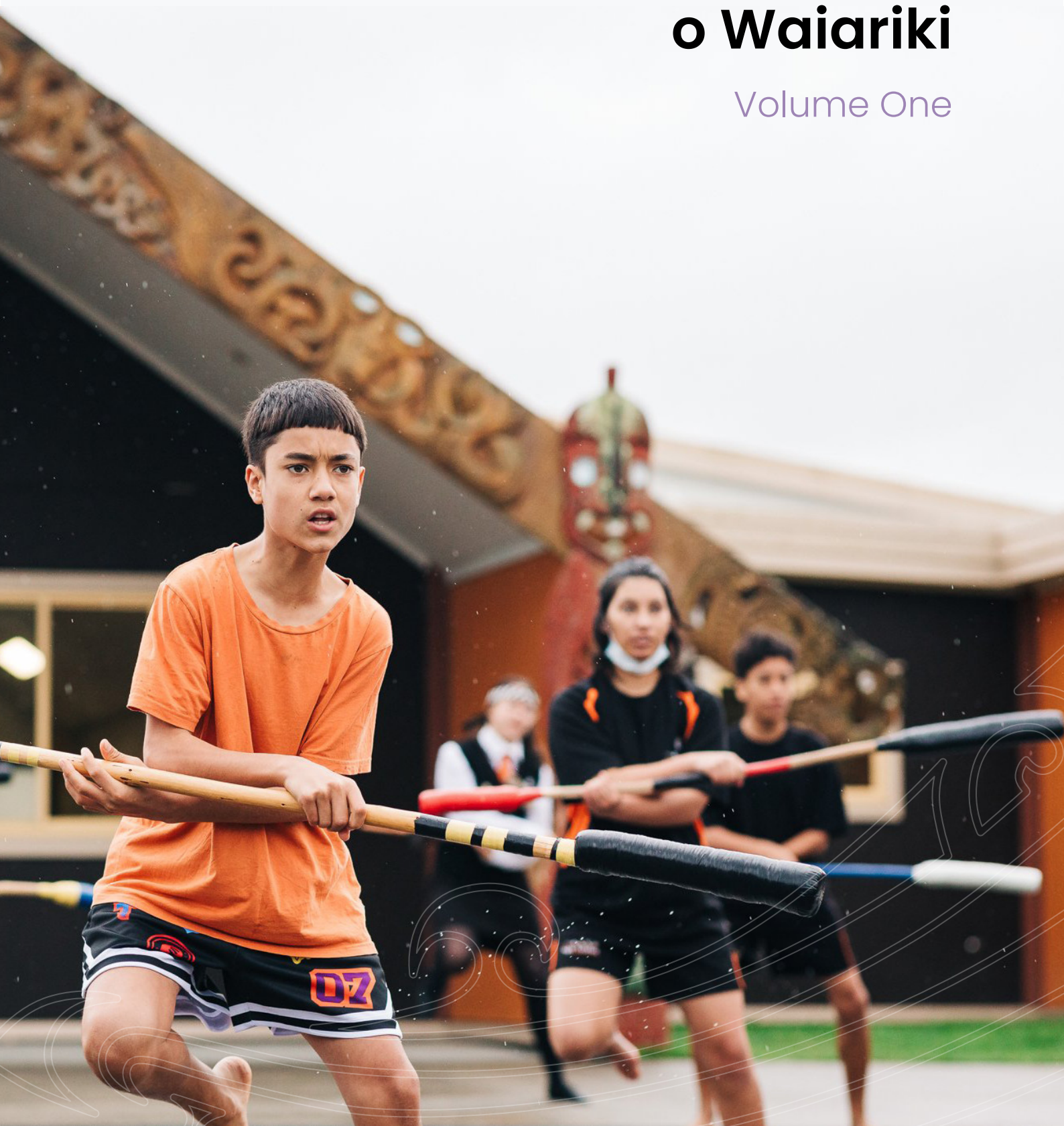
Te Aka Whai Ora
Māori Health Authority

Iwi-Māori Partnership Board Health Profile:

Te Taura Ora o Waiariki

Volume One



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Toitū te mauri roa

Toitū te mauri ora

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Te kupu takamua
Foreword

Te kupu takamua - Foreword

We are extremely pleased to present this report that provides the most up-to-date snapshot of Māori health for the newly formed Iwi-Māori Partnership Boards.

In doing so, we acknowledge the legacy of work associated with Māori-led health data reporting to date – from the seminal *Hauora* series to *Tatau Kahukura* and the *2015 District Health Board Māori Health Profiles*, this report continues the commitment to excellence that Māori communities and whānau both need and deserve.

Iwi-Māori Partnership Boards were created under the Pae Ora (Healthy Futures) Act 2022 to provide a vehicle for local feedback and leadership on how the health sector is performing to meet the needs and aspirations of whānau in their area. Iwi-Māori Partnership Boards have a pivotal role to play in determining how health services and public health interventions should be designed and delivered.

Te Aka Whai Ora welcomes the contribution of each Iwi-Māori Partnership Board to use the data presented in these reports to understand what issues are important to them and what response(s) are needed to ensure their tino rangatiratanga and mana motuhake over their health and wellbeing are being realised. The data presented in this profile require contextualisation - they are a starting point for Iwi-Māori Partnership Boards to interpret, together with other sources of information, and decide how best to respond to the needs (and rights) of the whānau within their rohe.

This report represents the first wave of analysis (Volume One). This volume includes key demographic information, mauri ora (overall health status), whānau ora (healthy families) and wai ora (healthy environments) indicators specific to each Iwi-Māori Partnership Board. A second volume with additional indicators focused on Te Aka Whai Ora-identified health priority areas (e.g. cancer, long-term conditions, first 1,000 days and mental health) will be released early in 2024.

The data presented within these profiles are a dimension of 'whānau voice'. They represent Māori stories and Māori lived experience and should be valued as a taonga for the health system to use and respond to as part of the broader commitment to Te Tiriti o Waitangi and equity.

We are extremely humbled by the sacrifices that have been made by our people: externally, as Iwi-Māori Partnership Boards have been established, and within the organisation, to produce this output in such a short time-frame since our establishment as an entity in July 2022.

We thank our partners who have contributed to this report and hope that this commitment to excellence in Māori health continues - mō āke tonu atu.

Ngā mihi,

Tipa Mahuta

Waikato, Maniapoto, Ngāpuhi

Te Kaihautū (Chair)

Riana Manuel

Ngāti Pukenga, Ngāti Maru, Ngāti Kahungunu

Te Aka Matua (Chief Executive)

Te ihirangi
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List of Abbreviations, Acronyms and Initialisms

ANZSCO	Australian and New Zealand Standard Classification of Occupations
ANZSIC	Australian and New Zealand Standard Industrial Classification
Av	Average
CI	Confidence Intervals
COPD	Chronic Obstructive Pulmonary Disease
DHB	District Health Board
ERP	Estimated resident population
GCH	Geographic Classification for Health
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification
IMPB	Iwi-Māori Partnership Board
NHI	National Health Index
No	Number
NZ	Aotearoa/New Zealand
NZDep2018	New Zealand Index of Deprivation 2018
PHO	Primary Health Organisation
RR	Rate ratio
SA1	Statistical Area Level 1
SA2	Statistical Area Level 2
StatsNZ	Statistics New Zealand
TKHM	Te Kupenga Hauora Māori
UR	Usually resident
WHO	World Health Organization

Māori Glossary

Aotearoa	New Zealand
Hāpori Māori	Māori communities
Hauora Māori	Māori health
Hui	Meeting, gathering
Iwi	Tribe
Kaupapa Māori	Māori initiative, approach, topic, agenda, principle, ideology
Manatū Hauora	Ministry of Health
Māori	Indigenous people(s) of Aotearoa New Zealand
Marae	Complex of buildings significant to Māori, may include, but not limited to, wharenui, wharekai, and urupā
Mauri ora	Overall health status
Mō āke tonu atu	Forever
Ngā āpitihanga	Appendices
Ngā kupu whakamihi	Acknowledgements
Ngā mihi	Greetings
Ngā tatauranga taupori matua	Key demographics
Pae ora	Healthy futures
Rohe	Region
Tangi	Funeral, mourning
Taonga	Treasure
Tatau Kahukura	Māori Health Chartbook 2015
Te Aka Whai Ora	Māori Health Authority
Te ihirangi	Contents
Te Kupenga Hauora Māori	Department of Māori Health, Faculty of Medical and Health Sciences, The University of Auckland
Te kupu takamua	Foreword
Te kupu whakataki	Introduction
Te rārangi tohutoro	References
Te Rōpū Rangahau Hauora a Eru Pōmare	Eru Pomare Māori Health Research Centre, The University of Otago
Te Tiriti o Waitangi	Treaty of Waitangi
Te Whatu Ora	Health New Zealand
Wai ora	Healthy environments
Whakamaua	Māori Health Action Plan: 2020-2025
Whānau	Family
Whānau ora	Healthy families

Te kupu whakataki
Introduction

1. Te kupu whakataki - Introduction

1.1. Overview of Iwi-Māori Partnership Boards

One of the three purposes of the Pae Ora (Healthy Futures) Act 2022 (Pae Ora) is to "achieve equity in health outcomes among New Zealand's population groups, including by striving to eliminate health disparities, in particular for Māori". Iwi-Māori Partnership Boards (IMPBs) are an important legislated mechanism for the Crown to give effect to the principles of Te Tiriti o Waitangi (the Treaty of Waitangi). The Pae Ora Act requires Health New Zealand (Te Whatu Ora) and the Māori Health Authority (Te Aka Whai Ora) to engage with IMPBs.

The purpose of IMPBs is to represent local Māori perspectives on:

a) the needs and aspirations of Māori in relation to hauora Māori outcomes; and

b) how the health sector is performing in relation to those needs and aspirations; and

c) the design and delivery of services and public health interventions within localities.

The Pae Ora Act sets out the criteria for recognition of an organisation as an IMPB. The criteria ensure the Boards are broadly representative of all Māori within the relevant area and include;

a) that the proposed boundaries of the area covered by the organisation do not overlap with the boundaries of any area covered by any other IMPB;

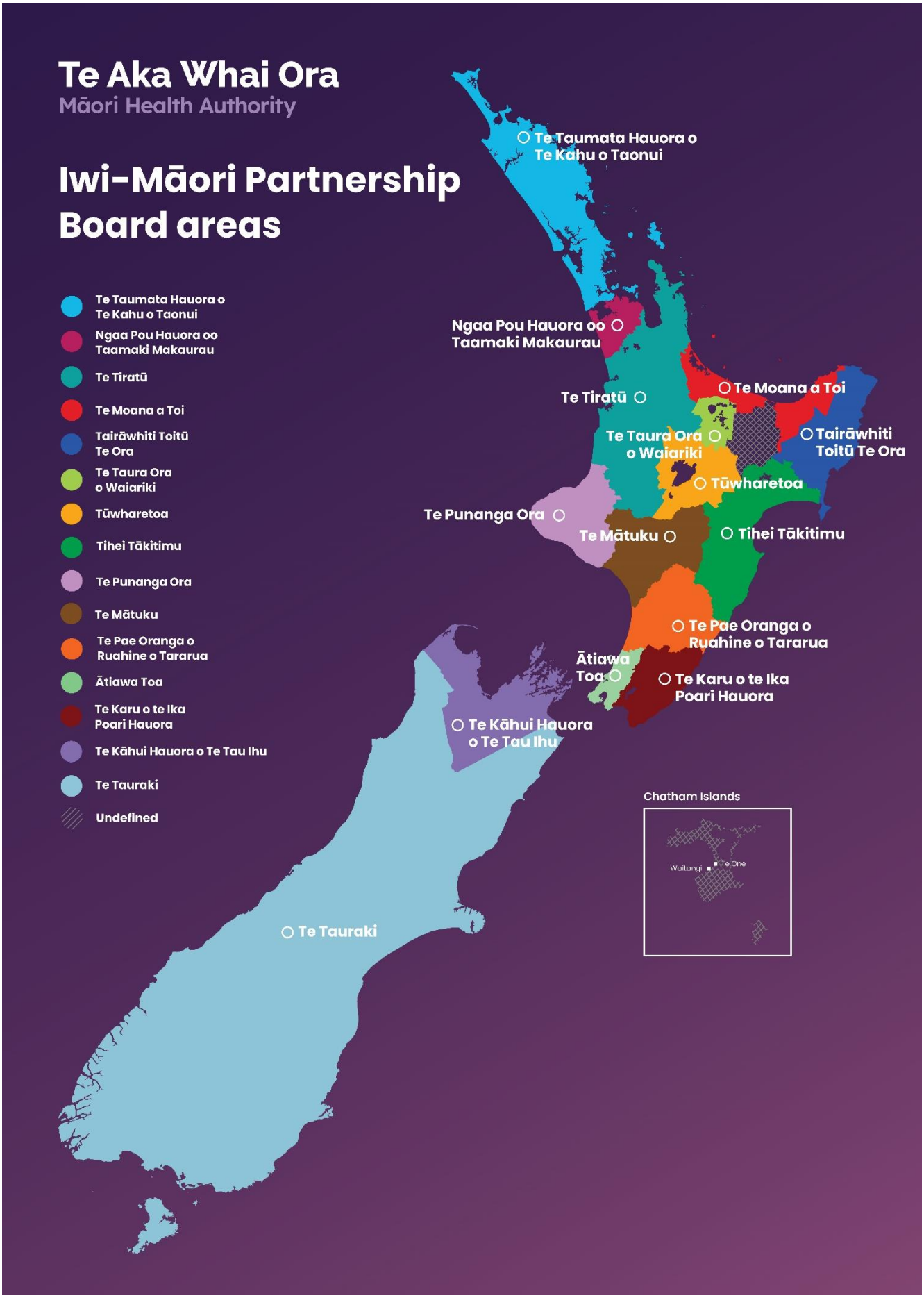
b) that the organisation has taken reasonable steps to engage with relevant Māori communities and groups; and

c) the organisation must demonstrate that it has the capacity and capability to perform the necessary functions of IMPBs as set out in the Act, and that the organisation can represent and be accountable to hāpori Māori (Māori communities).

Once the Board of Te Aka Whai Ora is satisfied that an organisation has met the criteria for recognition, they advise the Minister of Health who then recommends the making of an Order in Council so that the organisation can be listed as an IMPB (under Schedule 4 of the Pae Ora Act). On the advice of the Te Aka Whai Ora Board, the Minister of Health can also recommend an Order in Council to vary or remove an IMPB from Schedule 4 of the Pae Ora Act. An important feature of IMPBs is that they can renegotiate boundaries between each other as and when works for the collective. Such is the case for any emerging organisation who must consult with neighbouring IMPBs should their intended boundary result in overlap. This ensures the self-determination of communities, and strategic alignment with community need.

As at July 2023, 15 IMPBs were listed in Schedule 4, as shown in Figure 1.

Figure 1 - Map of Iwi-Māori partnership board areas



1.2. Purpose and audience for this report

Under the Pae Ora Act, Te Aka Whai Ora must take reasonable steps to support IMPBs to achieve their purpose, including by providing administrative, analytical, or financial support where needed; and providing sufficient and timely information. These data profiles have been prepared for each IMPB formed in 2023, as part a commitment by Te Aka Whai Ora to provide IMPBs with health information to inform priorities and actions.

Te Aka Whai Ora has produced these profiles, together with support from Te Whatu Ora, to provide IMPBs with a baseline snapshot of the health of Māori in their rohe (region). These profiles are limited to the data sources and indicators currently available in the government health system, and may not capture all aspects of hauora Māori, determinants of wellbeing, or government responsibility.

1.3. Positioning

This profile has been drafted from a Kaupapa Māori research and epidemiology positioning (Simmonds, Robson et al. 2008). This positioning includes:

- a commitment to high quality ethnicity data reporting and analysis (that includes understanding how ethnicity data are collected and recorded and the implications of these factors on data quality from various sources);
- a commitment to using appropriate comparator groupings (or not) within ethnic data comparisons (that reflect Te Tiriti o Waitangi/rights-based and equity appropriate interpretations) (Harris, Paine et al. 2022), and;
- a strengths-based interpretation of data that rejects 'victim-blame' or 'cultural-deficit' interpretations of any data presented (Curtis 2016).

It is important to note that the identification of inequities between Māori and non-Māori is not a signal of Māori failure or shortcomings. Rather, a Kaupapa Māori positioning foregrounds racism, privilege and power imbalances as the fundamental drivers of ethnic inequities in health for Māori compared to non-Māori (Curtis, Jones et al. 2023).

The data presented in this profile require contextualisation - they are a starting point for IMPBs to interpret, together with other sources of information, and decide how best to respond to the needs (and rights) of their specific population. Although quantitative in nature, the data presented within these profiles are a dimension of 'whānau voice'. They represent Māori stories and Māori lived experience and should be valued as a taonga for the health system to use and respond to as part of the broader commitment to Te Tiriti o Waitangi and equity.

1.4. Understanding Māori health and health inequities

It is important to have a common understanding on what the fundamental drivers or Māori health and health inequities are in order to respond appropriately. A helpful framework is the 'Te Kupenga Hauora Māori (TKHM) modified model' (Curtis, Jones et al. 2023) - a Māori model that draws upon international theorisation on the causation of ethnic health inequities (Figure 2). The TKHM modified model outlines a framework to understand the causes of Māori:non-Māori health inequities within an Aotearoa and Indigenous specific context.

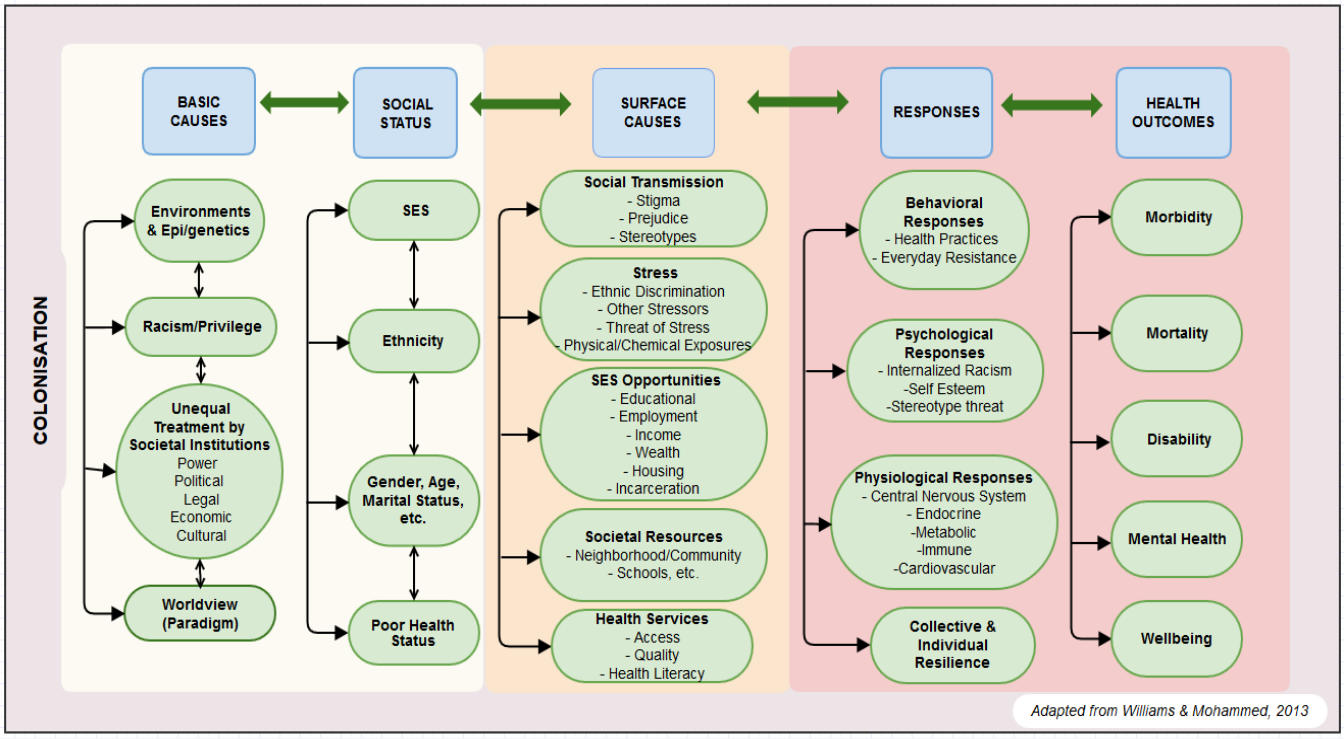
The framework emphasises the importance of distinguishing *basic* causes from *surface* (or intervening causes). Overall, changes in *basic* causes create important changes in health *outcomes*. *Social status* categories are created, and reinforced, by *basic* causes. *Social status* categories considered to have particular relevance to Māori health outcomes include: *ethnicity, socio-economic status, gender, age*, and *poor health status*. In the TKHM modified model, *surface causes* represent a number of intervening

mechanisms that link *social status* categories such as *ethnicity*, to *health outcomes*. Important intervening mechanisms include: *stress*, *socio-economic opportunities*, *societal resources*, *health services* and *social transmission*. Health *outcomes* reflect the mechanisms by which differences in health status and therefore health inequities are observed or measured. For example, health can vary with respect to *morbidity* (ill health), *mortality* (death rates), presence or absence of *disability*, *mental health* and generalised *wellbeing*.

The TKHM modified model foregrounds colonisation as a key determinant of health inequities underpinning all levels from *basic* to *surface* causes. In doing so, the model acknowledges the historical trauma of colonisation whilst also foregrounding the ongoing contemporary effects of colonisation in today's society. It is not a simple, unidirectional relationship between causes at different levels - but rather there is a dynamic interplay between causes and pathways. Worldviews and positioning are also a basic cause, and privilege alongside racism plays a causative role in Māori health inequities.

Explanations define solutions. Therefore, a conceptual framework can support the understanding of fundamental causes of Indigenous and Māori health inequities and how best to respond to those inequities once they have been identified. Many of the routine data that are collected and reported in Aotearoa, including in this report, focus on the downstream surface causes. It is important to understand that many of these indicators are outcomes/consequences of structural processes of marginalisation that we do not properly measure, and that intervention needs to occur upstream to achieve health equity for Māori.

Figure 2 - Te Kupenga Hauora Māori modified model for explaining Indigenous/ethnic determinants of health



Source: (Curtis, Jones et al. 2023)

1.5. Scope for these profiles

These profiles are the first reports which specifically focus on data related to IMPBs. These profiles focus on key population demographic data, indicators reflecting key socio-economic determinants of wellbeing, health status and health services indicators. Not every health issue or determinant is included. These IMPB profiles are presented in two volumes:

- Volume One - contains key demographic data and projections, overall life expectancy and health outcomes measures, and indicators relating to whānau wellbeing and socio-economic and environmental determinants of wellbeing.
- Volume Two - contains health service utilisation and outcomes measures, with a focus on the four health priority areas identified in the 2022 Te Aka Whai Ora Māori Health Priorities Report (Curtis E, Loring B et al. 2022): the first 1000 days, cancer, long term conditions, and mental health and addiction.

These reports are by no means exhaustive, and IMPBs may wish to also refer to other sources of information available through respective government agencies for more in-depth data related to areas such as education, social development, environment, employment or housing. We are limited to currently available data, which may not reflect all indicators of importance to IMPBs, and not all data (for example, on uncommon health conditions) can be meaningfully disaggregated by ethnicity to the level of IMPBs. These IMPB profiles are intended to be used in conjunction with other sources of publicly available health system reporting by the Ministry of Health, Te Whatu Ora, the Health Quality and Safety Commission, Statistics New Zealand (StatsNZ) and other agencies.

There have also been a number of previous sources of reporting specifically on Māori health, which IMPBs may wish to refer to for additional information relevant to their area, including trends over time. Some of these key sources include:

- **Whakamaua Dashboard**[1]

  This online dashboard presents quantitative measures which assess system performance against the four objectives of Whakamaua: Māori Health Action Plan 2020-2025. From 2023, the Whakamaua dashboard contains some indicators disaggregated by Iwi-Māori Partnership Boards (IMPB). These data for IMPBs use the Health Service Utilisation population as the denominator, which differs slightly from the Census population denominator chosen in these IMPB profiles. The Whakamaua dashboard compares Māori data to non-Māori non-Pacific data.

- **WAI 2575 Māori Health Trends Report**[2]

  This report was compiled by the Ministry of Health in 2019, to inform the Wai 2575 Health Services and Outcomes Kaupapa Inquiry (Wai 2575). The report shows changes of Māori health over the years 1990-2015. Most data are presented at a national level, for Māori compared to non-Māori, and Māori compared to non-Māori non-Pacific, although some variables are available at a District Health Board (DHB) level.

[1] https://minhealthnz.shinyapps.io/WhakamauaDashboard/

[2] https://www.health.govt.nz/publication/wai-2575-maori-health-trends-report

- **A Window on the Quality of Aotearoa New Zealand's Health Care 2019 - a view on Māori health equity[3]**

  A Window on the Quality of Aotearoa New Zealand's Health Care 2019 - a view on Māori health equity was compiled by the Health Quality and Safety Commission and highlights a number of areas where change is needed in the health system. The report is divided into three chapters. The first analyses inequity between how Māori and non-Māori access and receive health services, and the effects on equity of improvement activities in our system. The second chapter asks why these inequities exist, and the third chapter addresses opportunities for improvement.

- **2015 DHB Māori Health Profiles[4]**

  The 2015 District Health Board Māori Health Profiles were produced by Te Rōpū Rangahau Hauora a Eru Pōmare at the University of Otago in Wellington. The District Health Board Māori Health Profiles present a snapshot of Māori health compared with non-Māori across a range of health and disability-related indicators. They can create a picture of the health status of a DHB's population at a given time and allow some comparison of trends over time. The profiles are available as word and pdf documents, and Excel tables containing data from the profiles together with national rates for most indicators.

- **Tatau Kahukura: Māori health statistics[5]**

  Statistical profiles on Māori health compiled by the Ministry of Health, most recently completed in 2015. Presents Māori compared to non-Māori national level data for a range of health indicators (socio-economic determinants, risk factors, health services and health outcomes), and data are age-standardised to the 2001 Māori population.

- **Hauora: Māori Standards of Health IV: A study of the years 2000-2005[6]**

  Hauora: Māori Standards of Health IV, published in 2007, is the most recent edition in the Hauora series, produced by Te Rōpū Rangahau Hauora a Eru Pōmare, and covers the period 2000 to 2005. Careful consideration has been given to the manner in which evidence has been presented and the commentaries are rightly written from Māori perspectives. The first three chapters situate health statistics within the broader context, including the theoretical, demographic and socio-economic contexts. This is followed by chapters on mortality, public hospitalisations, cancer and mental health. This volume of Hauora also includes a number of topic-based chapters from invited authors, including chapters on cardiovascular disease; diabetes; respiratory disease; oral health; disability; sleep problems; occupational safety and health; health in prisons; and the National Primary Medical Care Survey.

To maximise consistency and make it easier for IMPBs to assess how various indicators in their rohe are tracking over time, we have endeavoured to replicate the scope and approach taken in the 2015 District Health Board Māori Health Profiles as closely as possible. There are some minor variations in statistical methods, definitions and geographical boundaries for some indicators, which mean that exact comparison with these earlier profiles is not always possible.

[3] https://www.hqsc.govt.nz/resources/resource-library/a-window-on-the-quality-of-aotearoa-new-zealands-health-care-2019-a-view-on-maori-health-equity-2/

[4] https://www.health.govt.nz/publication/dhb-maori-health-profiles

[5] https://www.health.govt.nz/our-work/populations/maori-health/tatau-kahukura-maori-health-statistics

[6] https://www.otago.ac.nz/wellington/departments/publichealth/research-groups-in-the-department-of-public-health/erupomare/research/hauora-maori-standards-of-health-iv-a-study-of-the-years-2000-2005

1.6. Data sources

The data presented in this report come from routinely collected national government health datasets and routine national surveys. The main data sources for this report are:

- The 2018 Census of Population and Dwellings
- Te Kupenga 2018 (the Māori Social Survey)
- Mortality registrations
- Te Whatu Ora Primary Care Enrolment data

Data are presented for Māori and non-Māori residents, using the geographical boundaries in each dataset which most closely correspond to the boundaries of the IMPB. For some measures, the closest available match at this time has been the boundaries of the former DHBs covering the IMPB rohe. Where an IMPB area encompasses more than one former DHB, data are presented separately for each DHB area, to provide a sense of variation for Māori within the IMPB.

1.7. How to understand this report

The technical appendix at the end of this report contains further information to help users interpret the data presented. This includes a basic explanation of how to interpret the graphs and tables provided. There is also a description of key methods, including age-standardisation, comparator groups and statistical calculations. The appendix also contains a description of the quality of ethnicity data in each data source used in this profile, and how this may affect the accuracy of information for Māori. Further technical details are provided about the methods and data sources used to compile these reports, so that the methods can be replicated by others.

Ngā tatauranga taupori matua
Key demographics

2. Ngā tatauranga taupori matua - Key demographics

2.1. About Te Taura Ora o Waiariki

Te Taura Ora o Waiariki IMPB is home to an estimated 33,470 Māori in 2023 and consists of the geographic area shown in Figure 3. The health planning area of Te Taura Ora o Waiariki IMPB aligns with the northern portion of the former Lakes DHB. For some indicators in this report, data is able to be presented for the Te Taura Ora o Waiariki IMPB (mapped to SA2 geographical areas), and for others, data is presented for Lakes DHB as a whole. Please see the technical appendix at the end of this report for more details on how the IMPB geographic areas were calculated in this report.

Figure 3 - Map of Te Taura Ora o Waiariki with DHB boundaries, 2023

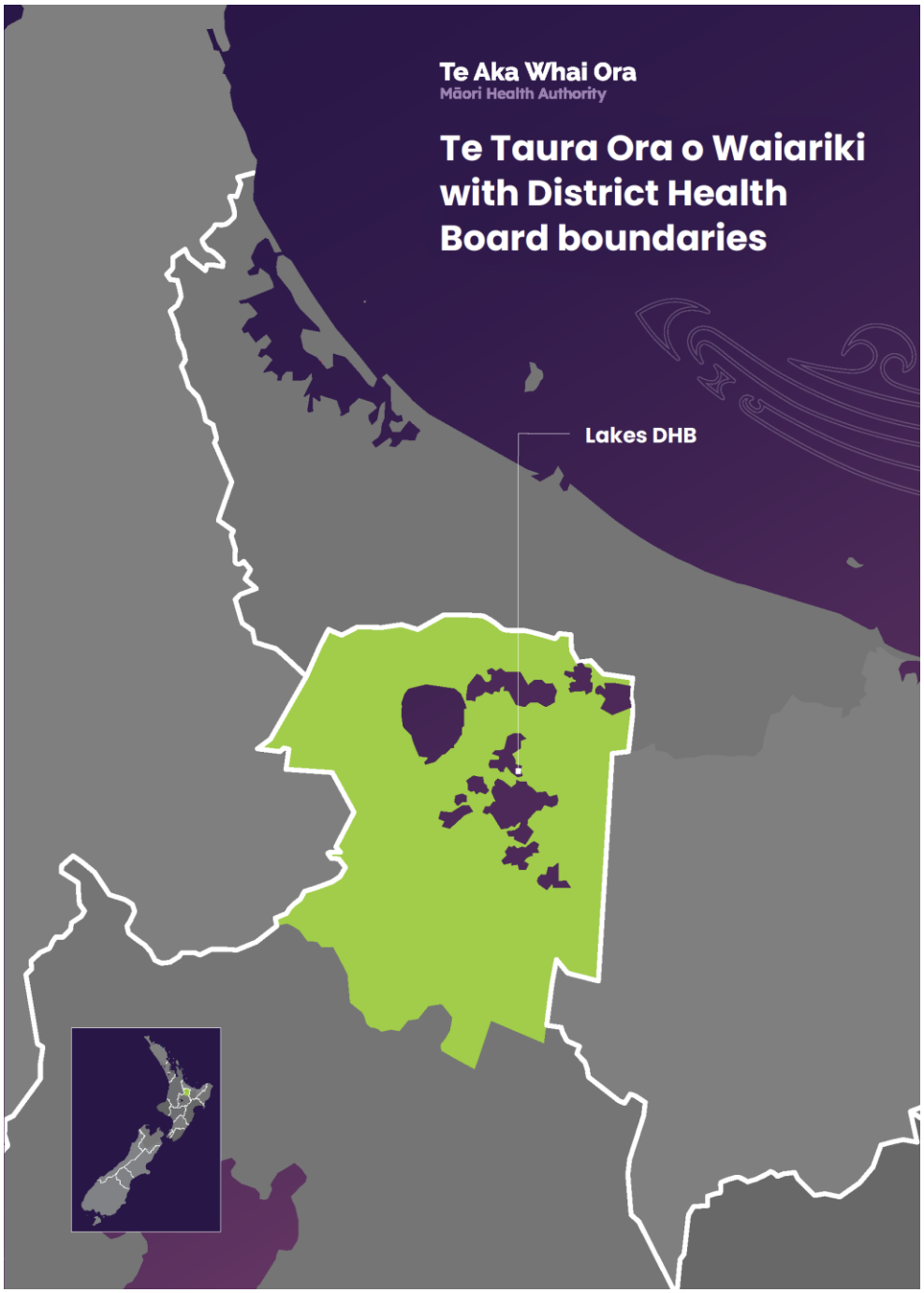


Table 1 shows the age breakdown of the population of Te Taura Ora o Waiariki IMPB. The Māori population of Te Taura Ora o Waiariki is very young, with 45% of the Māori population under the age of 25 years (compared to only 25% of the non-Māori population in the area). The Māori population of Lakes DHB (Table 2) is very similar to Te Taura Ora o Waiariki IMPB with 45% of the Māori population under the age of 25 years (compared to only 23% of the non-Māori population).

Table 1 - Population estimates by age group, Te Taura Ora o Waiariki, 2023

Age group (years)	Māori			non-Māori		Total IMPB number
	Number	Age distribution	% of IMPB	Number	Age distribution	
0-14	9,295	28%		7,015	16%	16,310
15-24	5,730	17%		4,005	9%	9,735
25-44	8,765	26%		11,660	26%	20,425
45-64	7,000	21%		12,325	27%	19,325
65+	2,540	8%		9,910	22%	12,450
Total	**33,470**	**100%**	**43%**	**44,870**	**100%**	**78,340**

Source: Te Whatu Ora Populations Webtool (Statistics NZ base Census 2018 base).

Table 2 - Population estimates by age group, Lakes DHB, 2023

Age group (years)	Māori			non-Māori		Total DHB number
	Number	Age distribution	% of DHB	Number	Age distribution	
0-14	13,040	28%		11,120	15%	24,160
15-24	7,690	17%		6,080	8%	13,770
25-44	12,020	26%		17,820	25%	29,840
45-64	9,740	21%		20,180	28%	29,920
65+	3,690	8%		17,320	24%	21,010
Total	**46,200**	**100%**	**39%**	**72,500**	**100%**	**118,700**

Source: Te Whatu Ora Populations Webtool (Statistics NZ base Census 2018 base).

Over the next two decades, the Māori population in Te Taura Ora o Waiariki IMPB is projected to grow to 40,620 (Table 3) and to be older - by 2043, 13% of the Māori population will be over 65 years old, compared to 8% in 2023. The Māori population is projected to make up an increasing share of the Te Taura Ora o Waiariki IMPB population - from 43% in 2023 to 48% in 2043. When looking at similar data for Lakes DHB, the Māori population is projected to grow to 57,600 (Table 4) and to be older - by 2043, 14% of the Māori population will be over 65 years old, compared to 8% in 2023. The Māori population is projected to make up an increasing share of the Lakes DHB population - from 39% in 2023 to 45% in 2043.

Table 3 - Population projections, Te Taura Ora o Waiariki, 2023 to 2043

Year	Māori					non-Māori				
	Residents	% of IMPB	% 0-14 years	% 15-64 years	% 65+ years	Residents	% of IMPB	% 0-14 years	% 15-64 years	% 65+ years
2023	33,470	43%	28%	64%	8%	44,870	57%	16%	62%	22%
2028	35,470	44%	25%	65%	9%	44,910	56%	15%	61%	25%
2033	37,390	46%	24%	65%	11%	44,580	54%	14%	59%	27%
2038	39,240	47%	23%	65%	12%	43,970	53%	13%	58%	29%
2043	40,620	48%	22%	64%	13%	43,340	52%	13%	57%	30%

Source: Te Whatu Ora Populations Webtool (Statistics NZ base Census 2018 base).

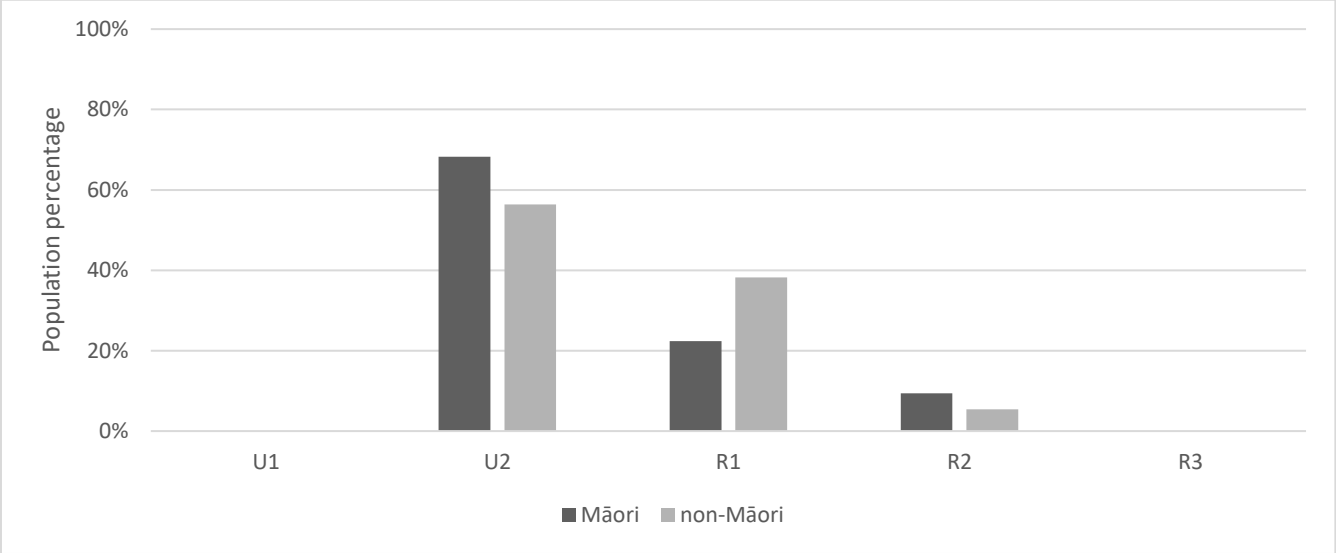
Table 4 - Population projections, Lakes DHB, 2023 to 2043

Year	Māori					non-Māori				
	Residents	% of IMPB	% 0-14 years	% 15-64 years	% 65+ years	Residents	% of IMPB	% 0-14 years	% 15-64 years	% 65+ years
2023	46,200	39%	28%	64%	8%	72,500	61%	15%	61%	24%
2028	49,200	40%	26%	65%	10%	72,700	60%	14%	59%	27%
2033	52,100	42%	24%	65%	11%	72,300	58%	13%	57%	30%
2038	54,900	44%	23%	64%	13%	71,300	56%	12%	55%	32%
2043	57,600	45%	22%	64%	14%	69,900	55%	12%	55%	33%

Source: Te Whatu Ora Populations Webtool (Statistics NZ base Census 2018 base).

The Geographic Classification for Health (GCH) is a rural-urban geographic classification composed of five categories, two urban and three rural, that reflect degrees of reducing urban influence and increasing rurality. It is applied to all of NZ's Statistical Areas on a scale from 'Urban 1' to 'Urban 2' based on population size, and from "Rural 1' to 'Rural 3' based on drive time to their closest major, large, medium, and small urban areas. Most Māori in Lakes DHB (68%) live in urban areas, with 31% living in rural areas compared to 56% and 43% for non-Māori respectively (Figure 4).

Figure 4 - Population distribution by urban and rural classification, Lakes DHB, 2023



Source: Population count (Population Webtool SA2 2023); GCH (SA2 University of Otago). Note that total values may add up to more than 100% due to rounding.

Mauri ora
Overall health status

3. Mauri ora - Overall health status

3.1. Life expectancy

The life expectancy at birth for Māori born in Te Taura Ora o Waiariki between 2018-2022 is 77.2 years for females and 71.8 years for males (Table 5). Māori life expectancy in Te Taura Ora o Waiariki is 6.1 years shorter for Māori females and 8.2 years shorter for Māori males, compared to non-Māori in Te Taura Ora o Waiariki. Similar outcomes are seen across Lakes DHB (Table 6).

The life expectancy at birth for Māori born in Lakes DHB between 2018-2022 is 77.7 years for females and 71.9 years for males. Māori life expectancy in Lakes DHB is 6.1 years shorter for Māori females and 8.8 years shorter for Māori males, compared to non-Māori in Lakes DHB.

Table 5 - Life expectancy at birth, Te Taura Ora o Waiariki, Māori and non-Māori, 2018 to 2022

Sex	Māori		non-Māori		Difference in years
	Years (95% credible interval)		Years (95% credible interval)		
Female	77.2	(76.1, 78.3)	83.3	(82.5, 84.1)	-6.1
Male	71.8	(70.7, 73.0)	80.0	(79.2, 80.8)	-8.2

Source: Mortality data sourced from Ministry of Health. Mortality Collection, https://www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/collections/mortality-collection.
Population denominator data from Statistics New Zealand, Population estimates (2022 update).
Analysed by Michael Walsh, Equity, Scientific and Technical Team, Equity Directorate, Service Improvement and Innovation, Te Whatu Ora; October 2023.

Table 6 - Life expectancy at birth, Lakes DHB, Māori and non-Māori, 2018 to 2022

Sex	Māori		non-Māori		Difference in years
	Years (95% credible interval)		Years (95% credible interval)		
Female	77.7	(76.7, 78.6)	83.8	(83.2, 84.5)	-6.1
Male	71.9	(70.8, 72.9)	80.7	(80.0, 81.3)	-8.8

Source: Mortality data sourced from Ministry of Health. Mortality Collection, https://www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/collections/mortality-collection.
Population denominator data from Statistics New Zealand, Population estimates (2022 update).
Analysed by Michael Walsh, Equity, Scientific and Technical Team, Equity Directorate, Service Improvement and Innovation, Te Whatu Ora; October 2023.

In terms of the conditions which make up the life expectancy gap for Māori, this degree of information is not available at IMPB level, however analysis has been done for the four Te Whatu Ora regions of Aotearoa. Tūwharetoa is situated in the Te Manawa Taki region. The Te Manawa Taki region also includes Waikato, Bay of Plenty, Taranaki, and Tairāwhiti DHBs. In the Te Manawa Taki region for 2018-2020, life expectancy for Māori was 75.0 years, 8.1 years lower than the non-Māori/non-Pacific population (83.1 years).

Avoidable deaths include those considered *amenable* to high-quality healthcare, *preventable* through public health interventions, or both. Among Māori in the Te Manawa Taki region, 2.7 years of the 8.1-year gap can be attributed to conditions that are considered both amenable and preventable followed by 1.4 years from conditions considered preventable only and 0.9 years from conditions considered amenable only. An additional 3.1 years can be attributed to conditions that are considered non avoidable[7].

[7] By 'non-avoidable', the metric is referring to the direct causal pathway. Broader determinants of health such as income, education, housing, colonisation and institutional racism are not covered. Longer term all the 'gap' is avoidable through government, policy and intersectoral actions.

The leading avoidable causes of death contributing to the life expectancy gap among Māori in the Te Manawa Taki region are lung cancer (0.9 years), coronary disease (0.8 years) and diabetes (0.6 years). A list of the top 10 conditions and their contribution to the gap are presented in Table 7. In total, these conditions contribute 4.1 years of the 8.1-year gap. These data are not able to be disaggregated by sex at a regional level because the numbers are too small.

Table 7 - Decomposition of the ethnic gap in life expectancy by avoidable category, Māori compared with non-Māori/non-Pacific, 2018 to 2020, Te Manawa Taki region

Avoidable cause	Contribution (years)
Lung cancer	0.9
Coronary disease	0.8
Diabetes	0.6
Chronic obstructive pulmonary disease (COPD)	0.4
Land transport injuries	0.4
Stroke	0.3
Suicide	0.3
Valvular heart disease	0.2
Other accidental injuries	0.2
Breast cancer	0.1
Total contribution from top 10 avoidable conditions	**4.1 years***

Source: Te Whatu Ora, May 2023. The Contribution of Avoidable Mortality to the Life Expectancy Gap among the Māori and Pacific population. Regional Summary.
Note: * total number provided reflects source reporting (rounding issues may apply).

3.2. Self-assessed health

In 2018, 83.4% of Māori aged 15 years and over in Te Taura Ora o Waiariki reported their own health status as good, very good or excellent (Table 8), a similar percentage to Māori nationally (82.3%). A total of 16.6% of Māori in Te Taura Ora o Waiariki reported their health status as fair or poor.

Table 8 - Health status reported by Māori aged 15 years and over, Te Taura Ora o Waiariki, 2018

Health Status	Te Taura Ora o Waiariki		Aotearoa	
	%	(95% CI)	%	(95% CI)
Excellent	12.6 *	(8.3, 16.8)	15.1	(14.0, 16.2)
Very Good	37.4	(30.6, 44.3)	36.9	(35.4, 38.3)
Good	33.4	(27.7, 39.2)	30.3	(29.0, 31.7)
Fair/poor	16.6	(11.8, 21.4)	17.7	(16.6, 18.8)

Source: Te Kupenga 2018, Statistics New Zealand customised report.
Note: An asterisk (*) shows the sampling error is 30% or more but less than 50%.

3.3. Mortality

The leading causes of death for Māori in Lakes DHB in 2014-2018 were ischaemic heart disease, lung cancer, chronic obstructive pulmonary disease (COPD), cerebrovascular disease and diabetes (Table 9), and this aligns to the leading causes of death for Māori nationally (Table 10). This is in contrast to the leading causes of death for non-Māori in Lakes DHB, which were ischaemic heart disease, dementia, cerebrovascular disease, COPD and lung cancer in 2014-2018.

The leading causes of death for Māori females in Lakes DHB in 2014-2018 were lung cancer, ischaemic heart disease, breast cancer, cerebrovascular disease and COPD (Table 9). For Māori males, the leading causes of death in 2014-2018 were ischaemic heart disease, lung cancer, diabetes, COPD and suicide. Because of the small population size of a single DHB, just 1-2 deaths from a particular cause can have a large impact on the ranking of leading causes. For this reason, local causes of death for Māori men and women should be interpreted together with the leading causes of death for Māori nationally (Table 10).

Table 9 - Leading causes of death for Māori, all ages, Lakes DHB, 2014 to 2018

Cause	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Rate difference
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)				
Female									
Lung cancer	11	27.7	(13.7, 49.5)	14	7.4	(3.6, 13.3)	**3.73**	**(1.60, 8.68)**	20.3
Ischaemic heart disease	11	25.1	(11.8, 46.2)	35	9.2	(5.3, 14.2)	**2.73**	**(1.25, 5.93)**	15.9
Breast cancer	7	21.9	(7.7, 47.4)	11	10.8	(3.6, 22.1)	2.04	(0.66, 6.31)	11.1
Cerebrovascular disease	7	17.2	(5.7, 37.4)	24	7.0	(3.0, 12.4)	2.46	(0.87, 6.98)	10.2
COPD	6	14.3	(5.0, 31.4)	20	7.2	(3.5, 12.2)	2.00	(0.74, 5.42)	7.1
Male									
Ischaemic heart disease	22	69.1	(42.8, 105.2)	52	25.3	(16.9, 35.6)	**2.73**	**(1.57, 4.75)**	43.8
Lung cancer	11	33.1	(16.3, 59.8)	16	8.5	(4.5, 14.3)	**3.91**	**(1.75, 8.74)**	24.6
Diabetes mellitus	8	24.8	(10.0, 50.4)	7	4.2	(0.6, 10.4)	**5.95**	**(1.64, 21.63)**	20.6
COPD	8	24.4	(10.1, 48.9)	20	8.6	(4.7, 13.9)	**2.86**	**(1.19, 6.86)**	15.8
Suicide	6	29.9	(10.0, 67.2)	7	12.5	(3.3, 29.0)	2.39	(0.69, 8.28)	17.4
Total									
Ischaemic heart disease	33	44.6	(30.2, 63.3)	87	16.9	(12.3, 22.3)	**2.64**	**(1.68, 4.17)**	27.7
Lung cancer	22	30.1	(18.8, 45.7)	30	7.9	(5.0, 11.8)	**3.80**	**(2.12, 6.81)**	22.2
COPD	14	18.7	(10.0, 31.8)	40	7.8	(5.0, 11.2)	**2.41**	**(1.24, 4.66)**	10.9
Cerebrovascular disease	13	17.3	(8.6, 30.6)	43	7.8	(4.5, 12.0)	**2.21**	**(1.05, 4.63)**	9.5
Diabetes mellitus	12	17.1	(8.5, 30.4)	12	2.8	(0.8, 5.9)	**6.17**	**(2.19, 17.36)**	14.3

Source: Mortality dataset, Ministry of Health.
Notes: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB. Cerebrovascular disease includes stroke.

Table 10 - Leading causes of death for Māori, all ages, Aotearoa, 2014 to 2018

Cause	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)		non-Māori leading cause
	Age-standardised rate per 100,000 (95% CI)		Age-standardised rate per 100,000 (95% CI)				
Female							
Lung cancer	29.4	(25.4, 33.9)	7.7	(7.0, 8.4)	**3.84**	**(3.24, 4.55)**	Ischaemic heart disease
Ischaemic heart disease	24.4	(20.8, 28.3)	10.1	(9.5, 10.7)	**2.42**	**(2.05, 2.84)**	Dementia
COPD	16.6	(13.7, 19.9)	5.3	(4.8, 5.8)	**3.14**	**(2.55, 3.86)**	Cerebrovascular disease
Cerebrovascular disease	13.9	(11.2, 17.1)	7.7	(7.1, 8.4)	**1.80**	**(1.44, 2.25)**	COPD
Diabetes mellitus	12.9	(10.3, 16.0)	2.7	(2.3, 3.2)	**4.76**	**(3.64, 6.23)**	Lung cancer
Male							
Ischaemic heart disease	56.7	(50.5, 63.4)	25.3	(24.1, 26.6)	**2.24**	**(1.98, 2.53)**	Ischaemic heart disease
Lung cancer	28.4	(24.2, 33.2)	9.1	(8.4, 9.9)	**3.12**	**(2.61, 3.72)**	Dementia
Diabetes mellitus	19.3	(15.8, 23.4)	4.1	(3.6, 4.6)	**4.76**	**(3.77, 6.00)**	Cerebrovascular disease
COPD	15.5	(12.5, 19.1)	6.4	(5.8, 6.9)	**2.44**	**(1.95, 3.04)**	Lung cancer
Suicide	23.6	(18.8, 29.3)	13.0	(11.4, 14.6)	**1.82**	**(1.42, 2.34)**	COPD
Total							
Ischaemic heart disease	39.4	(35.9, 43.1)	17.3	(16.6, 18.0)	**2.27**	**(2.06, 2.51)**	Ischaemic heart disease
Lung cancer	29.0	(26.0, 32.2)	8.3	(7.8, 8.9)	**3.48**	**(3.08, 3.93)**	Dementia
COPD	16.0	(13.9, 18.3)	5.7	(5.4, 6.1)	**2.79**	**(2.40, 3.24)**	Cerebrovascular disease
Diabetes mellitus	15.9	(13.7, 18.4)	3.4	(3.0, 3.7)	**4.75**	**(3.99, 5.67)**	Lung cancer
Cerebrovascular disease	13.4	(11.4, 15.7)	8.0	(7.5, 8.4)	**1.68**	**(1.43, 1.99)**	COPD

Source: Mortality dataset, Ministry of Health.
Notes: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates. Cerebrovascular disease includes stroke. Dementia includes Alzheimer's Disease.

When looking at all deaths, the age-standardised death rate (357 deaths each year per 100,000 people) was 2.1 times higher for Māori compared to non-Māori in Lakes DHB in 2014-2018 (Table 11). This equates to an average of 101 Māori females and 128 Māori males dying each year in Lakes DHB.

Table 11 - All-cause deaths, all ages, Lakes DHB, 2014 to 2018

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Rate difference
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)				
Female	101	282.8	(225.4, 349.3)	302	143.0	(112.0, 176.7)	**1.98**	**(1.45, 2.69)**	139.8
Male	128	448.9	(370.4, 538.4)	318	198.6	(162.7, 237.7)	**2.26**	**(1.74, 2.93)**	250.3
Total	230	357.8	(309.6, 410.9)	620	170.0	(146.0, 195.4)	**2.11**	**(1.72, 2.57)**	187.8

Source: Mortality dataset, Ministry of Health.
Notes: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB. Average no. per year columns may not total exactly because of rounding.

The gap between Māori and non-Māori was higher for avoidable deaths (those deaths considered amenable to high-quality healthcare, preventable through public health interventions, or both) than all deaths in Lakes DHB in 2014-2018 (Table 12). The age-standardised potentially avoidable death rate (204.8 deaths each year per 100,000 people) was 2.4 times higher for Māori compared to non-Māori in Lakes DHB in 2014 2018. This equates to an average of 48 avoidable deaths each year in Māori females aged 0-74 years, and 65 in Māori males in Lakes DHB.

Table 12 - Potentially avoidable deaths, ages 0-74 years, Lakes DHB, 2014 to 2018

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Rate difference
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)				
Female	48	163.4	(117.8, 219.9)	57	69.5	(45.0, 99.3)	**2.35**	**(1.45, 3.81)**	93.9
Male	65	251.8	(191.3, 324.6)	82	100.0	(71.4, 133.7)	**2.52**	**(1.69, 3.74)**	151.8
Total	113	204.8	(166.8, 248.6)	139	84.7	(65.5, 106.5)	**2.42**	**(1.78, 3.29)**	120.1

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

The leading causes of avoidable deaths (those deaths considered amenable to high-quality healthcare, preventable through public health interventions, or both) for Māori in Lakes DHB aged 0-74 years in 2014-2018 were ischaemic heart disease, lung cancer, diabetes, suicide and chronic obstructive pulmonary disease (COPD) (Table 13). These were the same as the leading causes of potentially avoidable death for Māori nationally (Table 14). Between 2014-2018, there were an average of 20 avoidable Māori deaths each year in Lakes DHB from ischaemic heart disease, and 16 from lung cancer.

The leading causes of potentially avoidable death for Māori females in Lakes DHB in 2014-2018 were lung cancer, breast cancer, ischaemic heart disease, cerebrovascular disease and COPD (Table 13). For Māori males, the leading causes of potentially avoidable death in 2014-2018 were ischaemic heart disease, lung cancer, suicide, diabetes and COPD. Because of the small population size of a single DHB, just 1-2 deaths from a particular cause can have a large impact on the ranking of leading causes. For this reason, local causes of potentially avoidable death for Māori men and women should be interpreted together with the leading causes of potentially avoidable death for Māori nationally (Table 14).

Table 13 - Leading causes of potentially avoidable deaths, ages 0-74 years, Lakes DHB, 2014 to 2018

Cause	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Rate difference
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)				
Female									
Lung cancer	8	20.8	(8.6, 41.9)	8	5.9	(2.4, 11.9)	**3.54**	**(1.27, 9.85)**	14.9
Breast cancer	6	20.8	(6.8, 46.7)	8	10.2	(3.2, 22.1)	2.04	(0.62, 6.74)	10.6
Ischaemic heart disease	6	16.1	(5.4, 36.6)	5	4.0	(1.1, 9.5)	**4.08**	**(1.15, 14.43)**	12.1
Cerebrovascular disease	3	10.5	(1.6, 31.9)	3	3.3	(0.3, 10.1)	3.23	(0.57, 18.35)	7.2
COPD	3	9.4	(2.1, 25.9)	5	4.0	(1.1, 9.6)	2.34	(0.57, 9.66)	5.4
Male									
Ischaemic heart disease	14	48.2	(26.0, 81.3)	16	14.7	(7.5, 25.3)	**3.27**	**(1.51, 7.10)**	33.5
Lung cancer	9	27.5	(12.2, 53.1)	10	6.5	(2.9, 12.3)	**4.23**	**(1.65, 10.86)**	21.0
Suicide and self-inflicted injuries	6	29.7	(9.8, 67.3)	6	12.5	(3.2, 29.4)	2.38	(0.68, 8.41)	17.2
Diabetes	6	21.3	(7.5, 46.4)	3	3.0	(0.0, 10.3)	**6.98**	**(1.36, 35.75)**	18.3
COPD	5	15.6	(4.3, 38.5)	6	4.3	(1.4, 9.8)	**3.61**	**(1.01, 12.98)**	11.3
Total									
Ischaemic heart disease	20	31.0	(18.5, 48.4)	21	9.2	(5.2, 14.7)	**3.36**	**(1.74, 6.52)**	21.8
Lung cancer	16	23.9	(13.7, 38.8)	18	6.2	(3.5, 10.0)	**3.86**	**(1.93, 7.72)**	17.7
Diabetes	9	14.0	(6.1, 27.1)	4	1.9	(0.2, 5.5)	**7.22**	**(1.85, 28.14)**	12.1
Suicide and self-inflicted injuries	8	19.8	(8.1, 40.2)	8	9.0	(3.0, 19.2)	2.20	(0.74, 6.54)	10.8
COPD	8	12.2	(5.1, 24.4)	11	4.2	(1.9, 7.7)	**2.94**	**(1.14, 7.60)**	8.0

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

Table 14 - Leading causes of potentially avoidable mortality, ages 0-74 years, Aotearoa, 2014 to 2018

Cause	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)		non-Māori leading cause
	Age-standardised rate per 100,000 (95% CI)		Age-standardised rate per 100,000 (95% CI)				
Female							
Lung cancer	24.6	(20.8, 28.9)	6.0	(5.3, 6.7)	**4.11**	**(3.38, 5.00)**	Breast cancer
Ischaemic heart disease	14.5	(11.5, 17.9)	3.9	(3.4, 4.5)	**3.67**	**(2.85, 4.74)**	Lung cancer
COPD	11.2	(8.7, 14.1)	3.1	(2.7, 3.6)	**3.59**	**(2.72, 4.74)**	Ischaemic heart disease
Breast cancer	11.7	(8.9, 15.1)	8.1	(7.2, 9.1)	**1.45**	**(1.09, 1.92)**	Colorectal cancer
Diabetes	9.7	(7.3, 12.6)	1.7	(1.4, 2.2)	**5.56**	**(3.91, 7.91)**	COPD
Male							
Ischaemic heart disease	42.1	(36.7, 48.1)	15.5	(14.4, 16.7)	**2.71**	**(2.33, 3.16)**	Ischaemic heart disease
Lung cancer	24.0	(20.1, 28.5)	6.7	(6.0, 7.5)	**3.59**	**(2.93, 4.40)**	Lung cancer
Suicide and self-inflicted injuries	23.8	(18.9, 29.5)	12.9	(11.4, 14.6)	**1.84**	**(1.43, 2.36)**	Suicide and self-inflicted injuries
Diabetes	15.5	(12.3, 19.3)	2.8	(2.3, 3.3)	**5.64**	**(4.24, 7.51)**	Colorectal cancer
Motor vehicle accidents	16.1	(12.2, 20.7)	7.0	(5.8, 8.4)	**2.29**	**(1.68, 3.13)**	Cerebrovascular disease
Total							
Ischaemic heart disease	27.6	(24.5, 30.9)	9.6	(9.0, 10.2)	**2.88**	**(2.52, 3.28)**	Ischaemic heart disease
Lung cancer	24.3	(21.6, 27.4)	6.3	(5.8, 6.8)	**3.85**	**(3.34, 4.43)**	Lung cancer
Diabetes	12.4	(10.4, 14.7)	2.2	(1.9, 2.6)	**5.58**	**(4.47, 6.96)**	Colorectal cancer
Suicide and self-inflicted injuries	16.9	(14.0, 20.2)	8.6	(7.7, 9.6)	**1.96**	**(1.59, 2.41)**	Suicide and self-inflicted injuries
COPD	10.4	(8.6, 12.4)	3.2	(2.8, 3.5)	**3.30**	**(2.68, 4.05)**	COPD

Source: Mortality dataset, Ministry of Health.
Notes: Cerebrovascular disease includes stroke. Ratios in **bold** show that Māori rates were significantly different from non-Māori rates.

Whānau ora
Healthy families

4. Whānau ora - Healthy families

Māori models of health encompass cultural vitality and whānau wellbeing. Indicators of these dimensions of health specific for Māori in each IMPB are included in these profiles, sourced from Te Kupenga 2018, the Māori Social Survey conducted in 2018 by StatsNZ. In 2018, this was a survey of almost 8,500 adults (aged 15 years and over) of Māori ethnicity and/or descent. Further information on Te Kupenga can be found here[8]. Data from Te Kupenga are presented for Māori only.

Based on a scale where 0 is doing extremely badly and 10 is doing extremely well (Table 15), most Māori (66.2%) in Te Taura Ora o Waiariki reported their whānau was doing well (7/10 or greater). Approximately 14% of Māori in Te Taura Ora o Waiariki reported that their whānau was doing extremely well (10/10). About a third of Māori (33.9%) in Te Taura Ora o Waiariki reported that their whānau was not doing well (6/10 or less).

Table 15 - Whānau well-being reported by Māori aged 15 years and over, Te Taura Ora o Waiariki and Aotearoa, 2018

How the whānau is doing	Te Taura Ora o Waiariki		Aotearoa	
	%	(95% CI)	%	(95% CI)
(10 out of 10)	13.9 *	(9.5, 18.2)	12.9	(12.1, 13.7)
(9 out of 10)	11.6 *	(7.2, 16.0)	12.8	(11.9, 13.6)
(8 out of 10)	20.7	(16.6, 24.8)	24.4	(23.3, 25.6)
(7 out of 10)	20.0	(15.6, 24.3)	23.5	(22.5, 24.6)
(0-6 out of 10)	33.9	(26.6, 41.2)	26.4	(25.2, 27.6)

Source: Te Kupenga 2018, Statistics New Zealand customised report.
Note: An asterisk (*) shows the sampling error is 30% or more but less than 50%.

[8] https://www.stats.govt.nz/information-releases/te-kupenga-2018-final-english

When thinking about who made up the whānau, over a quarter of Māori (28.4%) in Te Taura Ora o Waiariki included “close friends or others” (Table 16)

Table 16 - Whānau composition reported by Māori aged 15 years and over, Te Taura Ora o Waiariki and Aotearoa, 2018

Whānau description	Te Taura Ora o Waiariki		Aotearoa	
	%	(95% CI)	%	(95% CI)
Size of whānau				
10 or less	51.0	(43.7, 58.3)	52.1	(50.6, 53.6)
11 to 20	23.4	(18.1, 28.7)	24.2	(23.0, 25.4)
More than 20	25.6 *	(17.9, 33.2)	23.7	(22.3, 25.0)
Groups included in whānau				
Parents, partner, children, brothers and sisters	97.6	(95.3, 99.9)	97.4	(97.0, 97.8)
Grandparents, grandchildren	37.2	(30.2, 44.3)	39.0	(37.5, 40.5)
Aunts and uncles, cousins, nephews and nieces, other in-laws	52.8	(44.2, 61.5)	48.6	(47.1, 50.2)
Close friends, others	28.4	(21.4, 35.4)	22.6	(21.3, 23.8)

Source: Te Kupenga 2018, Statistics New Zealand customised report.
Note: An asterisk (*) shows the sampling error is 30% or more but less than 50%.

Most Māori (73.2%) in Te Taura Ora o Waiariki reported it was easy or very easy to get support in times of need. The majority of Māori (69.4%) reported it was easy or very easy to get help with Māori cultural practices, such as going to a tangi, speaking at a hui or blessing a taonga, higher than that seen for all Māori in Aotearoa (59%) (Table 17).

Table 17 - Access to whānau support, Māori aged 15 years and over, Te Taura Ora o Waiariki and Aotearoa, 2018

How easy is it to get help	Te Taura Ora o Waiariki		Aotearoa	
	%	(95% CI)	%	(95% CI)
Support in times of need				
Easy, very easy	73.2	(67.4, 79.0)	76.1	(74.9, 77.3)
Sometimes easy, sometimes hard	17.3	(13.1, 21.6)	16.4	(15.5, 17.4)
Hard, very hard	9.4 *	(5.3, 13.5)	7.5	(6.7, 8.3)
Help with Māori cultural practices such as going to a tangi, speaking at a hui, or blessing a taonga				
Easy, very easy	69.4	(62.5, 76.2)	59.0	(57.7, 60.3)
Sometimes easy, sometimes hard	14.6	(10.5, 18.8)	18.9	(17.9, 19.9)
Hard, very hard	12.2 *	(8.3, 16.1)	18.1	(17.0, 19.2)

Source: Te Kupenga 2018, Statistics New Zealand customised report.
Note: An asterisk (*) shows the sampling error is 30% or more but less than 50%.

Being involved in Māori culture was very/quite important to 56.8% of Māori in Te Taura Ora o Waiariki, and spirituality was very/quite important to 54.9% of Māori in Te Taura Ora o Waiariki (Table 18). Only 7.6% of Māori respondents in Te Taura Ora o Waiariki reported that being involved in Māori culture was not at all important to them. Of note, being involved in Māori culture was very important to 34.6% of Māori in in Te Taura Ora o Waiariki, a significantly higher proportion than for Māori nationally (22.1%). Significant differences are also seen for Māori in Te Taura Ora o Waiariki who had a lower proportion stating that spirituality was not at all important (14.2%) versus 19.2% for Māori nationally.

Table 18 - Importance of Māori culture and spirituality, Māori aged 15 years and over, Te Taura Ora o Waiariki and Aotearoa, 2018

	Te Taura Ora o Waiariki		Aotearoa	
	%	(95% CI)	%	(95% CI)
Importance of being involved in Māori culture				
Very important	34.6	(29.8, 39.3)	22.1	(21.1, 23.1)
Quite important	22.2	(17.2, 27.1)	23.2	(22.1, 24.3)
Somewhat	21.7	(16.3, 27.1)	25.8	(24.7, 26.9)
A little important	13.9	(10.1, 17.8)	18.3	(17.1, 19.5)
Not at all important	7.6 *	(4.5, 10.7)	10.6	(9.7, 11.6)
Importance of spirituality				
Very important	33.8	(29.2, 38.3)	30.7	(29.5, 31.9)
Quite important	21.1	(16.1, 26.0)	18.0	(16.9, 19.0)
Somewhat	18.4	(14.1, 22.7)	16.8	(15.9, 17.8)
A little important	12.7 *	(8.4, 16.9)	15.3	(14.3, 16.2)
Not at all important	14.2	(10.4, 17.9)	19.2	(18.1, 20.4)

Source: Te Kupenga 2018, Statistics New Zealand customised report.
Note: An asterisk (*) shows the sampling error is 30% or more but less than 50%.

Approximately one third of Māori (30%) in Te Taura Ora o Waiariki used te reo Māori in the home, which is higher than Māori nationally (Table 19).

Table 19 - Use of te reo Māori in the home, Māori aged 15 years and over, Te Taura Ora o Waiariki and Aotearoa, 2018

Language spoken at home	Te Taura Ora o Waiariki		Aotearoa	
	%	(95% CI)	%	(95% CI)
Māori is main language	S	(NA, NA)	1.8	(1.3, 2.2)
Māori is used regularly	30.0	(22.3, 37.7)	18.4	(17.3, 19.5)

Source: Te Kupenga 2018, Statistics New Zealand customised report.
Notes: NA = Not Available, S = suppressed: number too small for reliable estimate.

In 2018, almost all Māori in Te Taura Ora o Waiariki (99.8%) had been to a marae at some point in their lives, with a majority of these (74.4%) having been in the last 12 months (Table 20). Of those who had ever been to a marae and who knew their ancestral marae, over 90% had been to an ancestral marae at some time, and 57.6% had been in the last 12 months, and just under two-thirds reporting that they would like to go more often (60.2%).

Table 20 - Access to marae, Māori aged 15 years and over, Te Taura Ora o Waiariki and Aotearoa, 2018

Been to marae	Te Taura Ora o Waiariki		Aotearoa	
	%	(95% CI)	%	(95% CI)
At some time	99.8	(99.3, 100.2)	96.6	(96.0, 97.1)
In previous 12 months [1]	74.4	(68.2, 80.6)	51.8	(50.6, 53.1)
Ancestral marae at some time [1][2]	91.0	(87.1, 94.9)	84.3	(82.9, 85.6)
Ancestral marae in previous 12 months [1][2]	57.6	(51.6, 63.6)	44.3	(42.6, 45.9)
Like to go to ancestral marae more often [1][2]	60.2	(54.1, 66.2)	63.6	(62.1, 65.1)

Source: Te Kupenga 2018, Statistics New Zealand customised report.
Notes: [1] Those who had been to a marae at some time. [2] Includes only those who knew their ancestral marae.

In 2018, 15.5% of Māori in Te Taura Ora o Waiariki had taken part in traditional healing or massage in the past 12 months (Table 21).

Table 21 - Māori aged 15 years and over who took part in traditional healing or massage in last 12 months, Te Taura Ora o Waiariki and Aotearoa, 2018

Te Taura Ora o Waiariki		Aotearoa	
%	(95% CI)	%	(95% CI)
15.5 *	(10.3, 20.7)	12.3	(11.4, 13.2)

Source: Te Kupenga 2018, Statistics New Zealand customised report.
Note: An asterisk (*) shows the sampling error is 30% or more but less than 50%.

Wai ora
Healthy environments

5. Wai ora − Healthy environments

This section focuses on key aspects of social and physical environments that influence health and well-being. Information in this section comes from Māori and non-Māori individuals responding to the NZ Census 2018, or Māori respondents in the 2018 Te Kupenga survey. Because of data availability at the time of writing, NZ Census 2018, NZDep2018 and PHO enrolment data are presented for the Lakes DHB geographical area, whereas Te Kupenga survey data is presented for the Te Taura Ora o Waiariki IMPB geographic area. The data quality and degree of certainty for Māori is not the same for all variables from the NZ Census 2018. Please see the technical appendix at the end of this report, for further details about how geographic areas were defined for each data source, and for more information on how to interpret variables from the NZ Census 2018.

5.1. Education

In 2018, 67.2% of Māori aged over 20 years in Te Taura Ora o Waiariki had achieved a Level 2 Certificate or higher, compared to 79.1% for non-Māori (Table 22). This is similar to Lakes DHB data, with 67.2% of Māori aged over 20 years achieving a Level 2 Certificate or higher, compared to 78.6% for non-Māori (Table 23).

Table 22 - Adults aged 20 years and over with a Level 2 Certificate or higher, Te Taura Ora o Waiariki, 2018

Year	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
2018	10,173	67.2	(67.2, 68.6)	22,599	79.1	(77.9, 80.3)	**0.85**	**(0.84, 0.86)**	-11.6

Source: 2018 Census, Statistics New Zealand.
Notes: Percentages are age-standardised to the 2001 Māori population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 23 - Adults aged 20 years and over with a Level 2 Certificate or higher, Lakes DHB, 2018

Year	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
2018	13,911	66.2	(65.1, 67.3)	36,075	78.6	(77.6, 79.6)	**0.84**	**(0.83, 0.85)**	-12.4

Source: 2018 Census, Statistics New Zealand.
Notes: Percentages are age-standardised to the 2001 Māori population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

5.2. Work

In 2018, 46.6% of Māori aged 15 years and over in Te Taura Ora o Waiariki were employed full time, and 15.7% were employed part time (Table 24). In 2018, 11.8% of Māori in Te Taura Ora o Waiariki were unemployed, over twice the rate of non-Māori, and Māori were 1.2 times more likely than non-Māori to not be in the labour force.

This is similar to Lakes DHB data, with 47.3% of Māori aged 15 years and over employed full time, and 16.5% employed part time (Table 25). In 2018, 10.6% of Māori in Lakes DHB were unemployed, over twice the rate of non-Māori, and Māori were 1.2 times more likely than non-Māori to not be in the labour force.

Table 24 - Labour force status, 15 years and over, Te Taura Ora o Waiariki, 2018

Labour force status	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
Employed full-time	8,937	46.6	(45.6, 47.6)	18,180	55.5	(54.6, 56.4)	**0.84**	**(0.82, 0.86)**	-8.9
Employed part-time	2,991	15.7	(15.1, 16.3)	5,547	18.0	(17.4, 18.6)	**0.87**	**(0.84, 0.91)**	-2.3
Unemployed	2,151	11.8	(11.3, 12.3)	1,227	4.9	(4.6, 5.2)	**2.41**	**(2.25, 2.58)**	6.9
Not in the labour force	5,607	25.9	(25.2, 26.6)	11,121	21.5	(20.9, 22.1)	**1.21**	**(1.17, 1.24)**	4.4

Source: 2018 Census, Statistics New Zealand.
Notes: Percentages are age-standardised to the 2001 Māori population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.
Employed part-time includes people working 1 hour per week or more. Employed full-time includes people who usually work 30 or more hours per week. Unemployed people are without a paid job, available for work and actively seeking work. People not in the labour force includes people in the working age population who are neither employed nor unemployed.

Table 25 - Labour force status, 15 years and over, Lakes DHB, 2018

Labour force status	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
Employed full-time	12,564	47.3	(46.4, 48.2)	28,941	56.6	(55.9, 57.4)	**0.84**	**(0.82, 0.85)**	-9.3
Employed part-time	4,341	16.5	(16.0, 17.1)	9,054	18.0	(17.5, 18.4)	**0.92**	**(0.89, 0.95)**	-1.4
Unemployed	2,649	10.6	(10.2, 11.0)	1,704	4.4	(4.2, 4.6)	**2.42**	**(2.28, 2.56)**	6.2
Not in the labour force	7,710	25.5	(24.9, 26.2)	18,354	21.0	(20.6, 21.5)	**1.21**	**(1.19, 1.24)**	4.5

Source: 2018 Census, Statistics New Zealand.
Notes: Percentages are age-standardised to the 2001 Māori population. Ratios in bold show a statistically significant difference between Māori and non-Māori.
Employed part-time includes people working 1 hour per week or more. Employed full-time includes people who usually work 30 or more hours per week. Unemployed people are without a paid job, available for work and actively seeking work. People not in the labour force includes people in the working age population who are neither employed nor unemployed.

In 2018, the main employers of Māori women in Te Taura Ora o Waiariki were education and training (16.3%); health care and social assistance (15.6%); accommodation and food services (14.7%); retail (9.6%); and Public Administration and Safety (6.2%) (Table 26). For Māori men, the leading industries were manufacturing (18.0%); construction (12.2%); agriculture, forestry and fishing (11.7%); retail trade (7.0%); and transport, postal and warehousing (6.8%).

When looking at Lakes DHB data (Table 27), the pattern is slightly different. In 2018, the main employers of Māori women in Lakes DHB were accommodation and food services (16.8%); education and training (14.7%); health care and social assistance (14.3%); retail (10.2%); and Public Administration and Safety (6.0%). For Māori men, the leading industries were manufacturing (16.7%); agriculture, forestry and fishing (13.8%); construction (13.8%); retail trade (7.0%); and transport, postal and warehousing (7.0%).

Table 26 - Leading industries in which Māori were employed, Te Taura Ora o Waiariki, 2018

ANZSIC Industry	Māori			non-Māori		
	Number	%	Rank	Number	%	Rank
Females						
Education and Training	975	16.3%	1	1,455	12.7%	2
Health Care and Social Assistance	933	15.6%	2	2,283	20.0%	1
Accommodation and Food Services	876	14.7%	3	1,368	12.0%	3
Retail Trade	576	9.6%	4	1,164	10.2%	4
Public Administration and Safety	372	6.2%	5	570	5.0%	7
Males						
Manufacturing	1,068	18.0%	1	1,803	14.6%	1
Construction	723	12.2%	2	1,401	11.4%	2
Agriculture, Forestry and Fishing	696	11.7%	3	1,395	11.3%	3
Retail Trade	417	7.0%	4	1,089	8.8%	5
Transport, Postal and Warehousing	402	6.8%	5	678	5.5%	7

Source: 2018 Census, Statistics New Zealand.
Note: Australian and New Zealand Standard Industrial Classification (ANZSIC).

Table 27 - Leading industries in which Māori were employed, Lakes DHB, 2018

ANZSIC Industry	Māori			non-Māori		
	Number	%	Rank	Number	%	Rank
Females						
Accommodation and Food Services	1,425	16.8%	1	2,301	12.7%	2
Education and Training	1,248	14.7%	2	2,211	12.2%	3
Health Care and Social Assistance	1218	14.3%	3	3,093	17.1%	1
Retail Trade	864	10.2%	4	2,067	11.5%	4
Public Administration and Safety	507	6.0%	5	858	4.8%	7
Males						
Manufacturing	1,410	16.7%	1	2,568	12.9%	1
Agriculture, Forestry and Fishing	1,158	13.8%	2	2,373	11.9%	3
Construction	1,128	13.4%	3	2,535	12.7%	2
Retail Trade	591	7.0%	4	1,749	8.8%	5
Transport, Postal and Warehousing	591	7.0%	5	1,197	6.0%	7

Source: 2018 Census, Statistics New Zealand.
Note: Australian and New Zealand Standard Industrial Classification (ANZSIC).

In terms of the type of work Māori perform within those industries, for employed Māori women in Te Taura Ora o Waiariki (Table 28), the leading occupational groupings were professionals (22.8%) community and personal service workers (18.6%); clerical and administrative workers (15.5%); labourers (14.7%); and sales workers (11.7%). Māori men in Te Taura Ora o Waiariki were most likely to be employed as labourers (23.7%); technicians and trade workers (17.6%); machinery operators and drivers (17.1%); managers (12.7%); and professionals (10.6%).

For Lakes DHB (Table 29), leading occupational groupings for Māori women were professionals (20.6%); community and personal service workers (19.1%); labourers (16.2%); clerical and administrative workers (15.2%); and sales workers (12.0%). Leading occupational groupings for Māori men in Lakes DHB were labourers (25.2%); technicians and trade workers (17.6%); machinery operators and drivers (16.9%); managers (14.0%); and professionals (9.5%).

Table 28 - Leading occupations in which Māori were employed, Te Taura Ora o Waiariki, 2018

ANZSCO Occupation	Māori			non-Māori		
	Number	%	Rank	Number	%	Rank
Females						
Professionals	1,365	22.8%	1	3,033	26.5%	1
Community and Personal Service Workers	1,110	18.6%	2	1,710	15.0%	3
Clerical and Administrative Workers	924	15.5%	3	2,103	18.4%	2
Labourers	879	14.7%	4	864	7.6%	6
Sales Workers	702	11.7%	5	1,329	11.6%	5
Managers	651	10.9%	6	1,653	14.5%	4
Technicians and Trades Workers	231	3.9%	7	609	5.3%	7
Machinery Operators and Drivers	114	1.9%	8	126	1.1%	8
Males						
Labourers	1,407	23.7%	1	1,599	13.0%	4
Technicians and Trades Workers	1,047	17.6%	2	2,607	21.2%	2
Machinery Operators and Drivers	1,017	17.1%	3	1,158	9.4%	5
Managers	756	12.7%	4	2,874	23.3%	1
Professionals	627	10.6%	5	1,962	15.9%	3
Community and Personal Service Workers	498	8.4%	6	753	6.1%	7
Sales Workers	384	6.5%	7	948	7.7%	6
Clerical and Administrative Workers	198	3.3%	8	420	3.4%	8

Source: 2018 Census, Statistics New Zealand.
Note: Australian and New Zealand Standard Classification of Occupations (ANZSCO), major grouping.

Table 29 - Leading occupations in which Māori were employed, Lakes DHB, 2018

ANZSCO Occupation	Māori			non-Māori		
	Number	%	Rank	Number	%	Rank
Females						
Professionals	1,752	20.6%	1	4,467	24.7%	1
Community and Personal Service Workers	1,623	19.1%	2	2,628	14.6%	4
Labourers	1,377	16.2%	3	1,485	8.2%	6
Clerical and Administrative Workers	1,287	15.2%	4	3,333	18.5%	2
Sales Workers	1,020	12.0%	5	2,160	12.0%	5
Managers	918	10.8%	6	2,769	15.3%	3
Technicians and Trades Workers	351	4.1%	7	1,014	5.6%	7
Machinery Operators and Drivers	162	1.9%	8	195	1.1%	8
Males						
Labourers	2,121	25.2%	1	2,595	13.0%	4
Technicians and Trades Workers	1,479	17.6%	2	4,221	21.2%	2
Machinery Operators and Drivers	1,425	16.9%	3	1,959	9.8%	5
Managers	1,176	14.0%	4	4,899	24.6%	1
Professionals	801	9.5%	5	2,958	14.8%	3
Community and Personal Service Workers	672	8.0%	6	1,218	6.1%	7
Sales Workers	492	5.8%	7	1,431	7.2%	6
Clerical and Administrative Workers	252	3.0%	8	657	3.3%	8

Source: 2018 Census, Statistics New Zealand.
Note: Australian and New Zealand Standard Classification of Occupations (ANZSCO), major grouping.

Unpaid work is very common, with 89.1% of Māori aged over 15 years in Te Taura Ora o Waiariki in 2018 reporting they performed unpaid work (Table 30). Māori in Te Taura Ora o Waiariki were significantly more likely than non-Māori to participate in unpaid work looking after a disabled or ill household (1.9 times) or non-household (1.4 times) member.

This is similar to Lakes DHB data with 88.7% of Māori aged over 15 years reporting they performed unpaid work (Table 31). Māori in Lakes DHB were significantly more likely than non-Māori to participate in unpaid work looking after a disabled or ill household (1.9 times) or non-household (1.4 times) member.

Table 30 - Unpaid work, 15 years and over, Te Taura Ora o Waiariki, 2018

Unpaid work	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	Number	%			
Any unpaid work	11,280	89.1	26,892	88.9	1.00	(0.99, 1.01)	0.2
Looking after disabled/ill household member	1,695	13.4	2,154	7.1	**1.88**	**(1.77, 2.00)**	6.3
Looking after disabled/ill non-household member	1,458	11.5	2,508	8.3	**1.39**	**(1.31, 1.48)**	3.2

Source: 2018 Census, Statistics New Zealand.
Notes: Percentages are NOT age-standardised due to not having detailed age-group data available. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 31 - Unpaid work, 15 years and over, Lakes DHB, 2018

Unpaid work	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	Number	%			
Any unpaid work	15,669	88.7	43,686	89.5	0.99	(0.99, 1.00)	-0.8
Looking after disabled/ill household member	2,310	13.1	3,339	6.8	**1.91**	**(1.82, 2.01)**	6.2
Looking after disabled/ill non-household member	2,025	11.5	3,927	8.0	**1.43**	**(1.35, 1.50)**	3.4

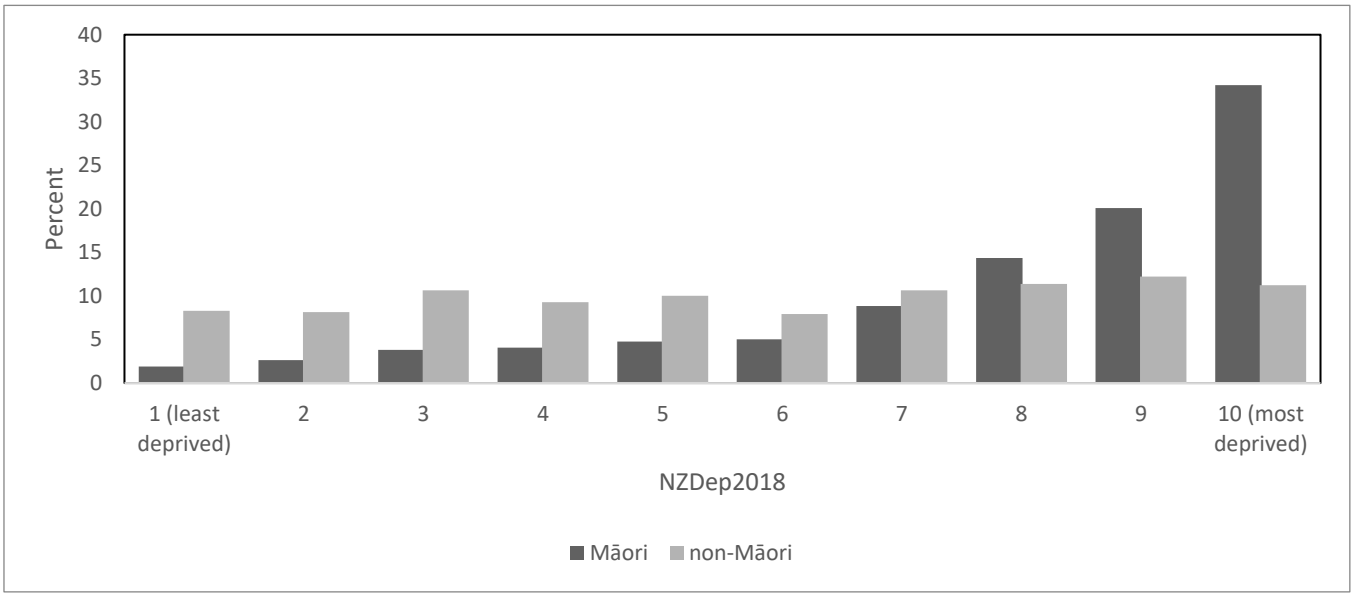
Source: 2018 Census, Statistics New Zealand.
Notes: Percentages are NOT age-standardised due to not having detailed age-group data available. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

5.3. Income and standard of living

NZDep2018 is a small-area-based measure of neighbourhood deprivation, by looking at the comparative socio-economic positions of small geographic areas and assigning them decile numbers from 1 (least deprived) to 10 (most deprived). The index is based on 9 socio-economic variables from the 2018 Census (Atkinson, Salmond et al. 2019). It describes the general socio-economic deprivation of an area. An area's decile score does not necessarily mean all individuals living in that area experience an equivalent level of deprivation.

In Lakes DHB, 54% of Māori lived in the two most deprived deciles in 2018, compared to 23% for non-Māori (Figure 5). A total of 5% of Māori in Lakes DHB lived in the two least deprived deciles in 2018, compared to 16% of non-Māori in Lakes DHB. In 2018, 34% of Māori in Lakes DHB (14,300 people) lived in the most deprived decile.

Figure 5 - NZDep2018 distribution of Māori and non-Māori by decile, Lakes DHB, 2018



Source: Deprivation decile for estimated resident population (ERP), former DHB areas, prioritised ethnicity, provided by Stats NZ for Te Whatu Ora. Deprivation is derived according to the neighbourhood where the individual lives, based on University of Otago's NZDep2018 Socio-economic Deprivation Indices.

In 2018, 15.8% of Māori aged over 15 years in Te Taura Ora o Waiariki reported often postponing or putting off a doctor's visit, 8.1% often went without fresh fruit and vegetables, and 12.0% often put up with feeling cold, because of cost (Table 32).

Table 32 - Unmet needs reported by Māori aged 15 years and over to keep costs down in the last 12 months Te Taura Ora o Waiariki, 2018

Actions taken a lot to keep costs down	Te Taura Ora o Waiariki		Aotearoa	
	%	(95% CI)	%	(95% CI)
Put up with feeling the cold	12.0 *	(8.0, 15.9)	9.9	(9.1, 10.7)
Go without fresh fruit and vegetables	8.1 **	(3.9, 12.3)	6.2	(5.6, 6.9)
Postpone or put off visits to the doctor	15.8 *	(9.7, 22.0)	9.7	(8.8, 10.6)

Source: Te Kupenga 2018, Statistics New Zealand customised report.
Notes: An asterisk (*) shows the sampling error is 30% or more but less than 50%, ** shows a sampling error of 50% or more but less than 100%. Participants were asked if they did any of these "a lot", "a little" or "not at all" to keep costs down. Only those who answered "a lot" are shown here.

Māori in Te Taura Ora o Waiariki are significantly more likely than non-Māori (1.4 times) to receive an income of $20,000 or less (Table 33). This equates to 38.6% of Māori in Te Taura Ora o Waiariki aged 20 years and over lived on an income of $20,000 or less compared to 28.2% of non-Māori in 2018.

In Lakes DHB, Māori were significantly more likely than non-Māori (1.4 times) to receive an income of $20,000 or less (Table 34).This equates to 37.9% of Māori in Lakes DHB aged 20 years and over lived on an income of $20,000 or less compared to 26.8% of non-Māori in 2018.

Table 33 - People 20 years and over whose total annual personal income in $20,000 or less, Te Taura Ora o Waiariki, 2018

Measure	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
Total income $20,000 or less	6,552	38.6	(37.6, 39.6)	9,774	28.2	(27.5, 28.9)	**1.37**	**(1.34, 1.41)**	10.5

Source: 2018 Census, Statistics New Zealand.
Notes: Percentages are age-standardised to the 2001 Māori population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 34 - People 20 years and over whose total annual personal income in $20,000 or less, Lakes DHB, 2018

Measure	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
Total income $20,000 or less	8,937	37.9	(37.0, 38.7)	15,291	26.8	(26.3, 27.4)	**1.41**	**(1.38, 1.44)**	11.1

Source: 2018 Census, Statistics New Zealand.
Notes: Percentages are age-standardised to the 2001 Māori population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Māori in Lakes DHB are almost 3 times more likely than non-Māori to be without access to a motor vehicle (Table 35). This equates to 5.2% of Māori (1,581 people) living in Lakes DHB with no access to a motor vehicle compared to 1.8% of non-Māori in 2018.

Table 35 - People with no access to a motor vehicle, Lakes DHB, 2018

Measure	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
2018	1,581	5.2	(5.0, 5.5)	1,587	1.8	(1.6, 1.9)	**2.98**	**(2.78, 3.19)**	3.5

Source: 2018 Census, Statistics New Zealand.
Note: Percentages are age-standardised to the 2001 Māori population Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Māori in Lakes DHB are over 2.0 times more likely than non-Māori to have no access to telecommunications (Table 36). This equates to 1.9% of Māori (549 people) who had no access to any form of telecommunications (a functional cellphone, telephone, or the Internet) compared to 0.9% of non-Māori in 2018.

Table 36 - People with no access to telecommunications, Lakes DHB, 2018

Measure	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
2018	549	1.9	(1.7, 2.1)	513	0.9	(0.8, 1.0)	**2.10**	**(1.86, 2.37)**	1.0

Source: 2018 Census, Statistics New Zealand.
Note: Percentages are age-standardised to the 2001 Māori population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

5.4. Housing

Māori in Te Taura Ora o Waiariki are less likely than non-Māori to own their home (Table 37). In 2018, 66.7% of Māori aged 20 years and over in Te Taura Ora o Waiariki lived in a home they did not own/partly own or hold in a family trust compared to 49.6% of non-Māori.

Māori in Lakes DHB are less likely than non-Māori to own their home (Table 38). In 2018, 66.6% of Māori aged 20 years and over in Lakes DHB lived in a home they did not own/partly own or hold in a family trust compared to 49.6% of non-Māori.

Table 37 - Housing tenure, 20 years and over, Te Taura Ora o Waiariki, 2018

Housing tenure	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
Owned or partly owned	3,870	29.4	(28.4, 30.4)	15,147	43.1	(42.3, 44.0)	**0.68**	**(0.66, 0.70)**	-13.8
Held in a family trust	558	3.9	(3.6, 4.3)	3,198	7.3	(7.0, 7.6)	**0.54**	**(0.50, 0.59)**	-3.3
Not owned; not held in a family trust	6,759	66.7	(65.0, 68.4)	10,398	49.6	(48.5, 50.7)	**1.34**	**(1.32, 1.37)**	17.1

Source: 2018 Census, Statistics New Zealand
Notes: Percentages are age-standardised to the 2001 Māori population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 38 - Housing tenure, 20 years and over, Lakes DHB, 2018

Housing tenure	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
Owned or partly owned	5,430	29.2	(28.4, 30.1)	24,135	42.2	(41.5, 42.8)	**0.69**	**(0.68, 0.71)**	-13.0
Held in a family trust	813	4.1	(3.8, 4.4)	6,162	8.3	(8.0, 8.5)	**0.49**	**(0.46, 0.53)**	-4.2
Not owned; not held in a family trust	9,450	66.6	(65.2, 68.0)	16,296	49.6	(48.7, 50.5)	**1.34**	**(1.32, 1.37)**	17.0

Source: 2018 Census, Statistics New Zealand
Notes: Percentages are age-standardised to the 2001 Māori population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Living in an overcrowded home was 2.7 times more common for Māori than non-Māori in Lakes DHB in 2018 (Table 39). In the 2018 Census, 25% of Māori (7,389 people) in Lakes DHB lived in overcrowded homes compared to 9.3% of non-Māori.

Table 39 - People living in crowded households (requiring at least one more bedroom), Lakes DHB, 2018

Measure	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
Household crowding	7,389	25.0	(24.5, 25.6)	4,077	9.3	(9.0, 9.6)	**2.69**	**(2.60, 2.79)**	15.7

Source: 2018 Census, Statistics New Zealand.
Notes: Percentages are age-standardised to the 2001 Māori population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

In 2018, 47.0% of Māori in Te Taura Ora o Waiariki lived in a home that was sometimes or always damp, and 39.4% of Māori lived in a house with mould (Table 40). Māori in Te Taura Ora o Waiariki were 1.6 times more likely than non-Māori to live in a damp home and 1.7 times more likely to live in a mouldy home.

Data for Lakes DHB is similar, with 44.8% of Māori in Lakes DHB living in a home that was sometimes or always damp, and 37.3% of Māori living in a house with mould (Table 41). Māori in Lakes DHB were 1.7 times more likely than non-Māori to live in a damp home and 1.8 times more likely to live in a mouldy home.

Table 40 - People experiencing housing quality issues sometimes or always, Te Taura Ora o Waiariki, 2018

Housing quality issues	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
Dampness	8,874	47.0	(45.9, 48.0)	8,682	28.7	(28.0, 29.4)	**1.64**	**(1.60, 1.68)**	18.3
Mould	7,557	39.4	(38.5, 40.3)	7,272	23.8	(23.1, 24.4)	**1.66**	**(1.61, 1.70)**	15.6

Source: 2018 Census, Statistics New Zealand
Notes: Percentages are age-standardised to the 2001 Māori population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori. Dampness indicator shows % people who stated their house experienced dampness sometimes or always. Mould indicator shows % people who stated their house experienced mould (of approximately A4-size or larger) sometimes or always.

Table 41 - People experiencing housing quality issues sometimes or always, Lakes DHB, 2018

Housing quality issues	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
Dampness	11,775	44.8	(44.0, 45.7)	12,228	25.7	(25.2, 26.3)	**1.74**	**(1.71, 1.78)**	19.1
Mould	9,933	37.3	(36.5, 38.0)	9,918	20.5	(20.1, 21.0)	**1.82**	**(1.77, 1.86)**	16.7

Source: 2018 Census, Statistics New Zealand.
Notes: Percentages are age-standardised to the 2001 Māori population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.
Dampness indicator shows % people who stated their house experienced dampness sometimes or always.
Mould indicator shows % people who stated their house experienced mould (of approximately A4-size or larger) sometimes or always.

Māori in Lakes DHB were more likely than non-Māori to live in homes without any source of heating in 2018 (Table 42). This equates to 1.6% of Māori (465 people) in Lakes DHB who were without heating compared to 1.3% of non-Māori in 2018.

Table 42 - People living in households where there is no source of heating, Lakes DHB, 2018

Measure	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
No source of heating	465	1.6	(1.5, 1.8)	651	1.3	(1.2, 1.5)	**1.20**	**(1.07, 1.35)**	0.3

Source: 2018 Census, Statistics New Zealand.
Note: Percentages are age-standardised to the 2001 Māori population Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

5.5. Primary care enrolment

In October 2023, 14.1% of Māori in Lakes DHB were not enrolled with primary health care, compared to 2.9% for non-Māori (Table 43). Nationally, 16.2% of Māori were not enrolled with primary health care, compared to 1.3% of non-Māori in October 2023. One partial explanation for the lower enrolment for Māori may be related to poor ethnicity data quality - this primary care enrolment data uses the ethnicity recorded in a person's National Health Index (NHI) record, and previous research has found that compared to the ethnicity that people report in the Census, the NHI undercounts Māori by 15.7%, with higher undercounts for Māori men (Harris, Paine et al. 2022).

The poor ethnicity data quality makes it difficult to assess how many Māori in Lakes DHB are actually missing out on being enrolled with primary health care, and how many are actually enrolled but misclassified with a non-Māori ethnicity. It is likely that both of these factors make a contribution to the inequity in primary care enrolment data.

Table 43 - People enrolled with primary care, Lakes DHB, October 2023

Year	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
2023	39,708	85.9	(85.1, 86.8)	70,390	97.1	(96.4, 97.8)	**0.89**	**(0.88, 0.89)**	-11.1

Source: Te Whatu Ora Primary Care Enrolment data; denominator is 2023 ERP from Te Whatu Ora Population Web Tool.
Notes: Percentages are crude (not age-standardised). Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Ngā āpitihanga
Appendices

Appendix 1: IMPB Māori population projections

Table 44 - Māori population projections, single year, Te Taura Ora o Waiariki, by 5-year age band, 2018 to 2042

Age Groups	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
	2018			2019			2020			2021		
00-04	1,445	1,515	2,960	1,420	1,500	2,920	1,425	1,480	2,905	1,430	1,470	2,900
05-09	1,600	1,645	3,245	1,545	1,640	3,185	1,510	1,645	3,155	1,450	1,630	3,080
10-14	1,520	1,665	3,185	1,600	1,710	3,310	1,675	1,740	3,415	1,695	1,760	3,455
15-19	1,365	1,470	2,835	1,385	1,490	2,875	1,385	1,530	2,915	1,410	1,545	2,955
20-24	1,165	1,150	2,315	1,200	1,150	2,350	1,255	1,210	2,465	1,285	1,260	2,545
25-29	1,125	1,110	2,235	1,130	1,145	2,275	1,100	1,145	2,245	1,115	1,155	2,270
30-34	1,065	880	1,945	1,115	940	2,055	1,180	1,000	2,180	1,225	1,090	2,315
35-39	910	755	1,665	920	785	1,705	985	795	1,780	1,025	850	1,875
40-44	950	815	1,765	950	810	1,760	970	825	1,795	990	850	1,840
45-49	945	900	1,845	955	920	1,875	950	905	1,855	950	910	1,860
50-54	910	755	1,665	935	795	1,730	960	840	1,800	990	885	1,875
55-59	875	725	1,600	900	715	1,615	880	715	1,595	890	750	1,640
60-64	675	565	1,240	715	615	1,330	755	630	1,385	785	655	1,440
65-69	470	395	865	465	395	860	485	415	900	555	455	1,010
70-74	285	250	535	290	275	565	325	285	610	370	300	670
75-79	180	155	335	200	170	370	200	165	365	190	175	365
80-84	115	65	180	130	65	195	130	50	180	125	55	180
85+	50	15	65	50	25	75	40	25	65	45	20	65
All Ages	**15,620**	**14,860**	**30,460**	**15,940**	**15,110**	**31,080**	**16,300**	**15,510**	**31,780**	**16,630**	**15,810**	**32,450**

Source: Te Whatu Ora Population Webtool (Best Available Populations).

Age Groups	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
	2022			2023			2024			2025		
00-04	1,445	1,465	2,910	1,425	1,480	2,905	1,440	1,495	2,935	1,450	1,510	2,960
05-09	1,465	1,605	3,070	1,475	1,580	3,055	1,450	1,530	2,980	1,420	1,505	2,925
10-14	1,685	1,735	3,420	1,645	1,690	3,335	1,605	1,700	3,305	1,550	1,670	3,220
15-19	1,445	1,570	3,015	1,480	1,615	3,095	1,570	1,635	3,205	1,620	1,675	3,295
20-24	1,300	1,305	2,605	1,300	1,335	2,635	1,300	1,380	2,680	1,290	1,380	2,670
25-29	1,170	1,175	2,345	1,190	1,185	2,375	1,225	1,190	2,415	1,250	1,240	2,490
30-34	1,255	1,135	2,390	1,255	1,180	2,435	1,210	1,200	2,410	1,180	1,205	2,385
35-39	1,090	890	1,980	1,155	965	2,120	1,215	1,015	2,230	1,280	1,065	2,345
40-44	995	820	1,815	1,000	835	1,835	1,020	860	1,880	1,040	870	1,910
45-49	980	880	1,860	1,010	870	1,880	1,015	840	1,855	1,025	885	1,910
50-54	1,000	920	1,920	1,005	935	1,940	995	945	1,940	980	950	1,930
55-59	895	750	1,645	915	765	1,680	950	800	1,750	970	830	1,800
60-64	805	665	1,470	830	670	1,500	860	685	1,545	835	675	1,510
65-69	580	445	1,025	635	480	1,115	670	545	1,215	695	565	1,260
70-74	400	325	725	405	345	750	415	345	760	420	335	755
75-79	220	170	390	230	185	415	240	200	440	265	225	490
80-84	135	65	200	130	80	210	140	90	230	130	95	225
85+	50	10	60	50	0	50	50	5	55	60	10	70
All Ages	**16,930**	**16,070**	**33,000**	**17,160**	**16,280**	**33,470**	**17,350**	**16,470**	**33,870**	**17,560**	**16,700**	**34,270**

Source: Te Whatu Ora Population Webtool (Best Available Populations).

Age Groups	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
	2026			2027			2028			2029		
00-04	1,460	1,515	2,975	1,460	1,525	2,985	1,470	1,525	2,995	1,475	1,535	3,010
05-09	1,420	1,475	2,895	1,430	1,475	2,905	1,410	1,475	2,885	1,410	1,490	2,900
10-14	1,480	1,630	3,110	1,470	1,610	3,080	1,470	1,575	3,045	1,465	1,540	3,005
15-19	1,640	1,670	3,310	1,635	1,650	3,285	1,595	1,620	3,215	1,545	1,625	3,170
20-24	1,295	1,380	2,675	1,320	1,415	2,735	1,365	1,455	2,820	1,455	1,475	2,930
25-29	1,265	1,275	2,540	1,275	1,305	2,580	1,265	1,325	2,590	1,255	1,370	2,625
30-34	1,180	1,185	2,365	1,220	1,210	2,430	1,250	1,195	2,445	1,250	1,200	2,450
35-39	1,320	1,145	2,465	1,310	1,170	2,480	1,310	1,220	2,530	1,280	1,235	2,515
40-44	1,085	895	1,980	1,165	965	2,130	1,215	1,010	2,225	1,290	1,075	2,365
45-49	1,025	875	1,900	1,020	870	1,890	1,015	865	1,880	1,050	875	1,925
50-54	970	920	1,890	1,005	905	1,910	1,035	860	1,895	1,040	865	1,905
55-59	1,000	870	1,870	1,005	905	1,910	995	920	1,915	985	930	1,915
60-64	835	685	1,520	850	685	1,535	855	715	1,570	870	725	1,595
65-69	720	580	1,300	730	605	1,335	755	600	1,355	770	605	1,375
70-74	475	365	840	525	405	930	575	425	1,000	600	480	1,080
75-79	300	235	535	310	255	565	320	250	570	340	265	605
80-84	145	95	240	140	110	250	145	125	270	155	120	275
85+	70	15	85	60	20	80	60	35	95	75	35	110
All Ages	**17,790**	**16,870**	**34,640**	**17,970**	**17,100**	**35,060**	**18,180**	**17,280**	**35,470**	**18,360**	**17,530**	**35,790**

Source: Te Whatu Ora Population Webtool (Best Available Populations).

Age Groups	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
	2030			2031			2032			2033		
00-04	1,485	1,540	3,025	1,490	1,550	3,040	1,490	1,550	3,040	1,495	1,555	3,050
05-09	1,415	1,505	2,920	1,425	1,510	2,935	1,435	1,515	2,950	1,455	1,540	2,995
10-14	1,455	1,510	2,965	1,445	1,475	2,920	1,430	1,475	2,905	1,430	1,480	2,910
15-19	1,495	1,595	3,090	1,440	1,570	3,010	1,420	1,550	2,970	1,415	1,505	2,920
20-24	1,485	1,485	2,970	1,540	1,525	3,065	1,540	1,490	3,030	1,495	1,430	2,925
25-29	1,245	1,355	2,600	1,260	1,375	2,635	1,290	1,385	2,675	1,340	1,425	2,765
30-34	1,310	1,240	2,550	1,325	1,275	2,600	1,320	1,305	2,625	1,310	1,330	2,640
35-39	1,260	1,245	2,505	1,240	1,240	2,480	1,270	1,250	2,520	1,300	1,250	2,550
40-44	1,355	1,105	2,460	1,395	1,195	2,590	1,390	1,225	2,615	1,370	1,280	2,650
45-49	1,070	885	1,955	1,105	905	2,010	1,205	975	2,180	1,270	1,035	2,305
50-54	1,065	890	1,955	1,055	885	1,940	1,020	865	1,885	1,030	875	1,905
55-59	975	920	1,895	970	920	1,890	990	875	1,865	1,025	875	1,900
60-64	930	760	1,690	945	800	1,745	960	835	1,795	950	855	1,805
65-69	790	605	1,395	750	620	1,370	770	630	1,400	790	645	1,435
70-74	625	485	1,110	645	485	1,130	670	520	1,190	680	505	1,185
75-79	370	285	655	400	285	685	430	295	725	465	345	810
80-84	195	135	330	220	140	360	230	165	395	255	175	430
85+	65	45	110	65	35	100	80	30	110	75	30	105
All Ages	**18,560**	**17,670**	**36,200**	**18,770**	**17,840**	**36,610**	**18,970**	**18,010**	**37,020**	**19,170**	**18,240**	**37,390**

Source: Te Whatu Ora Population Webtool (Best Available Populations).

Age Groups	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
	2034			2035			2036			2037		
00-04	1,500	1,560	3,060	1,505	1,550	3,055	1,505	1,555	3,060	1,510	1,565	3,075
05-09	1,460	1,535	2,995	1,465	1,535	3,000	1,470	1,530	3,000	1,470	1,535	3,005
10-14	1,430	1,485	2,915	1,430	1,500	2,930	1,435	1,510	2,945	1,465	1,525	2,990
15-19	1,410	1,450	2,860	1,390	1,435	2,825	1,390	1,400	2,790	1,350	1,405	2,755
20-24	1,435	1,430	2,865	1,370	1,430	2,800	1,335	1,380	2,715	1,325	1,370	2,695
25-29	1,415	1,460	2,875	1,480	1,475	2,955	1,495	1,505	3,000	1,500	1,470	2,970
30-34	1,315	1,365	2,680	1,315	1,365	2,680	1,320	1,380	2,700	1,355	1,410	2,765
35-39	1,305	1,245	2,550	1,350	1,290	2,640	1,380	1,315	2,695	1,375	1,325	2,700
40-44	1,350	1,290	2,640	1,330	1,305	2,635	1,315	1,300	2,615	1,345	1,315	2,660
45-49	1,320	1,090	2,410	1,390	1,150	2,540	1,430	1,235	2,665	1,420	1,275	2,695
50-54	1,070	885	1,955	1,080	885	1,965	1,110	935	2,045	1,195	1,000	2,195
55-59	1,030	850	1,880	1,035	885	1,920	1,050	870	1,920	1,025	865	1,890
60-64	915	870	1,785	905	855	1,760	905	855	1,760	945	835	1,780
65-69	810	655	1,465	865	705	1,570	885	745	1,630	890	775	1,665
70-74	705	505	1,210	705	535	1,240	695	530	1,225	695	530	1,225
75-79	500	375	875	520	380	900	535	405	940	570	425	995
80-84	250	180	430	260	200	460	275	220	495	305	240	545
85+	105	25	130	145	35	180	165	65	230	180	70	250
All Ages	**19,370**	**18,390**	**37,750**	**19,600**	**18,580**	**38,140**	**19,730**	**18,770**	**38,510**	**19,950**	**18,920**	**38,880**

Source: Te Whatu Ora Population Webtool (Best Available Populations).

Age Groups	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
	2038			2039			2040			2041		
00-04	1,510	1,560	3,070	1,510	1,560	3,070	1,515	1,565	3,080	1,515	1,550	3,065
05-09	1,475	1,540	3,015	1,490	1,535	3,025	1,495	1,545	3,040	1,495	1,555	3,050
10-14	1,470	1,535	3,005	1,490	1,535	3,025	1,485	1,540	3,025	1,490	1,535	3,025
15-19	1,370	1,430	2,800	1,375	1,435	2,810	1,390	1,430	2,820	1,395	1,455	2,850
20-24	1,300	1,330	2,630	1,280	1,305	2,585	1,255	1,250	2,505	1,260	1,225	2,485
25-29	1,455	1,440	2,895	1,395	1,435	2,830	1,330	1,395	2,725	1,285	1,365	2,650
30-34	1,395	1,450	2,845	1,470	1,470	2,940	1,535	1,500	3,035	1,550	1,525	3,075
35-39	1,400	1,390	2,790	1,385	1,410	2,795	1,365	1,420	2,785	1,380	1,415	2,795
40-44	1,370	1,315	2,685	1,405	1,310	2,715	1,425	1,340	2,765	1,475	1,350	2,825
45-49	1,430	1,290	2,720	1,400	1,340	2,740	1,360	1,330	2,690	1,355	1,340	2,695
50-54	1,290	1,045	2,335	1,345	1,105	2,450	1,390	1,170	2,560	1,460	1,240	2,700
55-59	1,030	840	1,870	1,065	880	1,945	1,080	900	1,980	1,115	935	2,050
60-64	960	795	1,755	965	805	1,770	985	835	1,820	1,005	815	1,820
65-69	895	785	1,680	860	790	1,650	845	790	1,635	845	765	1,610
70-74	725	560	1,285	745	570	1,315	780	600	1,380	815	640	1,455
75-79	590	435	1,025	585	415	1,000	600	440	1,040	585	435	1,020
80-84	345	240	585	395	260	655	405	255	660	420	270	690
85+	200	95	295	195	105	300	190	100	290	225	125	350
All Ages	**20,140**	**19,100**	**39,240**	**20,310**	**19,290**	**39,580**	**20,490**	**19,450**	**39,950**	**20,700**	**19,630**	**40,300**

Source: Te Whatu Ora Population Webtool (Best Available Populations).

Age Groups	Female	Male	Total
	2042		
00-04	1,505	1,555	3,060
05-09	1,485	1,555	3,040
10-14	1,485	1,545	3,030
15-19	1,400	1,470	2,870
20-24	1,245	1,225	2,470
25-29	1,265	1,325	2,590
30-34	1,570	1,500	3,070
35-39	1,415	1,470	2,885
40-44	1,460	1,400	2,860
45-49	1,370	1,345	2,715
50-54	1,430	1,270	2,700
55-59	1,215	980	2,195
60-64	985	810	1,795
65-69	890	755	1,645
70-74	820	675	1,495
75-79	595	435	1,030
80-84	445	295	740
85+	230	125	355
All Ages	**20,840**	**19,780**	**40,620**

Source: Te Whatu Ora Population Webtool (Best Available Populations).

Appendix 2: Technical notes

1. Explanation of statistical terms used in this report

95% confidence interval

Technical definition

A 95% confidence interval represents a range from a lower to an upper value that is likely to include the true average figure for the entire population. It suggests that if a similar sample of the total population was taken 100 times, the true value would be found within this range 95 times. This confidence interval can vary in size: a larger number of survey responses or participants, typically results in a narrower range, indicating more precise estimates, while a smaller number of responses may result in a broader range, indicating less certainty about the exact figure.

Plain English definition

When a health study gives a number, like how many people feel healthy, it's often not just one number but a range. This range is what's called a 95% confidence interval. It's like a safety net that says, 'We think the real number is in here.' And if we did the study over and over, 95 times out of 100, we'd get a number in this range. The more people we include in our sample, the smaller and more accurate this net becomes. So, if we ask only a few people, the net is wide, and we're less sure. If we ask a lot of people, the net gets tighter, and we're more sure we've got the right number.

Example from the report

In a survey assessing health status among residents of Te Moana a Toi[9] (see table below), 13.0% of the sampled Māori population considered their health to be 'Excellent'. However, this percentage is an estimate from a sample of people in Te Moana a Toi, not the entire population. The 95% confidence interval, shown in brackets as “(9.8, 16.2)”, indicates that there is a 95% probability that the actual percentage of all Māori residents who would rate their health as 'Excellent' falls within this range. If this survey were to be conducted 100 times with different sample groups, it is expected that 95 of those surveys would yield a true percentage that falls between 9.8% and 16.2%.

Table 6 - Health status reported by Māori aged 15 years and over, Te Moana a Toi, 2018

Health Status	Te Moana a Toi			Aotearoa		
	%	(95% CI)		%	(95% CI)	
Excellent	13.0	(9.8,	16.2)	15.1	(14.0,	16.2)
Very Good	40.2	(35.6,	44.9)	36.9	(35.4,	38.3)
Good	30.1	(25.3,	35.0)	30.3	(29.0,	31.7)
Fair/poor	16.6	(12.9,	20.3)	17.7	(16.6,	18.8)

Source: Te Kupenga 2018, Statistics New Zealand customised report.

[9] The example tables in this technical appendix are all taken from the Te Moana a Toi IMPB profile, and are presented purely as an example to facilitate understanding across all IMPB data profiles.

Age standardisation

Technical definition

Age-standardisation is a statistical method used to compare rates of events across different populations by adjusting for age differences in the two groups. This method is particularly useful when comparing health outcomes between groups like Māori and non-Māori, where there are significant differences in age distribution; for example only 8% of Māori are aged 65 and over in Te Moana a Toi compared with 26% of non-Māori (see the table below).

Because of these age differences, comparing crude rates (actual observed rates) can be misleading. By applying the age-specific rates from the populations being compared to a standard population, age-standardised rates provide a clearer comparison as if the populations had the same age distribution. Almost all data in this report has been age-standardised to the 2001 Māori population. Where crude rates are presented instead, this is noted beneath the table.

Table 2 – Population estimate by age group, Te Moana a Toi, 2023

Age group (years)	Māori			non-Māori		Total IMPB number
	Number	Age distribution	% of IMPB	Number	Age distribution	
0–14	20,255	30%		30,670	15%	50,925
15–24	12,285	18%		16,810	8%	29,095
25–44	16,465	24%		50,870	25%	67,335
45–64	13,030	19%		52,935	26%	65,965
65+	5,575	8%		51,760	26%	57,335
Total	**68,000**	**100%**	**25%**	**202,740**	**100%**	**270,740**

Plain English definition

Age-standardisation is a method used to compare health between two groups fairly. It adjusts the numbers to consider how young or old the people in each group are. This way, when looking at health data, it is more likely that any differences between the groups are not just because one has more young people or more old people. It helps give a more accurate picture of health when comparing two groups with a different spread of ages.

Example from the report

The table below shows an age-standardised rate of 28.4 per 100,000 per year ischaemic heart disease events among Bay of Plenty DHB Māori women between 2014 and 2018. Without age standardisation calculations, crude rates would be lower than 28.4 among Māori women. The lower rate would be simply because a larger proportion of the Māori population is younger and ischaemic heart disease is more frequent in older people.

Table 6 - Leading causes of death for Māori, all ages, Bay of Plenty DHB, 2014 to 2018

Cause	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Rate difference
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)				
Female									
Ischaemic heart disease	19	28.4	(16.2, 45.5)	98	8.3	(6.2, 10.9)	**3.40**	**(1.95, 5.93)**	20.1

Rate ratios

Technical definition

Rate ratios, often referred to as relative risks, are a measure of the relationship between the occurrence of a certain event in two different groups, typically standardised for age (see section on age standardisation above) to allow fair comparison. It is the result of the rate of the event in the first group (for example, Māori) divided by the rate in the second group (non-Māori), which serves as the reference group. A rate ratio of 1 indicates parity between groups, above 1 indicates a higher rate in the first group, and below 1 indicates a lower rate. In general, the data presented in this report uses Māori as the first group and compares it with non-Māori as the second group.

Plain English definition

A rate ratio compares how common something, like a disease, is between two different groups of people, like Māori and non-Māori. If the ratio is exactly 1, both groups are equally affected. If it's higher than 1, it means that the first group, in this case Māori, has the event happen more often. If it's lower, Māori have it happen less often. It tells us the relative disparity between two groups.

Example from the report

In the table below, the rate ratio for ischaemic heart disease is 3.40. This tells us that Māori females are more than three times as likely to suffer from this condition compared to non-Māori females after considering the age distribution in each group.

The 95% confidence interval (see section on confidence intervals above) of 1.95 to 5.93 for this rate ratio indicates that we are very sure that the true rate ratio is significantly different from 1, indicating a genuine disparity in risk between the two populations. In this report, a statistically significant difference between groups is evident when the confidence interval for the rate ratio does not cross 1. These results are shown in **bold** type.

Table 6 - Leading causes of death for Māori, all ages, Bay of Plenty DHB, 2014 to 2018

Cause	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Rate difference
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)				
Female									
Ischaemic heart disease	19	28.4	(16.2, 45.5)	98	8.3	(6.2, 10.9)	**3.40**	**(1.95, 5.93)**	20.1

Rate difference

Technical definition

Rate differences, also known as absolute differences, quantify the disparity between two groups by showing the additional number of events occurring in one group compared to another, per population unit (like per 100,000 people). This is calculated by subtracting the event rate of the reference group from that of the comparison group.

Plain English definition

Rate difference tells us how much more often something happens in one group compared to another. If you take the number of times an event happens per 100,000 people in one group and subtract the same from another group, you get the rate difference. This number shows if one group is experiencing more of a certain event, like a disease or death, and by how much. It's a simple way to see the actual impact of a problem on one group over another.

Example from the report

The table below show that Māori females in Bay of Plenty DHB have an age-standardised rate of ischaemic heart disease at 28.4 events per 100,000 per year, while the rate for non-Māori females is 8.3. This gives a rate difference of 20.1 events per 100,000 per year, which tells us that in a population of 100,000 Māori women and 100,000 non-Māori women there are 20.1 more cases of ischaemic heart disease among Māori females than non-Māori females each year. This figure is crucial because it doesn't just show the relative disparity (like a rate ratio does), but it tells us how many additional events are affecting Māori females, highlighting the actual impact of the disease on the population and where health resources might be most needed to address the disparity.

Table 6 - Leading causes of death for Māori, all ages, Bay of Plenty DHB, 2014 to 2018

Cause	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Rate difference
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)				
Female									
Ischaemic heart disease	19	28.4	(16.2, 45.5)	98	8.3	(6.2, 10.9)	**3.40**	**(1.95, 5.93)**	20.1

2. Key methods and quality limitations of key data sources

This section describes in more detail the specific methods, and key limitations, used for each of the main data sources used in this report.

Numerators

Data in this first volume of IMPB profiles are sourced from Te Whatu Ora, Manatū Hauora (the Ministry of Health), and Statistics New Zealand (StatsNZ). Where administrative data (e.g. national mortality data) are used, the most recent five years of non-provisional data were aggregated to provide more stable rate estimates for smaller areas. Census data were taken from the 2018 Census, and data from the Te Kupenga survey were from the 2018 Te Kupenga survey, undertaken after the 2018 Census.

Denominators

StatsNZ mid-year (at 30 June) estimated resident population was used as denominator data in the calculation of population rates for deaths and Primary Healthcare Organisation (PHO) enrolment. For census variables, the denominator is the people for whom there is a response / relevant information from the census dataset for the question asked ('people stated'). This differs for each question, and is a subset of the total usually resident population identified by the census for the relevant rohe (region). For Te Kupenga survey data, the denominator is the total stated population, this means that people who refuse to answer/ don't know their answer/ answer with an invalid answer are excluded.

Ethnicity data

Ethnicity data quality

Although high quality ethnicity data are critical for Māori health improvement, ethnicity data quality in the health sector remains poor (Harris, Paine et al. 2022). It is the responsibility of the entire health system to collect, record and report ethnicity data in the ways set out in the HISO 10001:2017 Ethnicity Data Protocols (Ministry of Health. 2017). Despite the protocols being in existence for nearly 20 years, there is evidence that they are not being adhered to and Māori have continued to be systematically undercounted (Cormack D and McLeod M 2010, Harris, Paine et al. 2022). Self-identified ethnicity recorded on the Census is considered to be the "gold-standard" for ethnicity data, so this is used as the denominator for most variables in this report.

To understand what impact the ethnicity data quality is likely to have, on the accuracy of the results presented in this report, we need to consider the ethnicity data quality in both the numerator and the denominator. For some measures, it may underestimate the true number of, or rate of, a particular outcome for Māori. The potential impact of ethnicity data weaknesses is discussed for each data source later in this Appendix.

Ethnicity classification

When analysing data, there are different ways to classify people who report multiple ethnicities. The two main ways are *total response (overlapping) output* and *prioritised output.* In total response output, each respondent is counted in each of the ethnic groups they reported. So, individuals who indicate more than one ethnic group are counted more than once, and the sum of the ethnic group populations will exceed the total population of NZ. For example, using total response classification, a death from lung cancer in an individual who identifies as Māori and New Zealand European, will be reported as a lung cancer death for both ethnicities.

In prioritised output, each respondent is allocated to a single ethnic group using a prioritisation order, with Māori first, to ensure that ethnic groups of policy importance or of small size, are not swamped by the New Zealand European ethnic group. Under this method, a person is classified as Māori if any one of their recorded ethnicities are Māori. For example, using prioritised classification, a death from lung cancer

in a person recorded as both Māori and New Zealand European, would be counted as a lung cancer death for Māori, and not in non-Māori.

In this report, the method of ethnicity classification is noted under each table or figure. Wherever possible, prioritised ethnicity classification was used when people identified with more than one ethnic group.

Comparison group

Most indicators compare Māori with non-Māori. Non-Māori includes all people who do not identify as Māori and represent a comparative or reference group. Some indicators in this report (e.g. life expectancy) use non-Māori non-Pacific (all people who do not identify as either Māori or Pacific or both) as the comparison group. This is done because in areas where there are large Pacific populations, grouping the Pacific population with the non-Māori group skews the result for the comparison group toward the Māori population. This is particularly necessary in regions where there is a high Pacific population such as South Auckland.

Age-standardised and crude rates

This report uses direct age-standardisation; most rates (unless noted otherwise) are standardised to the 2001 Census Māori population. Where data were not available with sufficient age group breakdown to allow age standardisation, or data for a specific age were presented, crude rates were calculated. In this case, caution should be taken when comparing Māori with non-Māori results. Crude rates accurately portray a situation in each population, but make comparisons difficult, because they do not consider the different age distributions in each of the populations (e.g., the Māori population is much younger than the non-Māori population). Rates were not calculated for counts fewer than five in data from national collections. For Te Kupenga data, if the weighted count (estimate) was less than 1000 then the data was supressed.

Confidence intervals

This report has endeavoured where possible to provide local data specific to IMPBs and their relevant DHB areas. Some of these areas have small populations. As the size of the group becomes smaller, the confidence interval (CI) becomes wider, and there is less certainty about the rate. This means the degree of confidence and certainty about the numbers diminishes for rohe (regions) with smaller populations. Thinking of the data as ‘indicative’ rather than precise is important in these rohe, as well as considering Māori-specific regional and national data, which will have greater certainty around rates, because of the larger sample size.

When the CIs of two groups do not overlap, the difference in rates between the groups is considered statistically significant. Sometimes, even when there are overlapping CIs, the difference between the groups may be statistically significant. Determining that would require further statistical testing which has not been undertaken for this report.

Rate ratios

Age-standardised rate ratios are used in this report to compare age-standardised rates between Māori and non-Māori. The rate ratio (RR) is equal to the age-standardised Māori rate divided by the age-standardised non-Māori rate. The non-Māori population is used as the reference population. For example, an age-standardised RR of 1.5 means that the rate is 50 percent higher (or 1.5 times as high) in Māori than in non-Māori, after taking into account the different age structures of these two populations. This report gives rate ratios and their 95 percent CIs. In this profile, if the CI of the rate ratio does not include the number 1, the ratio is said to be statistically significant. Differences presented in this profile in **bold** are statistically significant.

Demography data

Indicators on population demography and projections use the estimated resident population (ERP) and projections provided by StatsNZ for the health sector, from a 2018 base. The ERP is an estimate designed to adjust for the undercount for various groups in the census response rate, people temporarily overseas or elsewhere in NZ from their usual residence on census night, and key population changes (births, deaths, mobility) since the 2018 census.

In the estimates and projections prioritised ethnicity was used to identify Māori individuals (any person who identified Māori as any of their ethnic groups in the base census data on which the estimates and projections are built) and non-Māori included people who had at least one valid ethnic response, none of which was/were Māori.

The Census of Population and Dwellings

Indicators using data from the 2018 Census of Population and Dwellings are derived from the census usually resident (UR) population (residents of an area living in the area on census night and people living elsewhere in Aotearoa from their usual residence on census night). Data used in this report were sourced from the publicly available UR data provided on the StatsNZ website, and for some indicators, from a custom data extract produced by StatsNZ for the previous Northern Region DHBs (which included data for the whole of Aotearoa).

StatsNZ apply confidentiality rules to census data to protect the confidentiality of individuals, families, households, dwellings, and undertakings in 2018 Census data. Counts are calculated using a method called fixed random rounding to base 3, and suppression of 'sensitive' counts less than six, where tables report multiple geographic variables and/or small populations. This means individual figures may not always sum to stated totals[10].

Due to changes in the 2018 Census methodology and lower than anticipated response rates, as described further below, time series data for census variables should be interpreted with care.

Most census variables in the Wai Ora chapter have been age-standardised to the 2001 Māori population. The unpaid work variables were not able to be age-standardised for this report, and crude rates are presented. In this case, caution should be taken when comparing Māori with non-Māori results.

The 2018 Census was the first 'digital-first' census undertaken in Aotearoa, as a part of modernising and streamlining the census process. Unfortunately, the 2018 Census had a very low response rate overall, and especially for Māori and Pacific peoples - approximately 68% for Māori and 65% for Pacific peoples. Adjustments were made to improve the quality of the data (for example, using data from previous censuses and other administrative datasets), and the overall quality of the 2018 Census data is now considered moderate/good. However, the adjustments do not affect the Māori and non-Māori population in the same way. For example, in the 2018 Census, 29% or more of the ethnicity data for Māori came from other sources. This means that the ethnicity data in the 2018 census for Māori is not of the same quality as the data for the NZ European ethnic population, for example, which had only 11.5% of their responses from these other sources.

Further details on the adjustment methods used in the 2018 Census can be found online via Stats NZ[11]. In summary, the core self-response data from the 2013 Census was combined with administrative data (e.g. from the education or health system), and in some situations data derived by statistical models to predict what the missing data would have been (called imputation). In addition to different levels of self-response, people identified as living in NZ at the time of the census have different levels of information from other sources available to StatsNZ to draw on.

[10] More info on Census confidentiality rules: Applying confidentiality rules to 2018 Census data and summary of changes since 2013 | Stats NZ

[11] https://www.stats.govt.nz/assets/Uploads/Reports/Final-report-of-the-2018-Census-External-Data-Quality-Panel/Downloads/Final-report-of-the-2018-Census-External-Data-Quality-Panel-corrected.pdf

However, on the other hand, the census is a key source for population level data about factors that are important for health, such as income, employment, and housing. StatsNZ has provided quality ratings for the 2018 Census data to help users determine how to interpret the data. Along with StatsNZ's own quality ratings, they also engaged an External Data Quality Panel which included Māori population experts, who provided their assessment of the census data quality. The table below shows the ratings of both for the data variables used in this report. The overall message from these ratings is that the data can provide insights into the situation for Māori whānau, but it should be seen as indicative, rather than precise.

Table 45 - Quality ratings 2018 Census variables included in this report

Variable name	StatsNZ quality rating	External Data Quality Panel quality rating	Notes
Census usually resident population count	Very high	Very high	
Ethnicity	High	Moderate	
Number of bedrooms	High	High	Number of bedrooms is used to help derive estimates of household crowding. There were over 300,000 people who could not be placed into households in the 2018 data. This means the number of people who lived in a crowded house may be undercounted.
Number of rooms	Moderate	Poor	
Housing quality: dwelling dampness and mould indicators	Moderate	Moderate	This is a self-evaluated assessment of whether the home has mould that is larger than an A4 sheet of paper (in total).
Main types of heating and fuel types used to heat dwellings	Moderate	Moderate	This question was first introduced in the 2018 Census. Each type of heating reported was recorded once only.
Tenure of household	Moderate	Moderate	
Access to telecommunication systems	Moderate	Moderate	The online data collection methodology of the 2018 Census may have affected this variable. The proportion of households with no access to telecommunications was lower than expected. The proportion of households with access to a telephone was higher than expected. This data provides information on access to telecommunication systems at the household level. It does not show whether a particular household member has access to those amenities. In some cases, not every member of a household has equal access to particular telecommunication systems.
Number of motor vehicles	Moderate	Moderate	
Industry	High	High	Industry is the type of activity undertaken by the organisation or business where people work.
Occupation	Moderate	Poor	An occupation is a set of jobs that require the performance of similar or identical sets of tasks. Occupations are organised based on skills, using the ANZSCO classification. The significant use of imputation may have inflated the total number of respondents in all categories.

Variable name	StatsNZ quality rating	External Data Quality Panel quality rating	Notes
Qualifications: highest qualification	Moderate	Moderate/poor	
Total personal income	High	High	Total personal income received is the total before-tax income of a person in the 12 months ended 31 March 2018. The information is collected as income bands rather than in actual dollars. This includes all possible sources of income.
Status in employment	High	Moderate	Employment is described as full-time (30 hours or more / week) or part-time (< 30 hours per week). A person not employed is described as either 'unemployed' or 'not in the labour force'. Not in the labour force means not employed and not actively seeking work or not available for work
Unpaid activities	Poor	Not applicable	Because of the low quality ratings, Stats NZ recommend very careful use of this data particularly for Māori and Pacific peoples and at small geographies. No alternative data source or imputation was available to replace missing responses.

Geographical alignment between IMPB and DHB areas

This report has endeavored to report data specific to each IMPB health planning area and has used several slightly different methods to do this in different chapters of the report.

For population estimates, and Te Kupenga survey data, the population for an IMPB has been calculated using geographies (SA2 areas or Territorial Authority/Local Boards) that are smaller than the previous DHB districts, to be able to better align with the IMPB health planning areas. This means the Te Taura Ora o Waiariki and Tūwharetoa IMPBs have been able to be split out separately, and Ōtāhuhu has been included as part of Ngaa Pou Hauora oo Taamaki Makaurau, rather than Te Taumata Hauora o Te Kahu o Taonui (historically Ōtāhuhu was part of Auckland DHB rather than Counties Manukau DHB, so the Auckland Council Local Board Māngere-Ōtāhuhu spanned the boundary between the DHBs)[12]. In some cases, for example at the Nelson-Marlborough/Te Tauraki border, the IMPB health planning area did not align completely with SA2 areas.

There may be some variation between the IMPB population estimates presented here compared to estimation using data from the previous DHB. This is due to there being a higher level of uncertainty around the SA2 population estimates and they will not always sum to exactly the same population by age, sex and ethnicity as the district population estimates.

For other measures, including mortality data, NZDep2018 and PHO enrolment, the IMPB population has been calculated using the sum of the main DHBs it contains. So, for example IMPB mortality data for Te Taumata Hauora o Te Kahu o Taonui will include all of Northland, Auckland and Waitematā DHBs, even though that includes communities such as Ōtāhuhu which are not part of the IMPB.

[12] Ōtāhuhu has a population of approximately 16,000 people, the majority of whom identify as Pacific and Asian (Indian). The area is classified as NZDep2018 deciles 9 and 10 – the most socioeconomically challenged areas.

Life expectancy

There are two parts to the life expectancy data provided in this report. There is a 'standard' calculation of life expectancy at birth for each IMPB, using mortality data from Manatū Hauora and population data from StatsNZ and presented as the gap between Māori and non-Māori. It uses five years of data to be able to provide ethnicity and male/female information.

There is also information on what conditions contribute to those life expectancy gaps, from an analysis completed by the Service Innovation and Improvement Directorate, Te Whatu Ora in May 2023 titled "The Contribution of Avoidable Mortality to the Life Expectancy Gap among the Māori and Pacific population. Regional Summary." This analysis compared Māori with the non-Māori, non-Pacific population, so that is why this comparator group is used for this section in this IMPB report.

The Arriaga method—a life table decomposition technique accounting for both age and cause of death—was used. The analyses and calculations are based on official death data from the Te Whatu Ora mortality collection, while population data are derived from official StatsNZ population estimates.

The analysis hinges on the principal underlying cause of death classification, which simplifies the reality that multiple factors can contribute to a single death. This may result in an underestimation of the effects of prevalent conditions contributing to, but not the final causes of death. As it requires cause of death information, these are often two years delayed to allow coronial processes to be completed. As such, the life expectancy figures here may not be the most recent available, but are the most recent that allows this type of gap analysis.

Causes of death are divided into 50 potentially avoidable conditions. Avoidable deaths encompass those deemed amenable to high-quality healthcare, preventable through public health interventions, or both. A comprehensive list of the conditions used in this analysis, along with their corresponding ICD codes, can be found in the Te Whatu Ora report. Most are limited to those under 75 years, except leukemia which is only considered avoidable under the age of 45 years and external injuries which includes all ages.

Mortality data

Indicators on cause of death and mortality come from the national Mortality Collection. This classifies the underlying cause of death for all deaths registered in Aotearoa and all registered fetal deaths (stillbirths). Aotearoa is currently using the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM) classification and the World Health Organization (WHO) ICD Rules and Guidelines for Mortality Coding. Mortality data are presented for Māori and non-Māori. In each data set a person was classified as Māori if any one of their recorded ethnicity was Māori. The year range of 2014 to 2018 was used as complete mortality data records were not available for 2019 and 2020 at the time of writing. The DHB of residence was determined from the domicile code attached to the death registration (so even if a person passed away at a tertiary hospital outside their home region, their death would be recorded as one in their home DHB). In tables presenting data on causes of death, data is not presented where there were fewer than five Māori events during the period represented by the data. There are several different methods of classifying causes of death as "potentially avoidable", "preventable" or "amenable". The ICD-10-AM codes used for potentially avoidable death tables in this report are listed in the next Appendix.

Te Kupenga Survey

Te Kupenga 2018 is StatsNZ's survey of Māori wellbeing. A survey of almost 8,500 adults (aged 15 years and over) of Māori ethnicity and/or descent, Te Kupenga gives an overall picture of the social, cultural, and economic wellbeing of Māori people in Aotearoa.

Te Kupenga is a post-census survey. This means the survey sample was selected from people who identified as having Māori ethnicity and/or descent on their 2018 census form, so only those who completed the census were able to be selected. Given that a lower proportion of Māori people completed the 2018 Census than planned or anticipated, StatsNZ investigated the potential impact this may have

had on the Te Kupenga sample. They found some bias in the sample frame (the group of people who could have been selected to participate) compared with the total Māori population. However, this bias was small, and they were able to remove most of the effect of the bias through the statistical weighting process. See StatsNZ website for more information on this[13].

In this IMPB profile, all estimates of numbers, percentages, and confidence intervals for data presented from Te Kupenga were calculated by StatsNZ and provided in a customised extract. Estimates of counts were rounded to the nearest thousand. Estimates of proportions were rounded to 1 decimal point. All percentages were calculated from unrounded data. If the weighted count (estimate) was less than 1000 then the data was supressed. Further details on the survey measures are available in the Te Kupenga 2018 report and can be found at the StatsNZ website[14].

Primary care enrolment

Primary care enrolment data is based on the National Enrolment System using the National Health Index (NHI). Ethnicity data in the NHI is known to undercount Māori by 15.7% compared to the ethnicity people report in the census, with higher undercounts for Māori men (Harris, Paine et al. 2022). The denominator for calculating the percentage of people enrolled in a PHO is the estimated resident population, which uses ethnicity based on the 2018 Census. The poor ethnicity data quality in the NHI makes it difficult to assess how many Māori are actually missing out on being enrolled with primary health care, and how many are actually enrolled but misclassified with a non-Māori ethnicity. It is likely that both of these factors make a contribution to the inequity in primary care enrolment data. Primary care enrolment data presented in this report are not age-standardised. In this case, caution should be taken when comparing Māori with non-Māori results. Crude rates make comparisons difficult, because they do not take into account different age distributions in each of the populations.

NZ Index of Deprivation 2018

NZDep2018 is an area-based measure of relative socioeconomic deprivation. It is based on nine variables from the 2018 Census which cover eight different dimensions of socioeconomic hardship. These variables relate to home internet access, receipt of welfare benefits, household income, employment, qualifications, home ownership, family structure, household crowding and housing quality. NZDep2018 gives a deprivation score for small area geographies (i.e. meshblocks, and SA1s) (Atkinson, Salmond et al. 2019). These scores are aggregated into deciles (1-10, 1 being areas with the least socioeconomic challenge and 10 being those the most disadvantage). This report uses NZDep2018 information supplied by StatsNZ for the health sector, applying the scores to estimated resident populations to estimate the number of people living in each decile.

Geographic Classification of Health

The Geographic Classification for Health (GCH) is a rural-urban geographic classification designed to allow Aotearoa's health researchers and policy makers to accurately monitor rural-urban variations in health outcomes. The GCH classifies all areas of Aotearoa as rural or urban according to their proximity to larger urban areas with respect to health (Whitehead, Davie et al. 2021).

The GCH is comprised of five categories, two urban and three rural, that reflect degrees of reducing urban influence and increasing rurality. 'Urban 1' to 'Urban 2' are based on population size, and 'Rural 1' to 'Rural 3' based on drive time to their closest major, large, medium, and small urban areas. The population and drive time thresholds used in the GCH were developed from a health perspective and tested in partnership with a wide range of rural health stakeholders.

[13] https://www.stats.govt.nz/methods/assessment-of-potential-bias-in-the-te-kupenga-sample-frame-2018

[14] https://www.stats.govt.nz/information-releases/te-kupenga-2018-final-english/

Appendix 3: ICD-10-AM Codes

The International Classification of Diseases (ICD-10-AM) codes used for the calculation of potentially avoidable mortality are presented below.

Table 46 - Potentially avoidable mortality ICD-10-AM codes

Condition	ICD-10-AM Code
Tuberculosis	A15-A19, B90
Selected invasive bacterial and protozoal infection	A38-A41, A46, A481, B50-B54, G00, G03, J020, J13-J15, J18, L03
Hepatitis	B15-B19
HIV/AIDS	B20-B24
Lip, oral cavity and pharynx cancers	C00-C14
Oesophageal cancer	C15
Stomach cancer	C16
Colorectal cancer	C18-C21
Liver cancer	C22
Lung cancer	C33-C34
Melanoma of skin	C43
Non-melanotic skin cancer	C44
Breast cancer (female only)	C50
Cervical cancer	C53
Uterine cancer	C54-C55
Bladder cancer	C67
Thyroid cancer	C73
Hodgkin’s disease	C81
Leukaemia	C910-C911
Benign tumours	D10-D36
Thyroid disorders	E00-E07
Diabetes	E10-E14
Alcohol-related diseases	F10, I426, K292, K70
Illicit drug use disorders	F11-F16, F18-F19
Epilepsy	G40-G41
Birth defects	H311, P00, P04, Q00-Q99
Rheumatic and other valvular heart disease	I01-I09
Hypertensive heart disease	I10-I15
Nephritis and nephrosis	I12-I13, N00-N09, N17-N19

Condition	ICD-10-AM Code
Ischaemic heart disease	I20-I25
Deep vein thrombosis with pulmonary embolism	I26, I802
Cerebrovascular diseases	I60-I69
Aortic aneurysm	I71
Viral pneumonia and influenza	J10, J12, J171, J21
COPD	J40-J44
Asthma	J45-J46
Peptic ulcer disease	K25-K28
Acute abdomen, appendicitis, intestinal obstruction, cholecystitis/lithiasis, pancreatitis, hernia	K35-K38, K40-K46, K80-K83, K85-K86, K915
Chronic liver disease (excluding alcohol-related disease)	K73-K74
Obstructive uropathy and prostatic hyperplasia	N13, N20-N21, N35, N40, N991
Complications of perinatal period	P03, P05-P95
Motor vehicle accidents	V01-V04, V06, V09-V80, V87, V89, V99
Falls	W00-W19
Drownings	W65-W74
Fires, burns	X00-X09
Accidental poisonings	X40-X49
Suicide and self-inflicted injuries	X60-X84, Y870
Violence	X85-Y09, Y871

Appendix 4: Māori 2001 Population

The table below shows the 2001 Māori population standard used for age-standardisation in this report, including the weightings applied to each age-group.

Table 47 - 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

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