.0–457.3) | 516.2<br>(488.7–544.9) | 473.5<br>(454.1–493.5) | 279.1<br>(274.2–284.1) | 204.8<br>(201.2–208.5) | 239.7<br>(236.7–242.7) |
| Heart failure mortality, 35+ years, 2000–02, rate per 100,000 [1,3] * | 10.8<br>(6.7–16.4) | 13.0<br>(9.2–17.8) | 12.3<br>(9.4–15.9) | 4.1<br>(3.7–4.6) | 4.2<br>(3.9–4.5) | 4.2<br>(4.0–4.5) |
| Heart failure hospitalisation, 35+ years, 2002–04, rate per 100,000 [1,3] * | 850.5<br>(812.6–889.8) | 516.3<br>(488.9–544.8) | 676.0<br>(652.8–699.7) | 155.5<br>(152.2–159.0) | 93.5<br>(91.4–95.6) | 121.8<br>(119.9–123.7) |
| Rheumatic heart disease mortality, 15+ years, 2000–02, rate per 100,000 [1,3] * | 10.9<br>(8.1–14.3) | 14.1<br>(11.1–17.7) | 12.6<br>(10.5–15.1) | 1.3<br>(1.1–1.6) | 1.5<br>(1.3–1.8) | 1.4<br>(1.3–1.6) |
| Rheumatic heart disease hospitalisation, 15+ years, 2002–04, rate per 100,000 [1,3] * | 35.3<br>(30.1–41.0) | 54.1<br>(48.0–60.9) | 45.2<br>(41.1–49.6) | 5.6<br>(5.1–6.3) | 8.9<br>(8.2–9.7) | 7.3<br>(6.9–7.8) |
| Heart disease prevalence (self-reported), 35+ years, percent [1,2] ** | 16.5<br>(11.4–21.6) | 13.9<br>(10.9–17.0) | 15.3<br>(12.6–18.0) | 10.9<br>(9.5–12.2) | 9.3<br>(8.2–10.4) | 10.1<br>(9.2–11.1) |

*Notes:*

[1] *Age standardised to 2001 Census total Māori population.*

[2] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[3] *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

*Sources:*

* *New Zealand Health Information Service*

** *2002/03 New Zealand Health Survey*

Total cardiovascular disease mortality was more than two-and-a-half times higher for Māori than for non-Māori (RR 2.8, CI 2.7–2.9). Māori were twice as likely to be hospitalised for cardiovascular disease than non-Māori (RR 2.0, CI 2.0–2.0).

Stroke mortality was nearly twice as high in Māori than in non-Māori (RR 1.9, CI 1.7–2.1), and the stroke hospitalisation rate for Māori was twice that of non-Māori (RR 2.0, CI 1.9–2.1).

The heart failure mortality rate for Māori was almost three times the rate for non-Māori (RR 2.9, CI 2.2–3.8). Māori were five-and-a-half times more likely to be hospitalised for heart failure than non-Māori (RR 5.6, CI 5.4– 5.8).

Rheumatic heart disease mortality was more than eight-and-a-half times higher in Māori than in non-Māori (RR 8.8, CI 7.2–10.8), and the rheumatic heart disease hospitalisation rate was six times higher in Māori than in non-Māori (RR 6.2, CI 5.5–6.9).

The prevalence of heart disease among Māori was one-and-a-half times that in non-Māori (RR 1.5, CI 1.2–1.8).

### Table 16: Ischaemic heart disease indicators

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Ischaemic heart disease mortality, 35+ years, 2000–02, rate per 100,000 [1,2] * | 438.6<br>(411.3–467.4) | 238.3<br>(220.1–257.7) | 332.9<br>(316.7–349.7) | 171.4<br>(167.9–175.0) | 74.7<br>(73.1–76.4) | 119.5<br>(117.7–121.3) |
| Ischaemic heart disease hospitalisation, 35+ years, 2002–04, rate per 100,000 [1,2] * | 1468.8<br>(1419.1–1519.8) | 1027.0<br>(987.8–1067.3) | 1237.0<br>(1205.6–1269.1) | 1162.1<br>(1151.1–1173.2) | 489.5<br>(483.5–495.4) | 813.4<br>(807.3–819.5) |
| All re-vascularisation (CABG[3] and angioplasty) heart disease procedures, 35+ years, 2002–2004, rate per 100,000 [1,2] * | 224.2<br>(205.1–244.6) | 108.7<br>(96.2–122.5) | 163.7<br>(152.4–175.6) | 250.6<br>(245.2–256.1) | 70.0<br>(67.4–72.6) | 157.9<br>(155.0–160.9) |

*Note:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[3] *Coronary artery bypass graft.*

*Source:*

* *New Zealand Health Information Service*

Among Māori, the ischaemic heart disease mortality rate was more than two-and-a-half times the non-Māori rate (RR 2.8, CI 2.6–2.9), and Māori were one-and-a-half times more likely to be hospitalised for ischaemic heart disease than non-Māori (RR 1.5, CI 1.5–1.6). The disparity was greater for Māori females, who had twice the rate of non-Māori females (RR 2.1, CI 2.0–2.2).

Despite the above, there was no significant difference between the rates of re-vascularisation procedures for Māori and non-Māori (RR 1.0, CI 1.0–1.1). Thus it appears that relative to need (assessed by mortality and hospitalisation for ischaemic heart disease), there is a difference in access to interventions for ischaemic heart disease for Māori compared to non-Māori.

Although risk of ischaemic heart disease and cardiovascular disease was higher among males, relative inequalities were greater between Māori and non-Māori females than among males.

## *Cancer*

**Table 17: Cancer indicators**

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| All cancer registrations, 25+ years, 1999–2001, rate per 100,000[1,3] * | 493.2<br>(469.5–517.7) | 537.0<br>(513.9–560.9) | 512.5<br>(496.0–529.3) | 457.2<br>(451.7–462.7) | 412.4<br>(407.0–417.8) | 430.4<br>(426.6–434.3) |
| All cancer mortality, 25+ years, 2000–02, rate per 100,000[1,3] * | 333.8<br>(314.3–354.2) | 292.6<br>(275.7–310.3) | 309.5<br>(296.7–322.7) | 165.3<br>(162.2–168.4) | 125.4<br>(122.9–128.0) | 142.7<br>(140.8–144.6) |
| Cancer prevalence (self-reported), 25+ years, 2002/03, percent[1,2] ** | 2.1<br>(0.7–3.5) | 7.0<br>(4.7–9.4) | 4.7<br>(3.3–6.0) | 3.3<br>(2.7–3.8) | 4.9<br>(4.3–5.6) | 4.1<br>(3.7–4.6) |

*Notes:*

[1] *Age standardised to 2001 Census total Māori population.*

[2] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[3] *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

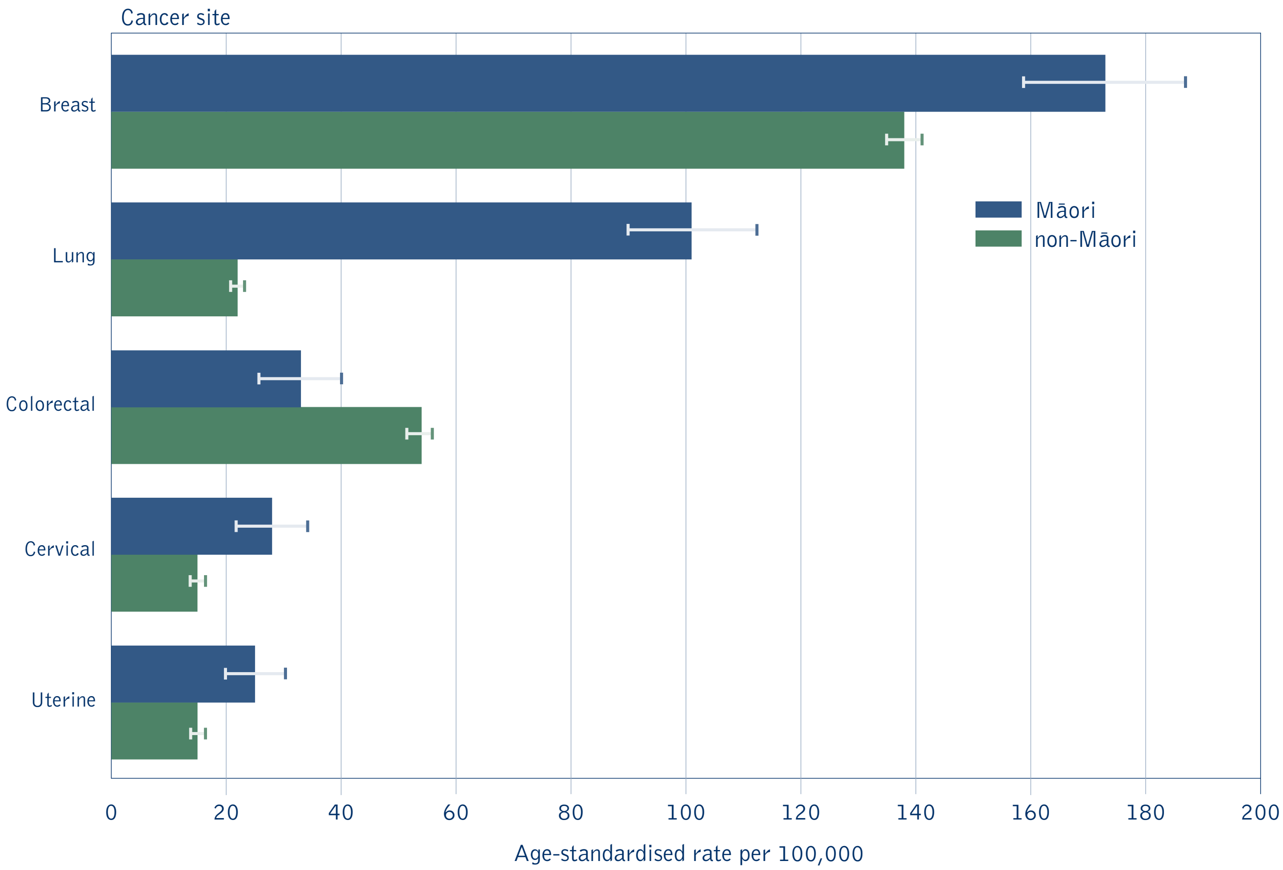
*Sources:*

* *New Zealand Health Information Service*
** *2002/03 New Zealand Health Survey*

Māori adults had slightly higher registration rates than non-Māori for all cancers (RR 1.2, CI 1.2–1.2) and there was no significant difference between the self-reported prevalence of cancer between Māori and non-Māori (RR 1.1, CI 0.8– 1.5). However, Māori all-cancer mortality rates were twice those of non-Māori (RR 2.2, CI 2.1–2.3).

The most common cancers registered for Māori females were breast, lung, colorectal, cervical and uterine (Figure 7a). The leading causes of cancer death were lung, breast, colorectal, stomach and cervical (Figure 7b).

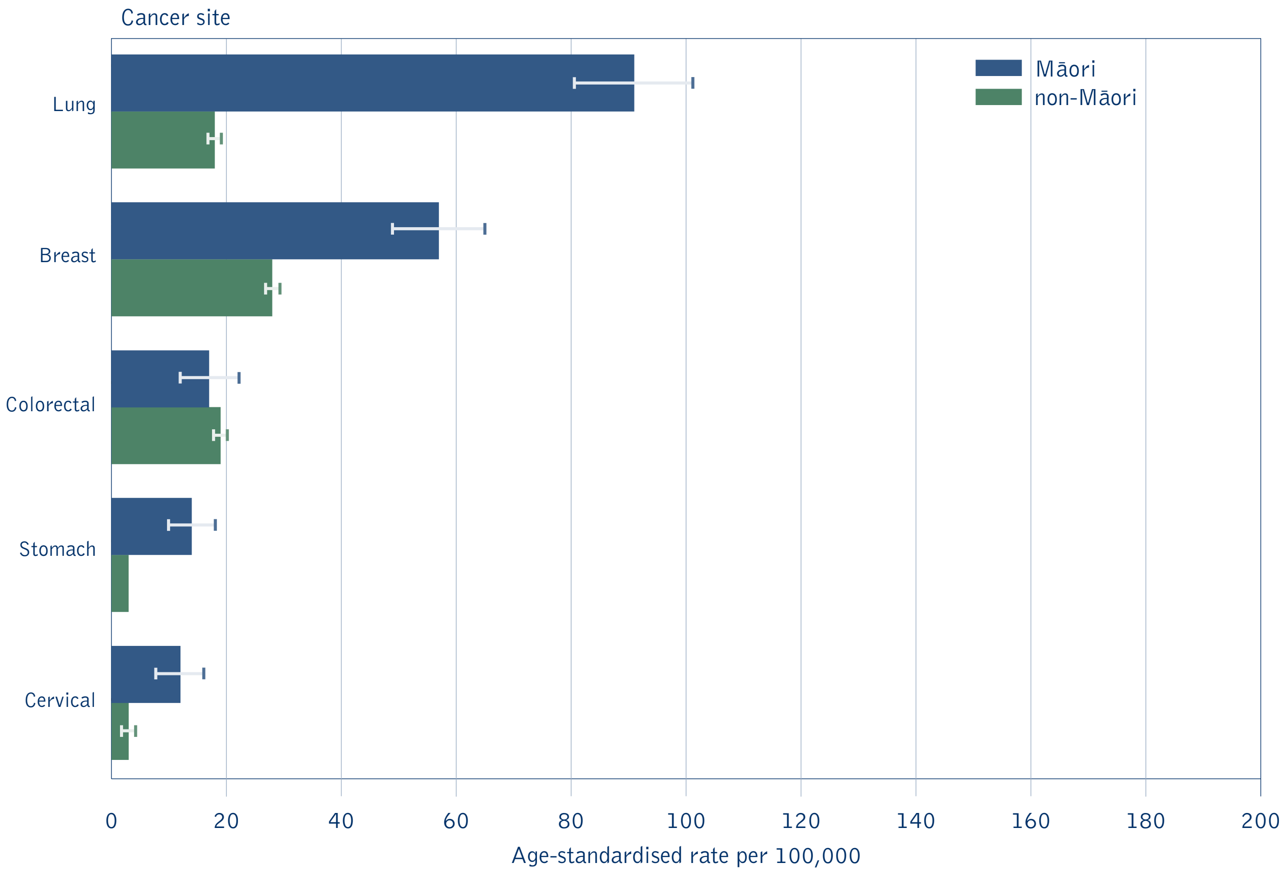
## Figure 7a: Female cancer registration (1999–2001) rates, by site, 25+ years



***Notes:*** *Age-s*
*information.*

***Source:*** *New Zealand Health Information Service*

## Figure 7b: Female mortality rates (2000–2002), by site, 25+ years



***Notes:*** *Age-s*
*information.*

***Source:*** *New Zealand Health Information Service*

Māori females had a breast cancer registration rate 1.3 times that of non-Māori females (RR 1.3, CI 1.2–1.4), but a breast cancer mortality rate twice that of non-Māori females (RR 2.0, CI 1.8–2.4). For cervical cancer, Māori females had a registration rate twice that of non-Māori (RR 1.9, CI 1.6–2.4), however, the mortality rate for Māori females was disproportionately higher at four times that of non-Māori females (RR 4.1, CI 2.9–5.8).

There are screening programmes for both breast and cervical cancer in New Zealand. For both these programmes, coverage rates are lower for Māori than for non-Māori. In 2002/03 the breast cancer screening coverage[5] rate was 44.3 percent for Māori females and 62.3 percent for all New Zealand females (University of Auckland 2004). In 1999–2001 the cervical screening coverage[6] rate for Māori females (50.9 percent) was lower than the New Zealand average for all females (72.7 percent) (University of Otago 2004).

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[5] *BreastS*
*While our results rela*
*The most recen*
*mammographic screening.*

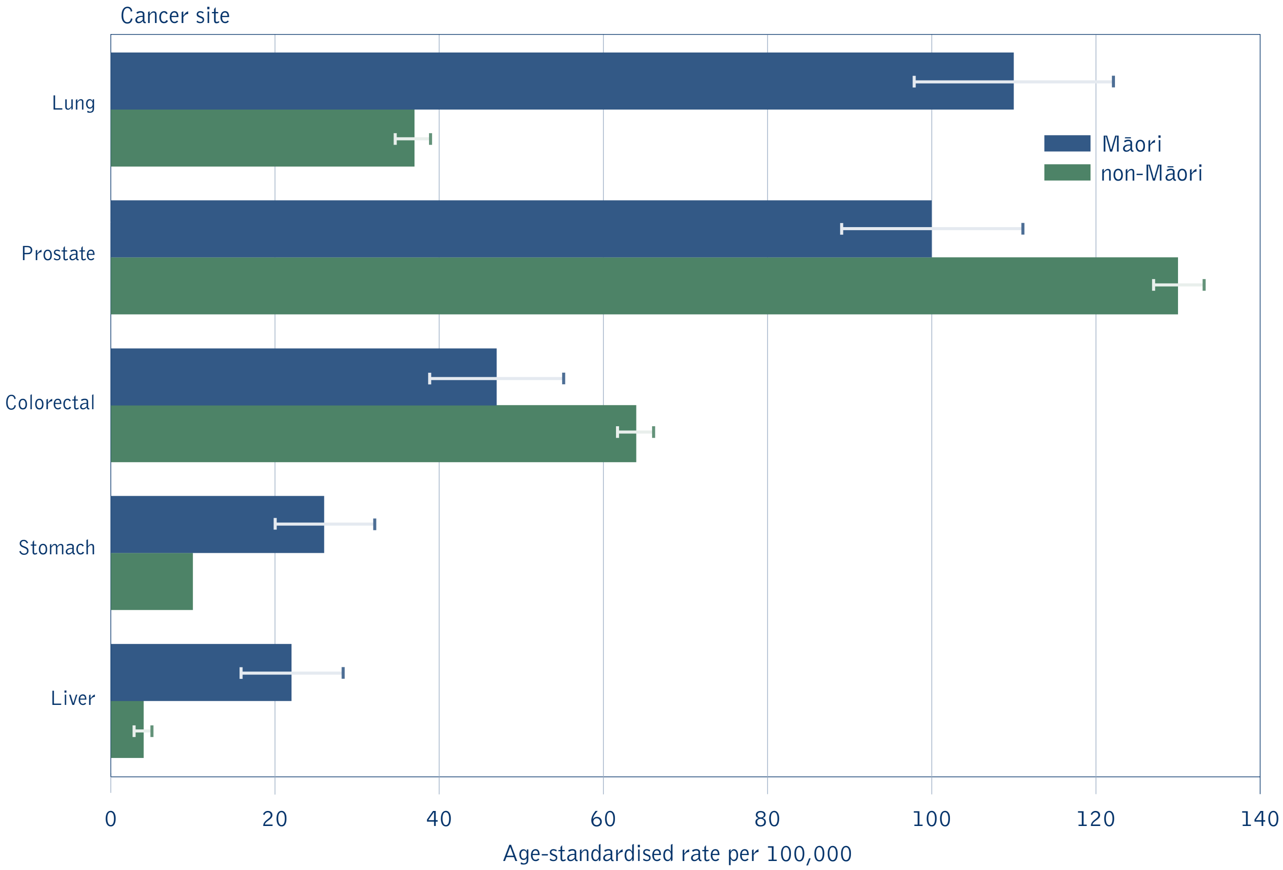
[6] *The Natio*
*cervical smear record*
*the recommended cervical screening interval.*

Māori females had a lung cancer registration rate four-and-a-half times that of non-Māori females (RR 4.6, CI 4.1–5.2). The relative disparity was slightly higher for lung cancer mortality, with Māori females having a rate five times that of non-Māori females (RR 5.0, CI 4.5–5.7).

Although Māori females had a significantly lower colorectal cancer registration rate than non-Māori females (RR 0.6, CI 0.5–0.7), colorectal cancer mortality rates were similar for both Māori and non-Māori females (RR 0.9, CI 0.7–1.2).

The most common cancer registration sites and causes of cancer death for adult Māori males were lung, prostate, colorectal, stomach and liver (Figure 8a and 8b).

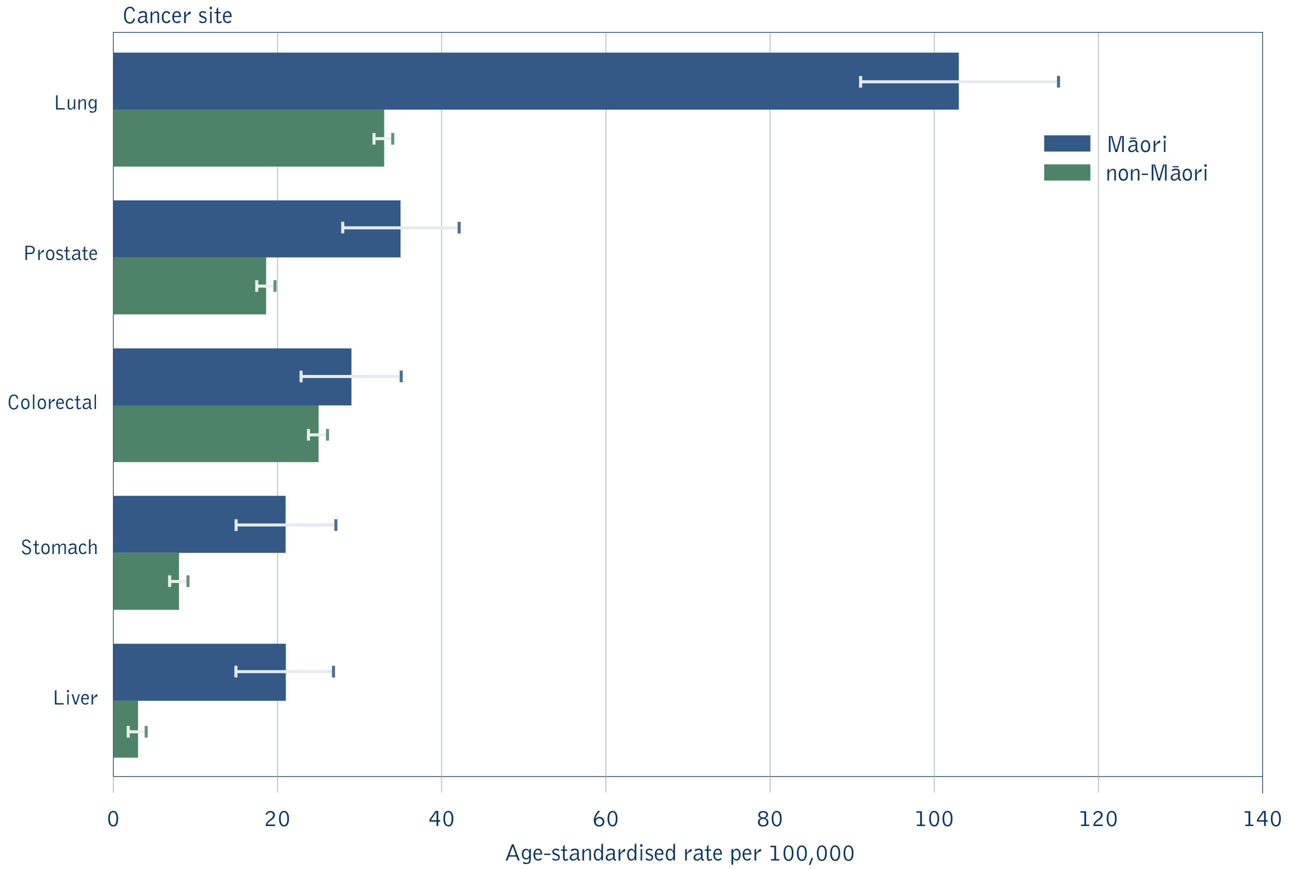
**Figure 8a: Male cancer registration rates (1999–2001), by site, 25+ years**



*Notes:* *Age-s information.*

*Source:* *New Zealand Health Information Service*

## Figure 8b: Male cancer mortality rates (1999–2002), by site, 25+ years



***Notes:*** *Age-s*
*information.*

***Source:*** *New Zealand Health Information Service*

Māori male lung cancer registration and mortality rates were three times those of non-Māori males (RR 3.2, CI 2.8–3.6 for mortality; RR 2.9, CI 2.6–3.3 for registration).

Although Māori males had a lower colorectal cancer registration rate than non-Māori (RR 0.7, CI 0.6–0.9), colorectal mortality rates for both Māori and non-Māori males were similar (RR 1.1, CI 0.9–1.4).

For Māori males, the liver cancer registration rate was five-and-a-half times that of non-Māori males (RR 5.5, CI 4.3–7.2), and the liver cancer mortality rate was six times that of non-Māori males (RR 6.3, CI 4.8–8.2).

Prostate cancer registration was lower for Māori males than for non-Māori males (RR 0.8, CI 0.7–0.9). However, Māori males had a prostate cancer mortality rate twice that of non-Māori males (RR 1.9, CI 1.6–2.3).

Rates of stomach cancer registration and mortality were almost three times higher for Māori males than for non-Māori males (RR 2.7, CI 2.13.4 for registration, RR 2.8, CI 2.2–3.6 for mortality).

For many cancers the rate ratio for Māori compared with non-Māori is higher for mortality rates than for registration rates. This suggests that Māori with cancer may be more likely to die from their cancer than non-Māori (see Jeffreys et al 2005; Cormack et al 2005).

## *Respiratory disease*

### Table 18: Asthma indicators

| Indicator | Māori |  |  | non-Māori |  |  |
|---|---|---|---|---|---|---|
|  | Males | Females | Total | Males | Females | Total |
| Asthma hospitalisation, 5–34 years, 2002–04, rate per 100,000 [1,2] * | 239.2<br>(225.2–254.0) | 302.2<br>(286.5–318.6) | 273.3<br>(262.6–284.3) | 129.6<br>(124.4–135.1) | 150.5<br>(145.1–156.2) | 140.6<br>(136.8–144.5) |
| Asthma, 15–45 years (self-reported), 2002/03, percent [1,3] ** | 19.0<br>(13.5–24.5) | 20.9<br>(17.5–24.3) | 24.5<br>(21.1–28.0) | 14.2<br>(11.7–16.8) | 18.1<br>(16.2–20.0) | 16.3<br>(14.6–17.9) |

*Notes:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[3] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

*Sources:*

* *New Zealand Health Information Service*

** *2002/03 New Zealand Health Survey*

Māori aged 5 to 34 years were twice as likely to be hospitalised for asthma as non-Māori (aged 5 to 34 years) (RR 1.9, CI 1.9–2.0). Māori aged 15 to 45 years reported an asthma prevalence rate one-and-a-half times that of non-Māori (aged 15 to 45 years) (RR 1.5, CI 1.2–1.8).

### Table 19: Chronic obstructive pulmonary disease (COPD) indicators

| Indicator | Māori |  |  | non-Māori |  |  |
|---|---|---|---|---|---|---|
|  | Males | Females | Total | Males | Females | Total |
| COPD hospitalisation, 45+ years, 2002–04, rate per 100,000 [1,2] * | 1534.5<br>(1465.5–1605.9) | 1893.4<br>(1821.9–1967.0) | 1717.9<br>(1668.1–1768.9) | 440.2<br>(432.3–448.2) | 390.7<br>(383.5–398.0) | 408.2<br>(402.9–413.5) |
| COPD mortality, 45+ years, 2000–02, rate per 100,000 [1,2] * | 195.9<br>(171.2–223.1) | 174.1<br>(153.1–197.1) | 181.2<br>(165.3–198.2) | 73.2<br>(70.3–76.2) | 45.0<br>(43.1–47.1) | 56.3<br>(54.7–58.0) |

*Notes:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Ever-Māori ethnic group – see Methods section for further information.*

*Source:* * *New Zealand Health Information Service*

Māori aged 45 years or more had a COPD hospitalisation rate four times that of non-Māori aged 45 years or more (RR 4.2, CI 4.1–4.3). The relative inequality was greatest for females: Māori females had a COPD hospitalisation rate almost five times that of non-Māori females (RR 4.8, CI 4.6–5.1). COPD mortality rates were over three times higher for Māori aged 45 years or more than for non-Māori aged 45 years or more (RR 3.2, CI 2.9–3.5). Again, the ethnic disparity is greatest for females.

## Diabetes

### Table 20: Diabetes indicators

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Diabetes prevalence (self-reported), 15+ years, 2002/03, percent [1,2] * | 6.9<br>(4.4–9.3) | 5.1<br>(3.3–7.0) | 6.2<br>(4.7–7.6) | 2.6<br>(2.1–3.2) | 2.1<br>(1.7–2.6) | 2.4<br>(2.0–2.7) |
| Diabetes complications – renal failure with concurrent diabetes, 15+ years, 2002–04, rate per 100,000 [1,3] * | 96.5<br>(87.8–105.9) | 72.8<br>(65.7–80.5) | 83.9<br>(78.3–89.8) | 10.4<br>(9.6–11.2) | 7.7<br>(7.0–8.4) | 9.0<br>(8.5–9.5) |
| Diabetes complications – lower limb amputation with concurrent diabetes, 15+ years, 2002–04, rate per 100,000 [1,3] ** | 43.0<br>(37.2–49.4) | 24.2<br>(20.2–28.8) | 33.1<br>(29.6–36.9) | 10.2<br>(9.5–10.9) | 3.5<br>(3.1–3.9) | 6.7<br>(6.3–7.0) |

*Notes:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[3] *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

*Sources:*

* *2002/03 New Zealand Health Survey*

** *New Zealand Health Information Service*

The self-reported prevalence of diabetes was two-and-a-half times higher among Māori than among non-Māori (RR 2.6, CI 1.9–3.2). However, ethnic disparities for diabetes complications (renal failure and lower limb amputations) are disproportionately higher than for prevalence.

Population rates of renal failure with concurrent diabetes (aged 15+) were 9.4 times higher in Māori compared with non-Māori (RR 9.4, CI 8.6–10.2). While some of this difference can be attributed to the higher prevalence of diabetes among Māori, the disproportionately higher rate would suggest that Māori with diabetes are more likely to have renal failure than non-Māori with diabetes. This can be estimated by dividing the relative risk of renal failure by the relative risk of prevalence (ie, 9.4 ÷ 2.6), which suggests that *among people with diabetes,* Māori are three-and-a-half times more likely to have renal failure than non-Māori.

Similarly, population rates of lower limb amputation with concurrent diabetes were five times higher for Māori compared with non-Māori (RR 5.0, CI 4.4–5.6). Therefore, *among people with diabetes,* lower limb amputations for Māori can be estimated as occurring at nearly twice the rate of non-Māori (ie, 5.0 ÷ 2.6).

### Table 21: Get Checked Programme indicators, 2004

| | Māori | non-Māori |
|---|---|---|
| Access to Get Checked Programme as a percentage of people estimated to have diagnosed diabetes * | 36.9 | 65.5 |
| Effectiveness (HbA1c less than or equal to 8% as a percentage of all accessing Get Checked) * | 59.7 | 73.2 |

***Notes:*** *Crude percenta*
*section for further info*
*and number accessing the programme in 2004 as the numerator.*

***Source:***
** Get Checked Programme, Ministry of Health*

The Get Checked Programme was launched in June 2000 and aims to improve the health of people with diabetes through regular free checks of the person’s physical health, life style, and management of the disease.

Access to the Get Checked Programme was lower for Māori compared with non-Māori with diabetes (37 percent of Māori, 66 percent of non-Māori, estimated by modelling) (Table 21). Once on the programme, Māori received similar access to recommended testing such as blood glucose, retinal screening and blood pressure. However, the effectiveness of the programme, as assessed by an HbA1c less than or equal to 8 percent, appears better for non-Māori than for Māori.

## Infectious disease

### Table 22: Meningococcal disease notification rates, by age group

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Meningococcal disease notifications, 0–4 years, 2001–03, rate per 100,000 [1,2] * | 192.8<br>(167.0–221.5) | 116.8<br>(96.4–140.2) | 155.8<br>(139.0–174.0) | 74.8<br>(65.5–85.1) | 57.1<br>(48.8–66.4) | 66.2<br>(59.8–72.9) |
| Meningococcal disease notifications, 5–19 years, 2001–03, rate per 100,000 [1,2] * | 33.4<br>(26.9–41.0) | 26.2<br>(20.4–33.2) | 29.9<br>(25.4–34.9) | 24.6<br>(21.6–27.8) | 22.6<br>(19.7–25.8) | 23.6<br>(21.5–25.8) |
| Meningococcal disease notifications, 20+ years, 2001–03, rate per 100,000 [1,2] * | 7.1<br>(4.7–10.2) | 8.6<br>(6.1–11.7) | 7.9<br>(6.1–10.0) | 4.8<br>(4.1–5.6) | 4.3<br>(3.6–5.0) | 4.5<br>(4.1–5.1) |

*Notes:*

[1] *Crude age-specific rate.*

[2] *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

*Source:*

** Environmental Science and Research Ltd*

For all age groups, meningococcal disease notifications were higher in Māori than in non-Māori. The greatest disparity was in infants (RR 2.4, CI 2.0–2.7), followed by those aged 20 years and over (RR 1.7, CI 1.3–2.3), and then those aged 5–19 years (RR 1.3, CI 1.1–1.5).

The Meningococcal (MeNZB$^{TM}$) Vaccine Strategy commenced in June 2004 and is part of a range of initiatives to prevent and control meningococcal disease. The vaccine is free to people aged under 20 years (see http://www.immunise.moh.govt.nz/MeNZB.html).

**Table 23: Other infectious disease indicators**

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Tuberculosis notifications, 2001–03, rate per 100,000[1,2] * | 12.5<br>(10.1–15.3) | 10.9<br>(8.7–13.4) | 11.6<br>(10.0–13.4) | 9.7<br>(8.8–10.6) | 9.9<br>(9.1–10.9) | 9.8<br>(9.2–10.4) |
| Rheumatic fever notifications, 2001–03, rate per 100,000[1,2] * | 10.6<br>(8.5–13.1) | 7.7<br>(5.9–9.9) | 9.2<br>(7.8–10.8) | 1.9<br>(1.5–2.5) | 1.8<br>(1.3–2.3) | 1.9<br>(1.5–2.2) |

*Notes:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

*Source:*
** Environmental Science and Research Ltd*

Māori and non-Māori had similar rates of tuberculosis notification.

Rheumatic fever notifications were five times higher for Māori than for non-Māori (RR 4.9, CI 3.9–6.3). As noted previously, hospitalisations and mortality for rheumatic heart disease were higher for Māori than for non-Māori (see cardiovascular disease section, page 36).

Up-to-date coverage information on the Childhood Immunisation Schedule is currently unavailable. However, data from the National Childhood (2–3 years) Immunisation Survey, conducted between January and March 2005, will be available in 2006.

## *Suicide and intentional self-harm*

### Table 24: Intentional self-harm indicators

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Intentional self-harm hospitalisation, all age groups, 2002–04, rate per 100,000 [1,2] * | 74.6<br>(68.6–81.0) | 115.0<br>(107.8–122.6) | 95.3<br>(90.6–100.3) | 49.9<br>(47.9–51.9) | 115.8<br>(112.8–118.9) | 83.1<br>(81.3–84.9) |
| Intentional self-harm hospitalisation, 15–24 years, 2002–04, rate per 100,000 [1,2] * | 149.7<br>(129.7–171.9) | 244.5<br>(219.3–271.8) | 197.7<br>(181.4–215.0) | 93.9<br>(86.5–101.8) | 271.9<br>(259.0–285.3) | 181.7<br>(174.3–189.4) |
| Intentional self-harm hospitalisation, 25–44 years, 2002–04, rate per 100,000 [1,2] * | 132.1<br>(117.0–148.5) | 179.1<br>(162.6–196.8) | 157.1<br>(145.7–169.0) | 87.5<br>(82.6–92.6) | 174.6<br>(168.0–181.5) | 132.7<br>(128.5–137.0) |
| Intentional self-harm hospitalisation, 45–64 years, 2002-04, rate per 100,000 [1,2] * | 57.5<br>(43.6–74.3) | 92.7<br>(75.4–112.7) | 75.7<br>(64.3–88.4) | 50.2<br>(46.0–54.6) | 89.2<br>(83.7–94.9) | 69.9<br>(66.4–73.5) |

*Notes:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

*Source:*

* *New Zealand Health Information Service*

Both Māori and non-Māori females had similar rates of hospitalisation for intentional self-harm (RR 1.0, CI 0.9–1.1). However, Māori males were one–and-a-half times more likely to be hospitalised for intentional self-harm than non-Māori males (RR 1.5, CI 1.4–1.6).

For all age groups, Māori males had significantly higher rates of hospitalisation for intentional self-harm than non-Māori males. For both Māori and non-Māori, young people (15–24 years) had the highest rate of hospitalisation for intentional self-harm.

## Table 25: Suicide indicators

| Indicator | Māori |  |  | non-Māori |  |  |
|---|---|---|---|---|---|---|
|  | Males | Females | Total | Males | Females | Total |
| Suicide mortality, all age groups, 2000–02, rate per 100,000 [1,2] * | 27.1<br>(23.5–31.1) | 6.9<br>(5.3–9.0) | 16.5<br>(14.5–18.6) | 16.3<br>(15.2–17.4) | 4.4<br>(3.9–5.0) | 10.2<br>(9.6–10.8) |
| Suicide mortality, 15–24 years, 2000–02, rate per 100,000 [1,2] * | 53.8<br>(42.1–67.7) | 17.2<br>(11.0–25.6) | 34.9<br>(28.3–42.6) | 24.8<br>(21.1–29.0) | 7.2<br>(5.2–9.6) | 16.0<br>(13.9–18.4) |
| Suicide mortality, 25–44 years, 2000–02, rate per 100,000 [1,2] * | 50.9<br>(41.7–61.5) | 12.0<br>(8.0–17.2) | 30.1<br>(25.2–35.6) | 30.3<br>(27.4–33.3) | 7.4<br>(6.1–8.9) | 18.4<br>(16.8–20.0) |
| Suicide mortality, 45–64 years, 2000–02, rate per 100,000 [1,2] * | 19.8<br>(12.1–30.6) | –[3] | 11.0<br>(7.0–16.5) | 18.8<br>(16.3–21.5) | 6.2<br>(4.9–7.9) | 12.4<br>(11.0–14.0) |

*Notes:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[3] *Data have not been presented for counts less than 5.*

*Source:*

* *New Zealand Health Information Service*

Māori had higher suicide mortality rates than non-Māori (RR 1.6, CI 1.4–1.9), and males of both ethnicities had significantly higher suicide mortality rates than their female counterparts. For Māori, the age group with the highest suicide rate was young people (aged 15 to 24 years). For non-Māori, adults aged 25 to 44 years had the highest suicide rate.

## *Mental health*

### Table 26: Mental health indicators

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Serious mental disorders (self-reported), 15+ years, percent [1,2 3] * | 2.2<br>(0.7–3.6) | 2.0<br>(1.1–2.9) | 2.1<br>(1.3–3.0) | 2.0<br>(1.3–2.8) | 3.1<br>(2.4–3.9) | 2.6<br>(2.1–3.1) |
| Dual alcohol (potentially hazardous drinking pattern) or drug (monthly marijuana user) and serious mental disorder (self-reported), 15+ years, percent [1,2,4] * | 1.1<br>(0.0–2.3) | 0.8<br>(0.1–1.6) | 1.0<br>(0.3–1.6) | 0.8<br>(0.2–1.3) | 1.0<br>(0.5–1.5) | 0.9<br>(0.5–1.3) |

*Notes:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[3] *'Serious mental disorders' include depressive disorder, bipolar disorder and schizophrenia.*

[4] *'Potentially hazardous drin*
*has not yet resulted in significant medical or psychiatric effects. Potentially hazardous drinking is defined by an Alcohol Use Disorder Identification Test (AUDIT) score greater than or equal to 8 (out of 40).*

*Source:*

* *2002/03 New Zealand Health Survey*

Both Māori and non-Māori adults had similar prevalences of self-reported serious mental disorders. The prevalence of having a serious mental disorder and either potentially hazardous drinking or regular marijuana use was also similar for Māori and non-Māori.

Reliable estimates of the prevalence of psychiatric morbidity (eg, anxiety and depressive disorders) in the New Zealand population are currently unavailable. The national *Mental Health and Wellbeing Survey, Te Rau Hinengaro,* will provide such data in the future.

## *Interpersonal violence*

### Table 27: Interpersonal violence indicators

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Assault & homicide mortality, 2000–02, rate per 100,000 [1,2] * | 4.9<br>(3.4–6.7) | 3.1<br>(2.1–4.6) | 4.0<br>(3.1–5.1) | 1.4<br>(1.1–1.7) | 1.1<br>(0.8–1.4) | 1.2<br>(1.0–1.4) |
| Assault & homicide hospitalisations, 2002–04, rate per 100,000 [1,2] * | 288.4<br>(276.4–300.8) | 123.2<br>(115.8–131.1) | 202.4<br>(195.5–209.6) | 110.0<br>(106.8–113.2) | 23.5<br>(22.1–25.0) | 66.3<br>(64.6–68.1) |
| Bullied at school (self-reported), 13–17 years, percent [3,4] ** | 7.5<br>(5.9–9.1) | 5.9<br>(4.6–7.3) | –[5] | 10.1<br>(9.0–11.1) | 5.1<br>(4.4–5.8) | –[5] |
| Feel safe at school (self-reported), 13–17 years, percent [3,4] ** | 76.8<br>(74.3–79.4) | 74.8<br>(72.4–77.3) | –[5] | 77.8<br>(76.3–79.2) | 80.5<br>(79.2–81.7) | –[5] |

*Notes:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[3] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[4] *Adjusted for sampling design but not age.*

[5] *Total results not provided.*

*Sources:*

* *New Zealand Health Information Service*

** *Youth 2000 Survey*

Māori adults were more likely than non-Māori adults to suffer adverse health effects as the victims of violence. Mortality rates from assault and homicide were three times higher for Māori than for non-Māori (RR 3.3, CI 2.5–4.5).

Māori hospitalisation rates as the result of assault or attempted homicide were higher than those for non-Māori for both males and females. The disparity is largest for females: Māori females had an assault and homicide hospitalisation rate more than five times higher than that of non-Māori females (RR 5.2, CI 4.8– 5.7).

The association between bullying and gender is different for Māori and non-Māori. There were no significant differences between Māori males and females in terms of feeling unsafe or being bullied at school, but non-Māori males were more likely to be bullied and feel unsafe than non-Māori females.

## *Oral health*

### Table 28: Oral health indicators: 1

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Been to dentist in previous year (self-reported), 15+ years, 2002/03, percent [1,2] * | 28.5<br>(23.8–33.2) | 29.0<br>(25.3–32.8) | 28.4<br>(25.4–31.4) | 38.0<br>(36.0–40.0) | 47.9<br>(45.7–50.1) | 43.1<br>(41.5–44.8) |

*Notes:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

*Source:*

** 2002/03 New Zealand Health Survey*

Māori adults were less likely than non-Māori adults to have visited a dentist in the previous year (RR 0.7, CI 0.6–0.7).

### Table 29: Oral health indicators: 2

| Indicator | Māori | | Total NZ | |
|---|---|---|---|---|
| | Fluoridated supply | Non-fluoridated supply | Fluoridated supply | Non-fluoridated supply |
| Mean no. of missing or filled teeth at 5 years, 2003 [1,2] * | 3.0 | 4.9 | 1.5 | 2.6 |
| Caries-free at 5 years, 2003, percent [1,2] * | 42.2 | 23.8 | 61.7 | 45.4 |
| Mean no. of missing or filled teeth at Year 8, 2003 [1,2] * | 1.9 | 2.7 | 1.4 | 1.8 |
| Caries-free at Year 8, 2003, percent [1,2] * | 37.0 | 27.7 | 51.7 | 39.6 |

*Notes:*

[1] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[2] *Non-Māori figures not available.*

*Source:*

** School Dental Services*

At school entry (age five years), Māori children had a higher mean number of missing or filled teeth than the New Zealand average, and were less likely to be caries-free. This is the case in both fluoridated and non-fluoridated water supplies.

The disparity was greatest at age five years. There was some reduction in disparity by Year 8, although Māori children still had a higher mean number of missing and filled teeth than the New Zealand average, and were less likely to be caries-free.

## *Infant health*

### Table 30: Infant health indicators

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Low birthweight, 2000–02, age-specific rate per 1000 live births [1,2] * | 56.6<br>(53.5–59.9) | 62.7<br>(59.3–66.2) | 59.5<br>(57.2–61.9) | 57.6<br>(55.7–59.5) | 66.5<br>(64.4–68.6) | 61.9<br>(60.6–63.4) |
| Infant mortality rate, 2000–02, age-specific rate per 1000 live births [1,3] * | 10.8<br>(9.5–12.3) | 9.4<br>(8.1–10.8) | 10.1<br>(9.2–11.2) | 5.3<br>(4.7–5.9) | 4.2<br>(3.7–4.8) | 4.8<br>(4.4–5.2) |
| Sudden infant death syndrome (SIDS) mortality, 2000–02, rate per 1000 [1,4] * | 2.6<br>(2.0–3.3) | 1.8<br>(1.3–2.4) | 2.2<br>(1.8–2.6) | 0.6<br>(0.4–0.8) | 0.3<br>(0.2–0.4) | 0.4<br>(0.3–0.6) |
| Breastfeeding (exclusive and full) at 3 months, 2003/04 percent [5,6,7] ** | – | – | 46 | – | – | 59 |
| Breastfeeding (exclusive and full) at 6 months, 2003/04, percent [5,6,7] ** | – | – | 17 | – | – | 27 |

*Notes:*

[1] *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[2] *Low birthweight is defined as less than 2500 grams.*

[3] *'Infant mortality' includes early neonatal deaths, late neonatal deaths, and post-neonatal deaths.*

[4] *'Data from recent y*
*post-neonatal deaths s*
*discounted as a factor' (Ministry of Health 2000: 1415).*

[5] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

[6] *Plunket data years presented are July 2003 – June 2004. Gender breakdown and confidence intervals unavailable. Relies on the proportion of Māori babies born in 2004 relative to the total number of babies born to calculate non-Māori (0.28).*

[7] *Exclusive breastfeeding*
*Full breastfeeding means the*
*in the past 48 hours.*

*Sources:*

* *New Zealand Health Information Service*
** *Royal New Zealand Plunket Society*

The prevalences of low birthweight were similar for Māori and non-Māori (RR 1.0, CI 0.9–1.0). The Māori infant mortality rate was one-and-a-half times that of non-Māori (RR 1.7, CI 1.5–1.9).

The sudden infant death syndrome (SIDS) mortality rate was five times higher among Māori infants than among non-Māori infants (RR 5.1, CI 3.7–7.2). This disparity was greatest for female infants, where the SIDS mortality rate was six-and-a-half times higher in Māori than in non-Māori (RR 6.5, CI 3.7–11.6).

Breastfeeding at three or six months of age was lower in Māori than in non-Māori babies.

## *Hearing*

### Table 31: Hearing indicators

| Indicator | Māori | | | Total population (non-Māori unavailable) | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Hearing failure rate at school entry, 2003/04, percent | – | – | 9.9 | – | – | 6.5 |

**Note:** *Gender breakdown and non-Māori rates unavailable.*

Source: *National Audiology*

Hearing failure rates on school entry hearing tests were higher in Māori children than in the total population.

## *Unintentional injury*

### Table 32: Unintentional injury indicators

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| All unintentional injury hospitalisation, 0–14 years, 2002–04, rate per 100,000[1,2] * | 2536.2<br>(2479.7–2593.6) | 1793.4<br>(1744.7–1843.0) | 2173.0<br>(2135.5–2210.9) | 2225.3<br>(2196.2–2254.8) | 1538.9<br>(1513.9–1564.2) | 1891.0<br>(1871.7–1910.4) |
| All unintentional injury hospitalisation, 2002–04, 15–64 years, rate per 100,000[1,2] * | 3652.0<br>(3596.2–3708.4) | 2244.5<br>(2202.7–2286.8) | 2916.8<br>(2882.3–2951.6) | 2421.1<br>(2404.0–2438.3) | 1442.9<br>(1430.4–1455.4) | 1925.3<br>(1914.8–1935.9) |
| All unintentional injury hospitalisation, 65+ years, 2002–04, rate per 100,000[1,2] * | 9561.0<br>(9173.7–9960.4) | 7755.5<br>(7441.0–8079.9) | 8591.9<br>(8344.9–8844.3) | 6557.1<br>(6494.9–6619.8) | 5575.3<br>(5528.1–5622.7) | 6024.6<br>(5986.5–6062.8) |
| All unintentional injury mortality, 0–14 years, 2000–02, rate per 100,000[1,2] * | 20.2<br>(15.4–25.9) | 16.1<br>(11.8–21.4) | 18.2<br>(14.9–21.9) | 11.4<br>(9.4–13.7) | 6.2<br>(4.7–8.1) | 8.9<br>(7.6–10.3) |
| All unintentional injury mortality, 15–64 years, 2000–02, rate per 100,000[1,2] * | 74.6<br>(66.8–83.1) | 24.5<br>(20.3–29.3) | 48.4<br>(44.0–53.1) | 35.8<br>(33.7–38.1) | 9.6<br>(8.5–10.7) | 22.5<br>(21.3–23.7) |
| All unintentional injury mortality, 65+ years, 2000–02, rate per 100,000[1,2] * | 88.9<br>(55.0–135.9) | 100.1<br>(67.5–142.9) | 95.4<br>(71.1–125.5) | 69.2<br>(63.2–75.6) | 43.2<br>(39.9–46.8) | 55.0<br>(51.8–58.3) |

*Notes:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

*Source:*

* *New Zealand Health Information Service*

Māori children had a slightly higher unintentional injury hospitalisation rate than non-Māori children (RR 1.1, CI 1.1–1.2), and an unintentional injury mortality rate twice that of non-Māori children (RR 2.0, CI 1.6–2.6).

Māori adults in both age groups (15–64 and 65+ years) had unintentional injury hospitalisation rates one-and-a-half times those of non-Māori adults. For adults aged 15 to 64 years, Māori had an unintentional injury mortality rate twice that of non-Māori (RR 2.2, CI 1.9–2.4). For older adults aged 65 years or more, Māori had a mortality rate 1.7 times the non-Māori rate (RR 1.7, CI 1.3–2.3).

**Table 33: Top three unintentional injury mortality categories, by age group, ranked by counts, 2000–02**

| | Māori | non-Māori |
|---|---|---|
| **Males** | 0–14 years<br>Suffocation<br>Motor vehicle traffic<br>Drowning | 0–14 years<br>Motor vehicle traffic<br>Drowning<br>Suffocation |
| | 15–64 years<br>Motor vehicle traffic<br>Drowning<br>Fall | 15–64 years<br>Motor vehicle traffic<br>Fall<br>Drowning |
| | 65+ years<br>Motor vehicle traffic<br>Fall<br>Other transport, Fire/hot object or substance | 65+ years<br>Fall<br>Motor vehicle traffic<br>Suffocation |
| **Females** | 0–14 years<br>Motor vehicle traffic<br>Suffocation<br>Drowning | 0–14 years<br>Motor vehicle traffic<br>Suffocation<br>Drowning |
| | 15–64 years<br>Motor vehicle traffic<br>Poisoning<br>Fire/hot object or substance | 15–64 years<br>Motor vehicle traffic<br>Poisoning<br>Fall |
| | 65+ years<br>Fall<br>Motor vehicle traffic<br>Struck by/against | 65+ years<br>Fall<br>Motor vehicle traffic<br>Fire/hot object or substance |

**Note:** *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

**Source:** *New Zealand Health Information Service*

The three most common causes of unintentional injury mortality differ by age group, gender and ethnicity. Motor vehicle traffic was, for all groups, a common cause of unintentional injury causing death. Falls were a common cause of unintentional injury mortality for people aged 15 years or more, and were one of the top three causes of injury resulting in hospitalisation for all groups regardless of age, gender or ethnicity.

# Ngā ratonga hauora kua mahia tūtohu: Health service utilisation

This section presents indicators based around the utilisation of health services with a focus on primary health care providers, which are a person's first point of contact with the health system. The indicators presented here are based around; usual health practitioners, general practitioners, Māori health providers, and an indicator on prescriptions.

## *Usual health practitioner*

**Table 34: Primary health service utilisation indicators**

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | Males | Females | Total | Males | Females | Total |
| Having a usual health practitioner (self-reported), 15+ years, 2002/03, percent [1,2] * | 88.9<br>(85.1–92.6) | 94.4<br>(92.2–96.5) | 91.7<br>(89.4–94.0) | 88.1<br>(86.2–90.0) | 95.4<br>(94.3–96.4) | 91.8<br>(90.7–92.9) |
| Usual health practitioner is GP or family doctor (self-reported), 15+ years, 2002/03, percent [1,2] * | 96.5<br>(93.8–99.1) | 93.4<br>(90.4–96.4) | 94.9<br>(93.1–96.8) | 96.8<br>(95.7–97.8) | 96.8<br>(95.9–97.6) | 96.8<br>(96.1–97.5) |

*Notes:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

*Source:*

** 2002/03 New Zealand Health Survey*

Māori adults were as likely as non-Māori adults to report having a usual health practitioner (RR 1.0, CI 1.0–1.0). For both Māori and non-Māori, the most common type of usual health practitioner was a GP or family doctor. Other types of carer are not presented here, because the numbers of people with other usual carers were too small to produce reliable estimates.

## *General practitioners*

### Table 35: General practitioner (GP) indicators

| Indicator | Māori |  |  | non-Māori |  |  |
|---|---|---|---|---|---|---|
|  | Males | Females | Total | Males | Females | Total |
| Seen a GP in the last 12 months (self-reported), 15+ years, percent [1,2] * | 64.4<br>(59.0–69.7) | 81.5<br>(77.9–85.0) | 73.8<br>(71.0–76.6) | 74.0<br>(71.9–76.1) | 84.5<br>(82.8–86.1) | 79.3<br>(78.0–80.7) |
| Unmet need for GP in last 12 months (self-reported), 15+ years, percent [1,2] * | 16.6<br>(12.4–20.9) | 23.6<br>(19.4–27.8) | 20.1<br>(17.3–23.0) | 10.9<br>(8.9–12.9) | 13.6<br>(12.0–15.3) | 12.2<br>(11.0–13.5) |

*Notes:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

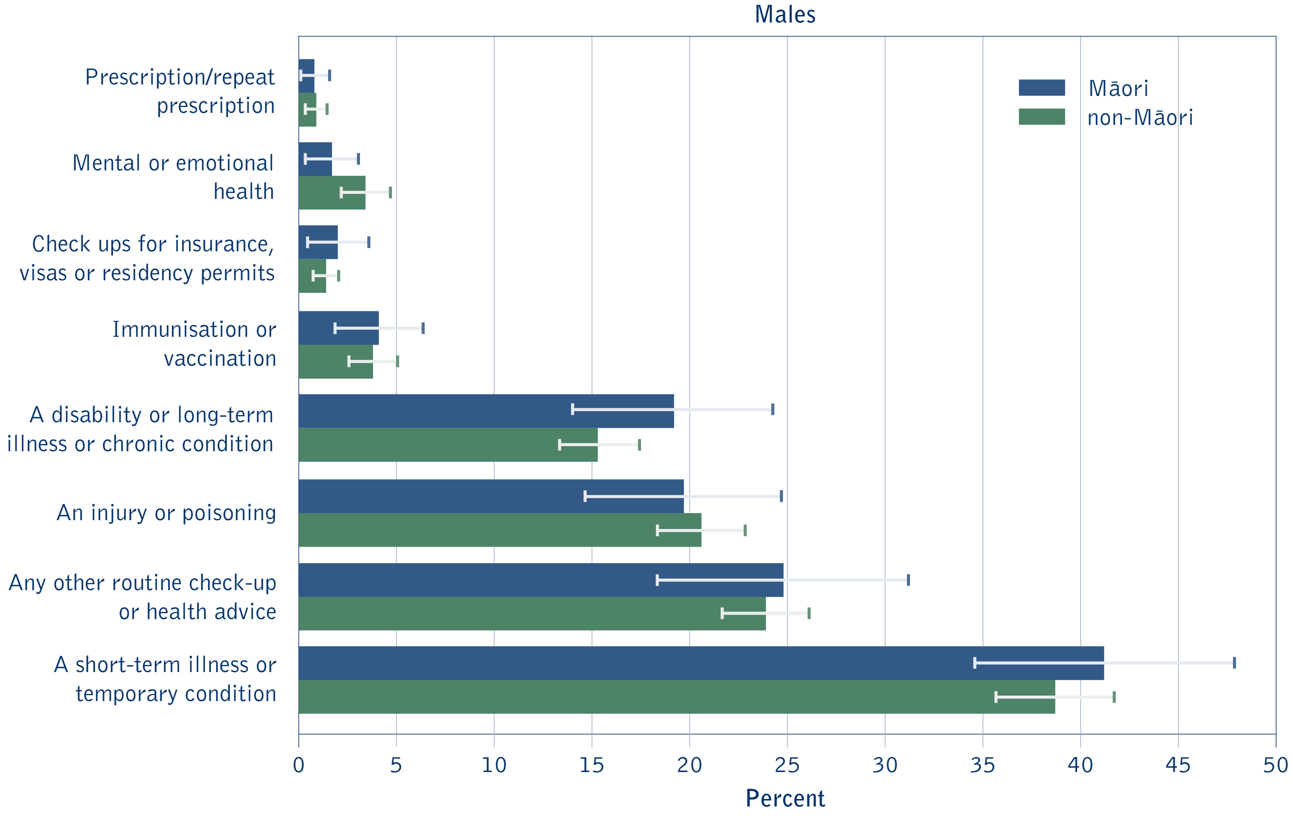
*Source:*

** 2002/03 New Zealand Health Survey*

Māori males were significantly less likely to have seen a general practitioner (GP) in the last 12 months than non-Māori males (RR 0.9, CI 0.8–0.9). Males in both ethnic groups were significantly less likely to have seen a GP than females.

For both Māori and non-Māori, the most common reasons for visiting a GP were short-term illness, routine check-up and disability or chronic illness (Figures 9 and 10). Injury or poisoning was also a common reason for both Māori and non-Māori males.

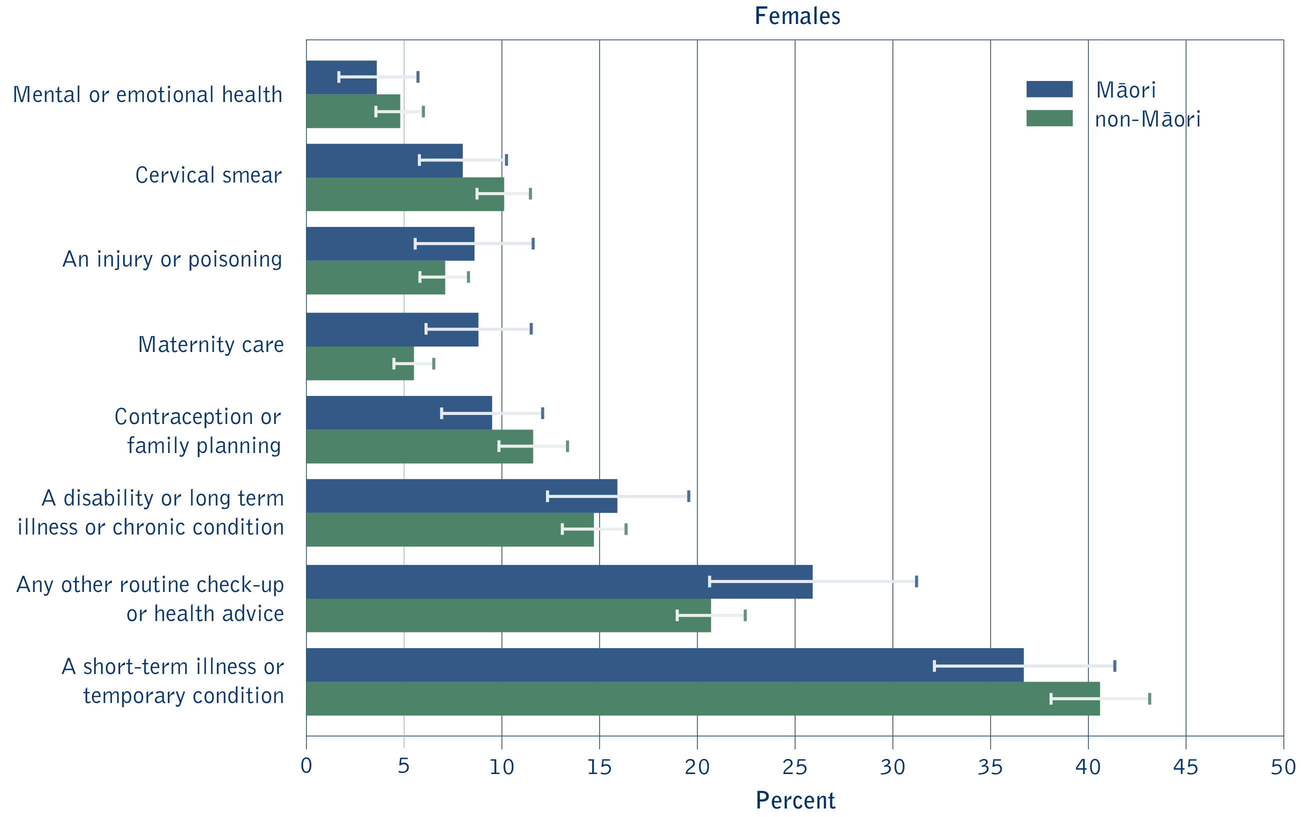
**Figure 9: Top eight reasons for visiting GP in last 12 months, males, 15+ years**



***Notes:*** *Age-standard information.*

***Source:*** *2002/03 New Zealand Health Survey*

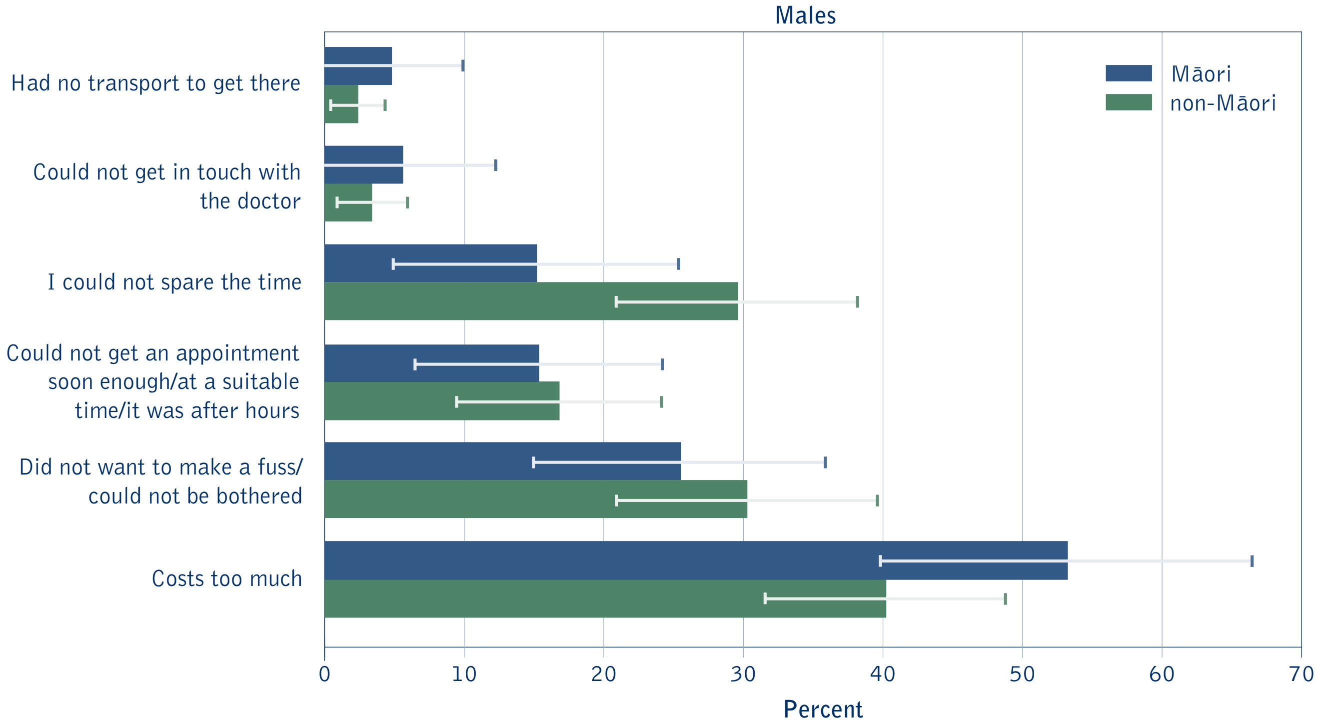
## Figure 10: Top eight reasons for visiting GP in last 12 months, females, 15+ years



***Notes:*** *Age-standard information.*

***Source:*** *2002/03 New Zealand Health Survey*

## Figure 11: Top six reasons for not seeing GP when needed to, males, 15+ years



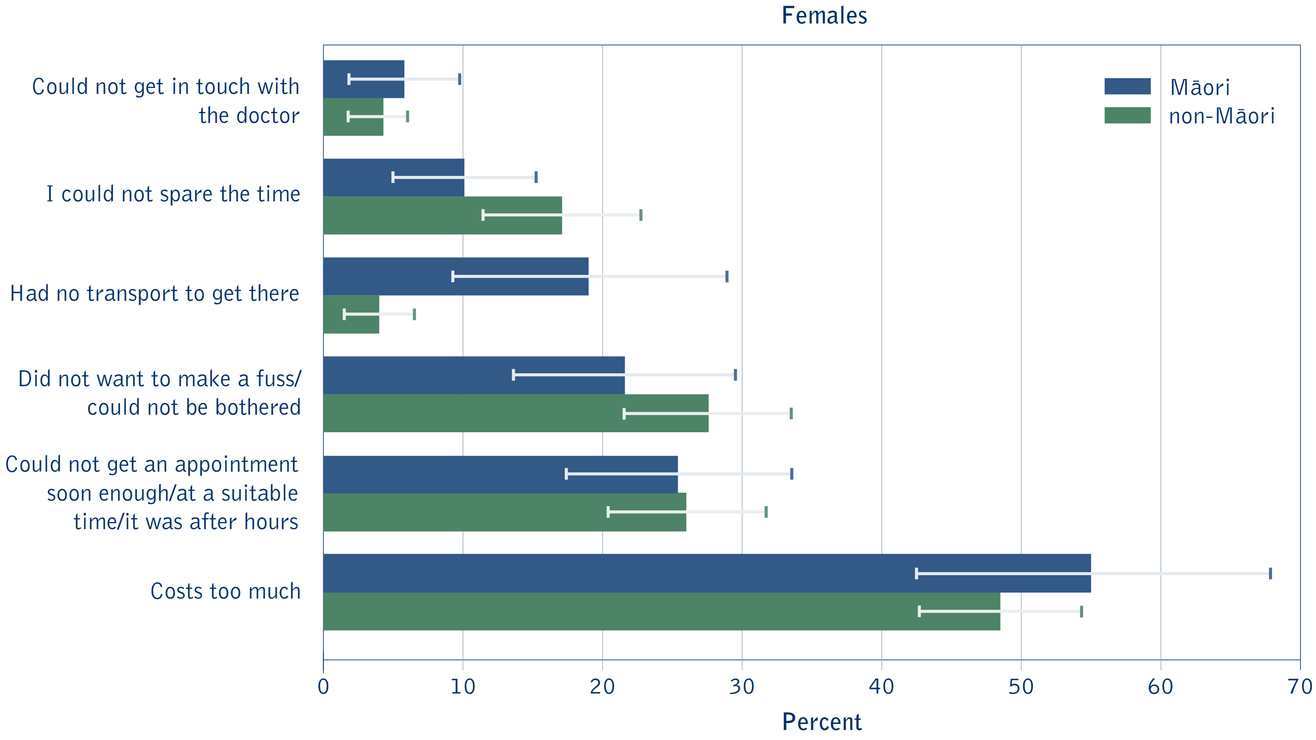
***Notes:*** *Age-standard information.*

***Source:*** *2002/03 New Zealand Health Survey*

Cost was the main reason given by both Māori and non-Māori for not visiting a GP when they needed to (Figure 11 and Figure 12). However, the impact of cost may well be greater for Māori, who report higher levels of unmet need (Table 35). Māori females were more than one-and-a-half times more likely to have an unmet need for a GP than non-Māori females (RR 1.7 CI 1.4–2.1). In addition, lack of transport was significantly more likely to be a barrier for Māori females than for non-Māori females (Figure 12).

The level of satisfaction with GPs was high among both genders and ethnicities: 90.7 percent of Māori adults and 92.3 percent of non-Māori adults reported they were either satisfied or very satisfied with their GP.

## Figure 12: Top six reasons for not seeing GP when needed to, females, 15+ years



**Notes:** *Age-standard information.*

**Source:** *2002/03 New Zealand Health Survey*

## *Māori health providers*

The following results are restricted to Māori adults, because the numbers of non-Māori adults using these services were too small to produce reliable estimates.

### Table 36: Māori health provider indicators

| Indicator | Māori | | |
|---|---|---|---|
| | Males | Females | Total |
| Seen a Māori health provider in the last 12 months, 15+ years, percent (self-reported) [1,2] * | 11.0<br>(8.0–14.1) | 16.3<br>(12.6–20.0) | 13.7<br>(11.3–16.0) |
| Unmet need for Māori health provider, 15+ years, percent (self-reported) [1,2] * | 3.6<br>(1.7–5.5) | 8.3<br>(5.5–11.1) | 5.9<br>(4.3–7.6) |

*Notes:*

[1] *Age-standardised to 2001 Census total Māori population.*

[2] *Prioritised Māori ethnic group – see 'Methods and Data Sources' section for further information.*

*Source:*

** 2002/03 New Zealand Health Survey*

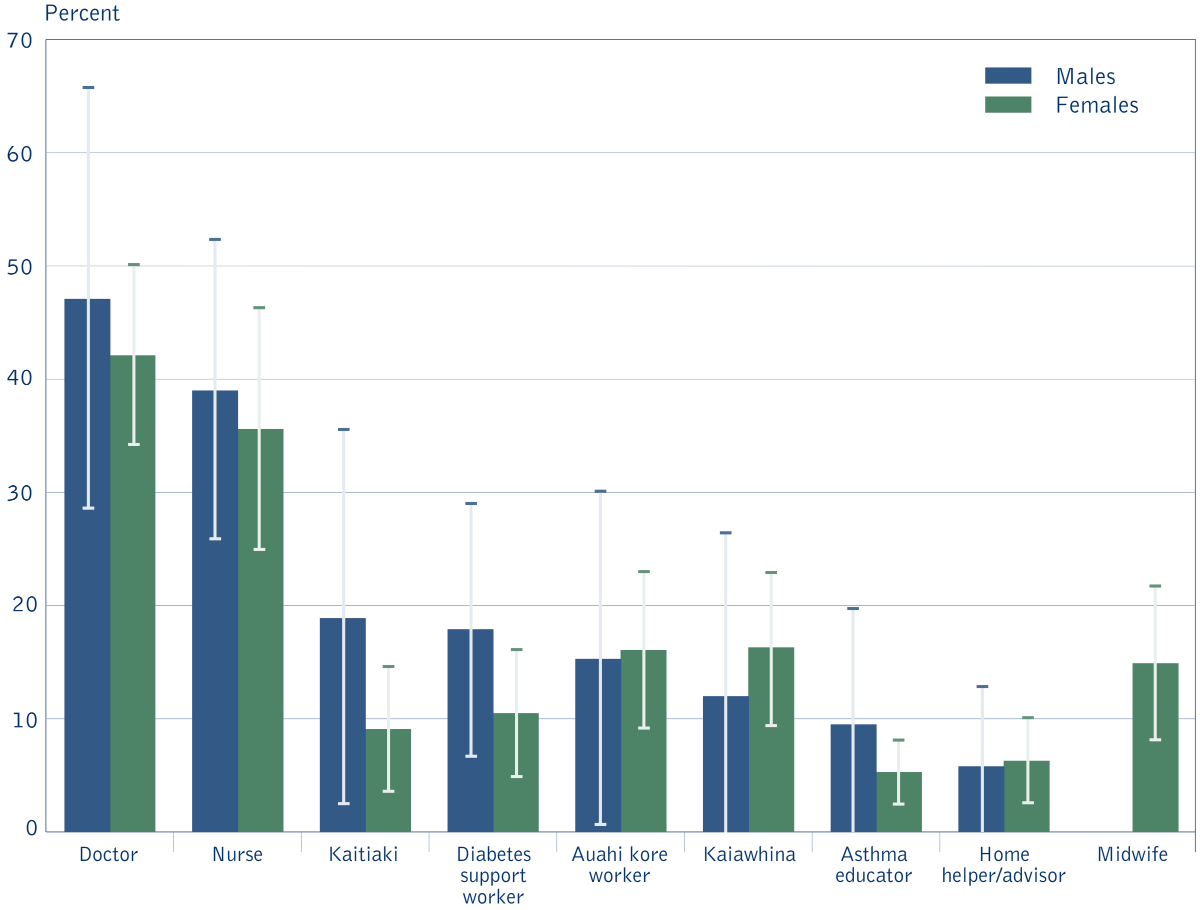
Almost 14 percent of Māori adults had seen a Māori health provider in the last 12 months. Māori females were more likely than Māori males to have seen a Māori health provider, however this difference was not significant.

Six percent of Māori adults reported an unmet need for a Māori health provider in the last 12 months. Māori females were more likely to have an unmet need than Māori males, although again this difference was not significant.

Doctors and nurses were the most common type of health care worker seen at a Māori health provider (Figure 13). The level of satisfaction with Māori health providers was high among both males and females, with 95.3 percent of Māori females and 94.4 percent of Māori males reporting they were either satisfied or very satisfied with their Māori health provider.

Estimated funding specifically for Māori health providers accounts for only about 3 percent of health and disability expenditure with the overwhelming proportion of health and disability funding going to mainstream providers (Ministry of Health 2005b).

**Figure 13: Top nine types of health care worker seen at Māori health provider, 15+ years**

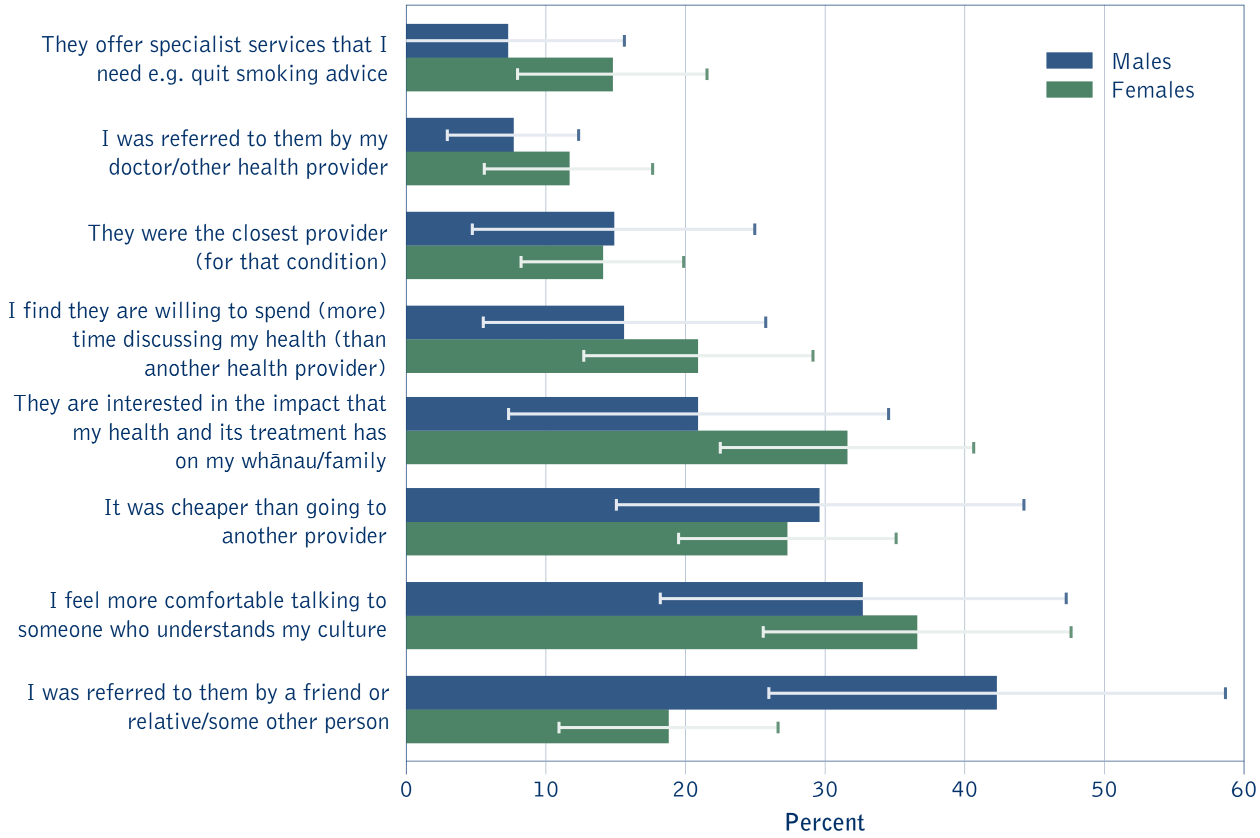


*Notes:* *Age-standard information.*

*Source:* *2002/03 New Zealand Health Survey*

The most common reason Māori males chose a Māori health provider was because a friend/ relative or some other person referred them.  For Māori females, the most common reason for choosing a Māori health provider was that they felt more comfortable talking to someone who understands their culture.

## Figure 14:  Top eight reasons for choosing Māori health provider, 15+ years



*Notes:* Age-standard information.

*Source:* 2002/03 New Zealand Health Survey

## *Prescriptions*

### Table 37: Prescription indicators

| Indicator | Māori | | | non-Māori | | |
|---|---|---|---|---|---|---|
| | **Males** | **Females** | **Total** | **Males** | **Females** | **Total** |
| Unfilled prescriptions (self-reported), 15+ years, percent | 21.3<br>(15.5–27.2) | 28.6<br>(24.4–32.8) | 25.3<br>(22.1–28.5) | 13.2<br>(10.8–15.5) | 21.3<br>(18.9–23.6) | 17.8<br>(16.1–19.5) |

**Notes:** *Age-standard information.*

**Source:** *2002/03 New Zealand Health Survey*

Māori adults were significantly more likely to have had unfilled prescriptions than non-Māori adults (RR 1.4, CI 1.2–1.6). Females in both ethnic groups were more likely not to fill their prescription than males, although this difference was only significant for non-Māori.

# Ngā pūnaha hauora tūtohu: Health system indicators

These indicators are measures of the performance of the health system. Avoidable mortality captures risks of dying from conditions (diseases and injuries) that are either preventable or treatable. Similarly, avoidable hospitalisations are either preventable, or (in the case of ambulatory-sensitive hospitalisations) responsive to treatment in primary health care settings. Note that the boundaries of the health system are set wide, so as to include intersectoral advocacy and action as well as collective and personal health services. Much of 'preventable' mortality and morbidity involves action beyond the health care system.

## *Avoidable mortality and hospitalisation*

*Avoidable mortality* includes deaths occurring under age 75 years that could potentially have been avoided through population-based interventions, or through preventive and curative interventions at an individual level (Ministry of Health 1999). *Amenable mortality* is a subset of avoidable mortality and is restricted to deaths from conditions that are amenable to health care (Ministry of Health 1999).

*Avoidable hospitalisations* are hospitalisations of people aged less than 75 years, that fall into three sub-categories:

- preventable hospitalisations – hospitalisations resulting from diseases preventable through population-based health promotion strategies
- ambulatory-sensitive hospitalisations – hospitalisations resulting from diseases sensitive to prophylactic or therapeutic interventions deliverable in a primary health care setting
- injury-preventable hospitalisations – hospitalisations avoidable through injury prevention (Ministry of Health 1999).

ICD code lists for these categories are contained in Appendix 1.

## Table 38: Health system indicators

| Health system | Māori |  |  | non-Māori |  |  |
|---|---|---|---|---|---|---|
|  | Males | Females | Total | Males | Females | Total |
| Avoidable mortality, 0–74 years, 2000–02, rate per 100,000 [1,2] * | 388.3<br>(374.3–402.7) | 277.9<br>(266.5–289.5) | 330.4<br>(321.4–339.5) | 149.6<br>(147.0–152.3) | 88.2<br>(86.2–90.1) | 118.2<br>(116.6–119.8) |
| Amenable mortality, 0–74 years, 2000–02, rate per 100,000 [1,2] * | 136.8<br>(128.5–145.4) | 127.8<br>(120.1–135.8) | 132.1<br>(126.5–138.0) | 57.5<br>(55.9–59.2) | 49.2<br>(47.8–50.8) | 53.3<br>(52.2–54.4) |
| Avoidable hospitalisation, 0–74 years, 2002–04, rate per 100,000 [1,2] * | 5489.4<br>(5437.2–5542.0) | 5431.9<br>(5380.8–5483.3) | 5469.9<br>(5433.3–5506.6) | 3573.4<br>(3556.6–3590.2) | 3143.5<br>(3127.7–3159.4) | 3359.8<br>(3348.3–3371.4) |
| Ambulatory-sensitive hospitalisation rate, 0–74 years, 2002–04, rate per 100,000 [1,2] * | 4558.3<br>(4510.8–4606.2) | 4558.1<br>(4511.3–4605.2) | 4568.2<br>(4534.8–4601.8) | 2886.5<br>(2871.4–2901.7) | 2561.4<br>(2547.0–2575.9) | 2725.5<br>(2715.0–2736.0) |

*Notes:*

[1] *Age standardised to 2001 Census total Māori population.*

[2] *Ever-Māori ethnic group – see 'Methods and Data Sources' section for further information.*

*Source:*

** New Zealand Health Information Service*

Avoidable and amenable mortality rates were two-and-a-half times higher for Māori than for non-Māori (RR 2.8, CI 2.7–2.9 for avoidable mortality; RR 2.5, CI 2.4–2.6 for amenable mortality).

Māori avoidable and ambulatory-sensitive hospitalisation rates were one-and-a-half times higher than those for non-Māori (RR 1.6, CI 1.6–1.7 for avoidable hospitalisation; RR 1.7, CI 1.7–1.7 for ambulatory-sensitive hospitalisation).

# Tāpiritanga: Appendices

## *Appendix 1: ICD-9 codes*

### Table A1-1: Avoidable mortality codes

| Condition | ICD-9 |
|---|---|
| Tuberculosis* | 010–018, 137 |
| Selected invasive bacterial and protozoal infection* | 034–036, 038, 084, 320, 481–482, 485, 681–682 |
| HIV/AIDS | 042 |
| Hepatitis (all types) | 070 |
| Viral pneumonia and Influenza | 480, 487 |
| Lip, oral cavity and pharynx cancers | 140–149 |
| Oesophageal cancer | 150 |
| Stomach cancer | 151 |
| Colorectal cancer* | 153, 154 |
| Liver cancer | 155 |
| Lung cancer | 162 |
| Melanoma of skin* | 172 |
| Non-melanotic skin cancer* | 173 |
| Breast cancer* | 174 |
| Uterine cancer* | 179, 182 |
| Cervical cancer* | 180 |
| Bladder cancer* | 188 |
| Thyroid cancer* | 193 |
| Hodgkins disease* | 201 |
| Leukaemia* | 204.00, 204.01, 204.10, 204.11 |
| Benign tumours* | 210–229 |
| Thyroid disorders* | 240–246 |
| Diabetes* | 250 |
| Alcohol-related disease | 291, 303, 305.0, 425.5, 535.3, 571.0–571.3, 760.8 |
| Illicit drug-use disorders | 292, 304, 305.2–305.9 |
| Epilepsy* | 345 |
| Rheumatic and other valvular heart disease* | 390–398 |
| Hypertensive heart disease* | 402 |
| Ischaemic heart disease* | 410–414 |
| Cerebrovascular diseases* | 430–438 |
| Aortic aneurysm | 441 |
| Nephritis and nephrosis* | 403, 580–589, 591 |
| Obstructive uropathy and prostatic hyperplasia* | 592, 593.7, 594, 598, 599.6, 600 |
| Deep vein thrombosis with pulmonary embolism | 415.1, 451.1 |
| Chronic obstructive pulmonary disease | 490–492, 496 |
| Asthma* | 493 |
| Peptic ulcer disease* | 531–534 |
| Acute abdomen, appendicitis, intestinal obstruction, cholecystitis/lithiasis, pancreatitis, hernia* | 540–543, 550–553, 574–577 |

| | |
|---|---|
| Cirrhosis, chronic hepatitis and other chronic liver disease | 571 |
| Birth defect* | 740–759 |
| Complications of perinatal period* | 764–779 |
| Road traffic injuries, other transport injuries | E810–E819 |
| Accidental poisonings | E850–E869 |
| Falls | E880–E886, E888 |
| Fires, burns | E890–E899 |
| Drownings (swimming) | E910 |
| Suicide and self-inflicted injuries | E950–E959, E980–E989 |
| Violence | E960–E969 |

* These conditions are amenable to health care.

### Table A1-2: Avoidable hospitalisation codes

| Condition | ICD-9 |
|---|---|
| Tuberculosis* | 010–018, 137 |
| HIV/AIDS* | 042 |
| Skin cancers* | 140, 172, 173 |
| Oral cancers* | 141, 143–146, 148–149, 161 |
| Colorectal cancer* | 153, 154 |
| Lung cancer* | 162 |
| Breast cancer* | 174 |
| Cervical cancer* | 180 |
| Nutrition* | 260–269, 280–281 |
| Alcohol-related conditions* | 291, 303, 305.0, 425.5, 535.3, 571.0–571.3 |
| Angina | 411.1, 411.8, 413, 786.5 |
| Gastroenteritis* | 001–009, 558.9, 779.3, 787.0, 787.9 |
| Other infections* | 023, 027, 034–035, 084, 770.0, 771.1–771.2, 771.4–771.9 |
| Immunisation preventable* | 032–033, 037, 045, 055–056, 072, 320.0, 771.0, 771.3 |
| Hepatitis and liver cancer* | 070, 155 |
| Sexually transmitted diseases* | 090–099, 614.0–614.5, 614.7–616.9, 633 |
| Thyroid disease* | 240–244 |
| Diabetes* | 250, 251.0, 251.2 |
| Dehydration* | 276.0, 276.5 |
| Epilepsy* | 345, 780.3 |
| ENT infections* | 381–383, 461–463, 472.1 |
| Rheumatic fever/heart disease* | 390–398 |
| Hypertensive disease* | 401–405, 437.2, 276.8 |
| Ischaemic heart disease* | 410, 412, 414, 411.0 |
| Congestive heart failure* | 428, 518.4 |

| | |
|---|---|
| Stroke* | 431, 433, 434, 436 |
| Respiratory infections* | 460, 465, 466.0, 480–483, 485–487 |
| CORD* | 490–492, 494, 496 |
| Asthma* | 493 |
| Dental conditions* | 521–523, 525, 528 |
| Peptic ulcer* | 531–534 |
| Ruptured appendix* | 540 |
| Obstructed hernia* | 550.0–550.1, 551–552 |
| Kidney/urinary infection* | 590, 599.0 |
| Cellulitis* | 680–686 |
| Failure to thrive* | 783.3–783.4 |
| Gangrene* | 785.4 |
| Burns and scalds | E890–E899 |
| Drowning | E910 |
| Falls from playground equipment | E884.0, E884.5 |
| Indeterminately caused injuries | E980–E989 |
| Poisoning | E850–E869 |
| Road traffic injury | E810–E829 |
| Sports injuries | E886.0, E917.0, E927 |
| Swimming pool accidents | E883.0, E910.5, E910.6 |
| Suicide | E950–E959 |

* These conditions are ambulatory sensitive.

### Table A1-3: ICD-9 codes used in this report

| Condition | ICD-9 |
|---|---|
| Asthma | 493 |
| Total cardiovascular disease | 390–459 |
| Ischaemic heart disease | 410–414 |
| Other forms of heart disease | 420–429 |
| Total stroke | 430–438 |
| Heart failure | 428 |
| Chronic obstructive pulmonary disease (COPD) | 491, 492, 494, 496 |
| Rheumatic heart disease | 393–398 |
| All revascularisation (CABG and angioplasty) heart disease procedures | 360, 361 |
| Diabetes | 250 |
| Diabetes complications with renal failure | 250.4 |
| Lower limb amputation with concurrent diabetes | 841, 250 (together) |
| All cancer | 140–208 |
| Stomach cancer | 151 |
| Colorectal cancer | 153, 154 |
| Liver cancer | 155 |

| | |
|---|---|
| Lung cancer | 162 |
| Prostate cancer | 185 |
| (female) Breast cancer | 174 |
| Uterine cancer | 179, 182 |
| Cervical cancer | 180 |
| All injuries | E800–E999 |
| Motor vehicle traffic | E810–E819 |
| All other transport | E820–E829 |
| Poisonings | E850–E869 |
| Fall | E880–E886, E888 |
| Fires/hot object or substance | E890–E899, E924 |
| Drowning | E910 |
| Suicide and self-harm | E950–E959 |
| Assault | E960–E969 |
| Cut/pierce | E920 |
| Firearm | E922 |
| Machinery | E919 |
| Struck by or against | E916–E917 |
| Suffocation | E911–E913 |

## *Appendix 2: 2001 Census total Māori population*

### Table A2-1: 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 | 8043 | 1.53 |
| 70–74 | 5046 | 0.96 |
| 75–79 | 2736 | 0.52 |
| 80–84 | 1251 | 0.24 |
| 85+ | 699 | 0.13 |

# Appendix 3: Ethnicity data: use of the 'ever Māori' method

## Background

The 'ever Māori' method of ethnicity classification was used in the analysis of data on hospital discharges, cancer registrations and death records. This appendix describes the use of the 'ever Māori' method in more detail and its impact on Māori mortality, cancer registrations and hospital discharges. Similar methods to those of Cormack et al (2005) were used in this section.

Significant inequalities in health risk and outcomes exist between Māori and non-Māori in New Zealand. Reducing health inequalities that affect Māori is a key Government priority (Minister of Health 2000, Minister of Health and Associate Minister of Health 2002a). High-quality ethnicity data is essential in order to monitor health trends by ethnicity, as well as Government performance to improve health outcomes and reduce health inequalities. It is also needed in order to provide Māori with quality information about Māori health and inequalities (Ministry of Health 2004b).

However, problems have been identified with the collection of ethnicity data. Official health data sets have been shown to undercount Māori in cancer registrations, hospital admissions and deaths (Te Rōpū Rangahau Hauora a Eru Pōmare 2000; Ajwani et al 2003; Cormack et al 2005). There is a need to improve ethnicity data in health information systems. The Ministry of Health has recently released protocols on procedures for the standardised collection, recording and output of ethnicity data for the New Zealand health and disability sector in order to facilitate this (Ministry of Health 2004b).

Until improvements in ethnicity data collection are fully implemented, researchers in Māori health and inequalities have advocated the use of the 'ever Māori' method of ethnicity classification (Cormack et al 2005). This has been developed to improve undercounts of Māori in health data sets, and has been shown to produce reasonable estimates of cancer incidence and mortality for the Māori ethnic group for data from 1996 to 2001.

## Methods

Cancer registrations from 1999 to 2003 (all cancers 1999–2001; priority cancers 2002–2003), deaths from 1999 to 2002 (any cause), hospital discharges from 1999 to 2004, and a recent copy of the National Health Index (NHI) were obtained from the New Zealand Health Information Service. Each record in these data sets has three ethnicity fields associated with it. Ethnicity fields were pooled by individuals using the encrypted Health Care User Identifier common to all. Where any one of these ethnicity fields had the value '21', the ever-Māori ethnicity indicator was designated as Māori and the remaining people were designated non-Māori.

For the assignment of 'ever Māori', the most recently available data were used for each data set back to 1999. More recent data were available for some data sets than others (eg, all cancer data were available up to 2001, while hospital discharges were available up to 2004). Because of this, the years obtained for each data set do not overlap exactly.

In the analyses, the most recent three years of data for each available data source were presented. Table A3-1 shows the effect of the 'ever Māori' method assigned using multiple data sets over the 1999–2004 period on the number of Māori deaths, cancer registrations and hospitalisations for the years presented in the profile.

**Table A3-1: Māori ethnic group – ever Māori validation using 1999–2004 data**

| Source | | | | No death registration | | Death registration | |
|---|---|---|---|---|---|---|---|
| | Original source | Ever Māori | Increase | Original source | Ever Māori | Original source | Ever Māori |
| Mortality 2000–2002 | 7114<br>(8.55%) | 7540<br>(9.06%) | 6.00% | | | | |
| | 83,207 | 83,207 | | | | | |
| Cancer registrations | 3435<br>(6.38%) | 3819<br>(7.09%) | 11.18% | 1723 | 1878 | 1712 | 1941 |
| | 53,847 | 53,847 | | 9.00% | | 9.00% | |
| Public hospital morbidity 2002–2004 | 291,617<br>(15.47%) | 306,315<br>(16.25%) | 5.04% | 288,054 | 302,502 | 3563 | 3813 |
| | 1884,650 | 1884,650 | | 5.02% | | 7.02% | |

## Results

### *Mortality (2000–2002)*

The 'ever Māori' method increased the number of deaths classified as Māori during 2000–2002 from 7114 to 7540, an increase of 6%. This is the same as that found by Cormack et al 2005 for the 1996–2001 period and is close to the 7% undercount identified for the 1996–1999 period by the New Zealand Census – Mortality Study (Ajwani et al 2003). Following the method of Cormack et al (2005) the mortality undercount was used to estimate this method as our standard for estimating the undercount in cancer registrations and hospital admissions.

### *Cancer registrations (1999–2001)*

The 'ever Māori' method increased cancer registrations classified as Māori during 1999–2001 from 3435 to 3919, an increase of 11 percent. For public hospital admissions, the 'ever Māori' method increased hospitalisations classified as Māori during 2002–2004 from 291,617 to 306,315, an increase of 5 percent.

The ‘ever Māori’ method was used to compare Māori cancer registrations among those people who had a death registered during the time period and those who did not. This was repeated for hospitalisations.

The ‘ever Māori’ method increased Māori cancer registrations between 1999 and 2001 by 9 percent among those people without a death registration, and by 13 percent among those people with a death registration. This indicates that there may still be a residual undercount of Māori cancer registrations among those people without a death registration.  Cormack et al (2005) found that cancer registrations increased by 17 percent using the ‘ever Māori’ method among those people with a cancer registration for the years 1996–2001, higher than the 13 percent found here. This may be due to improving ethnicity data collection more recently in cancer registrations. However, it may also be due to the incomplete years of data used in this analysis compared with that of Cormack et al (2005).

### *Public hospital morbidity (2002–2004)*

Similarly for hospitalisations, the ‘ever Māori’ method increased Māori hospitalisations by 5% among those people without a death registration and 7 percent among those with a death registration. Therefore there may still be an undercount of Māori hospitalisations among those people without a death registration.

## Summary

The ‘ever Māori’ method of ethnicity data collection is likely to provide reasonable estimates for the number of deaths for Māori. It improves the counts for Māori cancer registrations and hospitalisations, but there is probably still some underestimation of these, as the increase where there is no death record is less than where there is one.

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