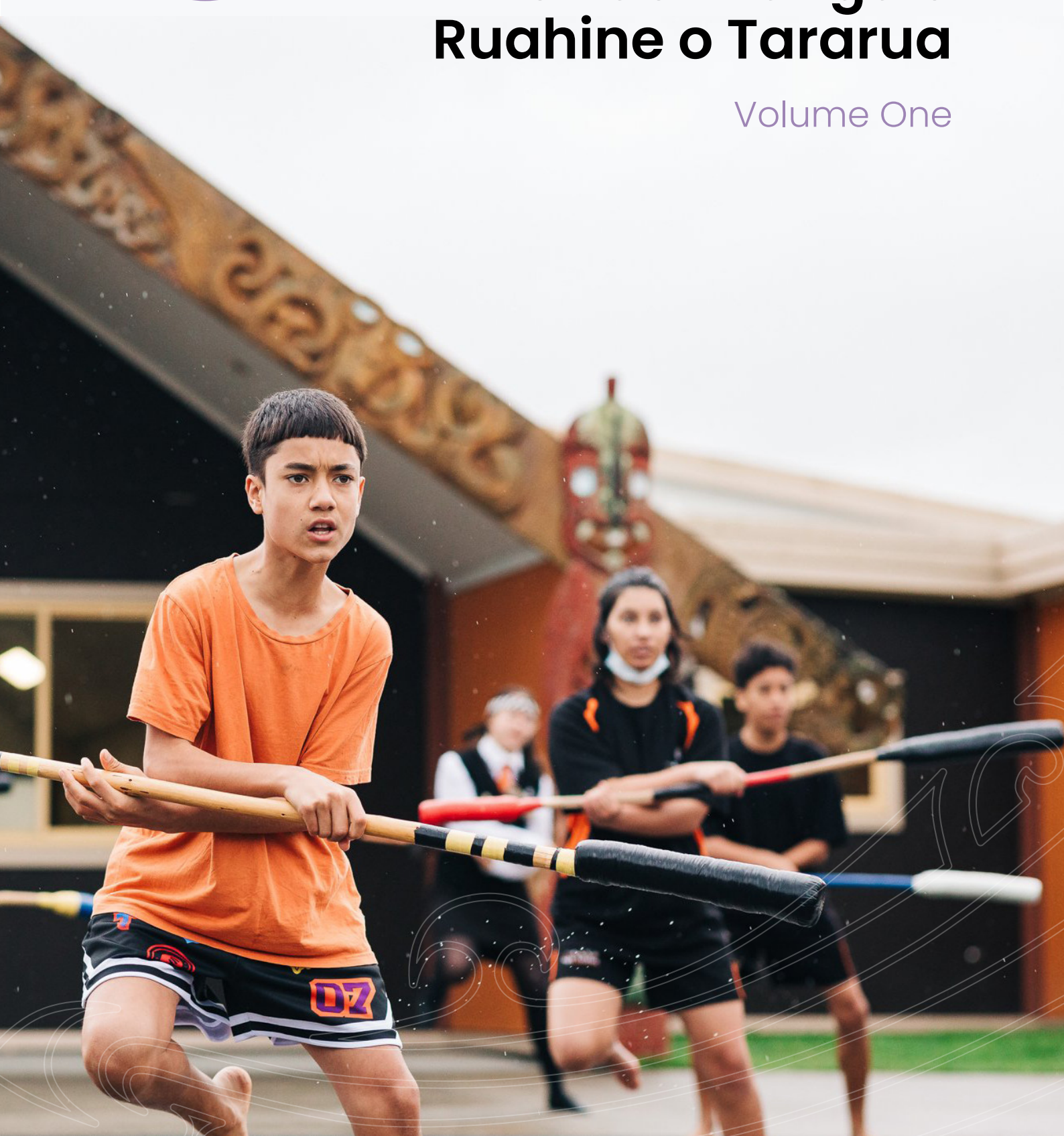
Te Aka Whai Ora
Māori Health Authority

Iwi-Māori Partnership Board Health Profile:

Te Pae Oranga o Ruahine o Tararua

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)

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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;

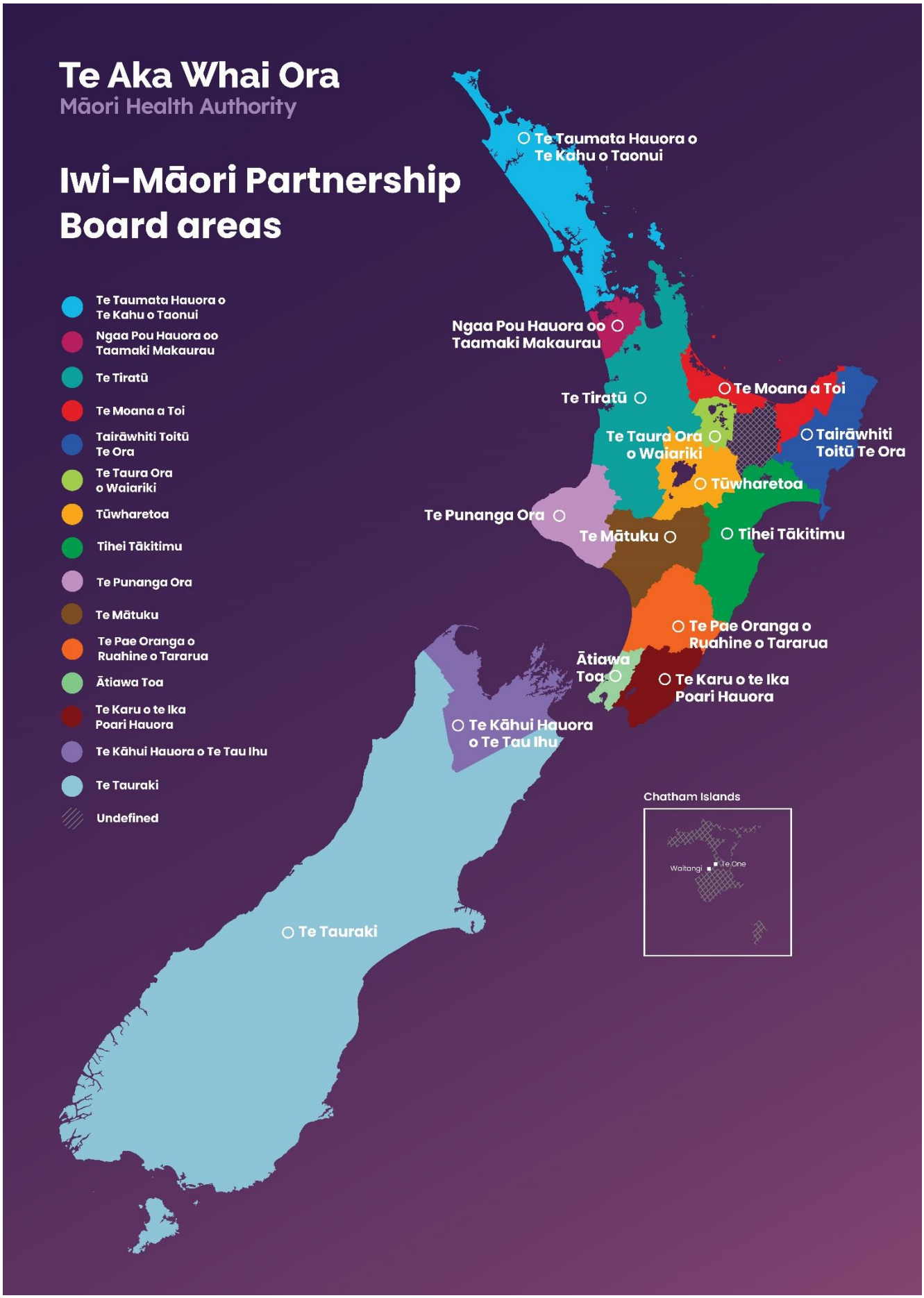
b) that the organisation has taken reasonable steps to engage with relevant Māori communities and groups; and

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 of 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.

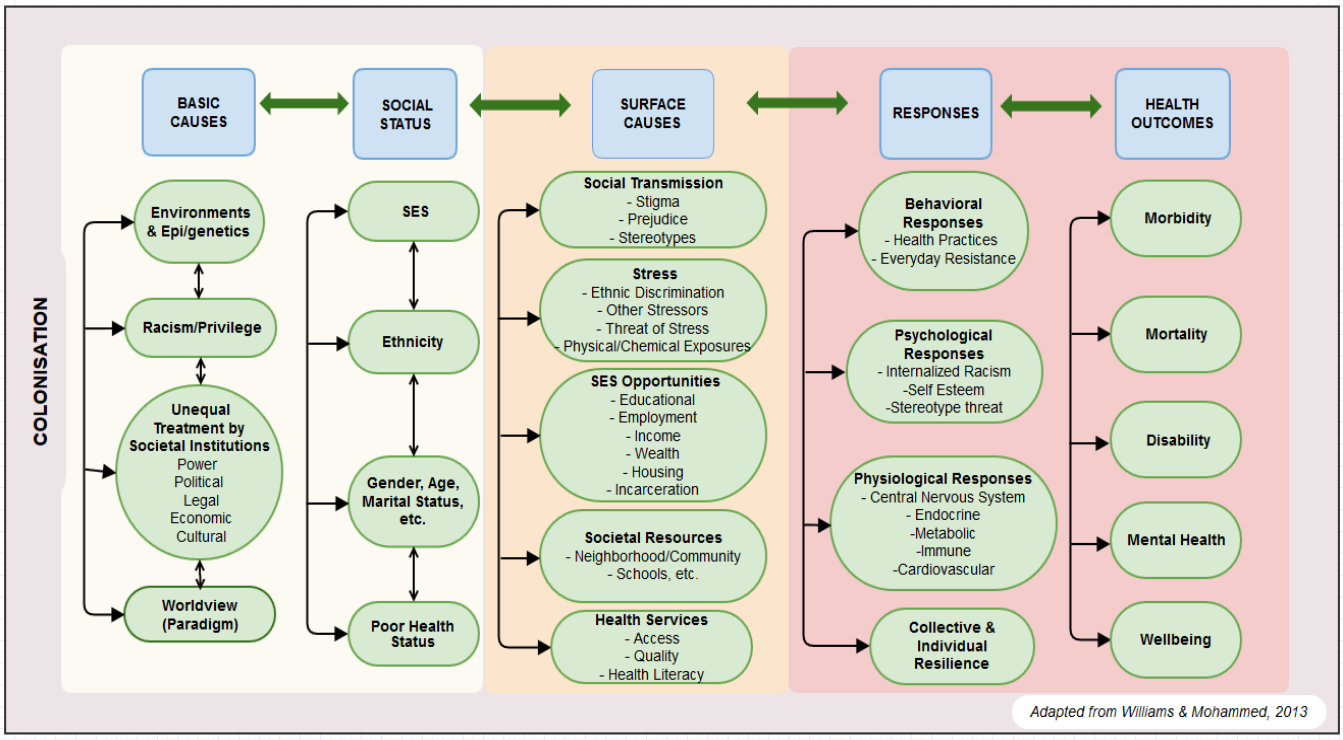
The framework emphasises the importance of distinguishing *basic* causes from *surface* (or intervening causes). Overall, changes in *basic* causes create important changes in health *outcomes*. *Social status* categories are created, and reinforced, by *basic* causes. *Social status* categories considered 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 District Health Board 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 Pae Oranga o Ruahine o Tararua

Te Pae Oranga o Ruahine o Tararua IMPB is home to an estimate of 42,550 Māori in 2023 and consists of the geographic area of the former MidCentral DHB in the Manawatū. While there may be some minor differences (see technical appendix for more details on how IMPB areas were calculated in this report), Figure 3 shows that the health planning area of Te Pae Oranga o Ruahine o Tararua IMPB aligns very closely with the boundary of the former MidCentral DHB. In this report, where data is presented for the IMPB, it has been mapped to SA2 geographic areas, and where data has been presented for the DHB, it is mapped to DHB boundaries.

Figure 3 - Map of Te Pae Oranga o Ruahine o Tararua IMPB with DHB boundaries, 2023

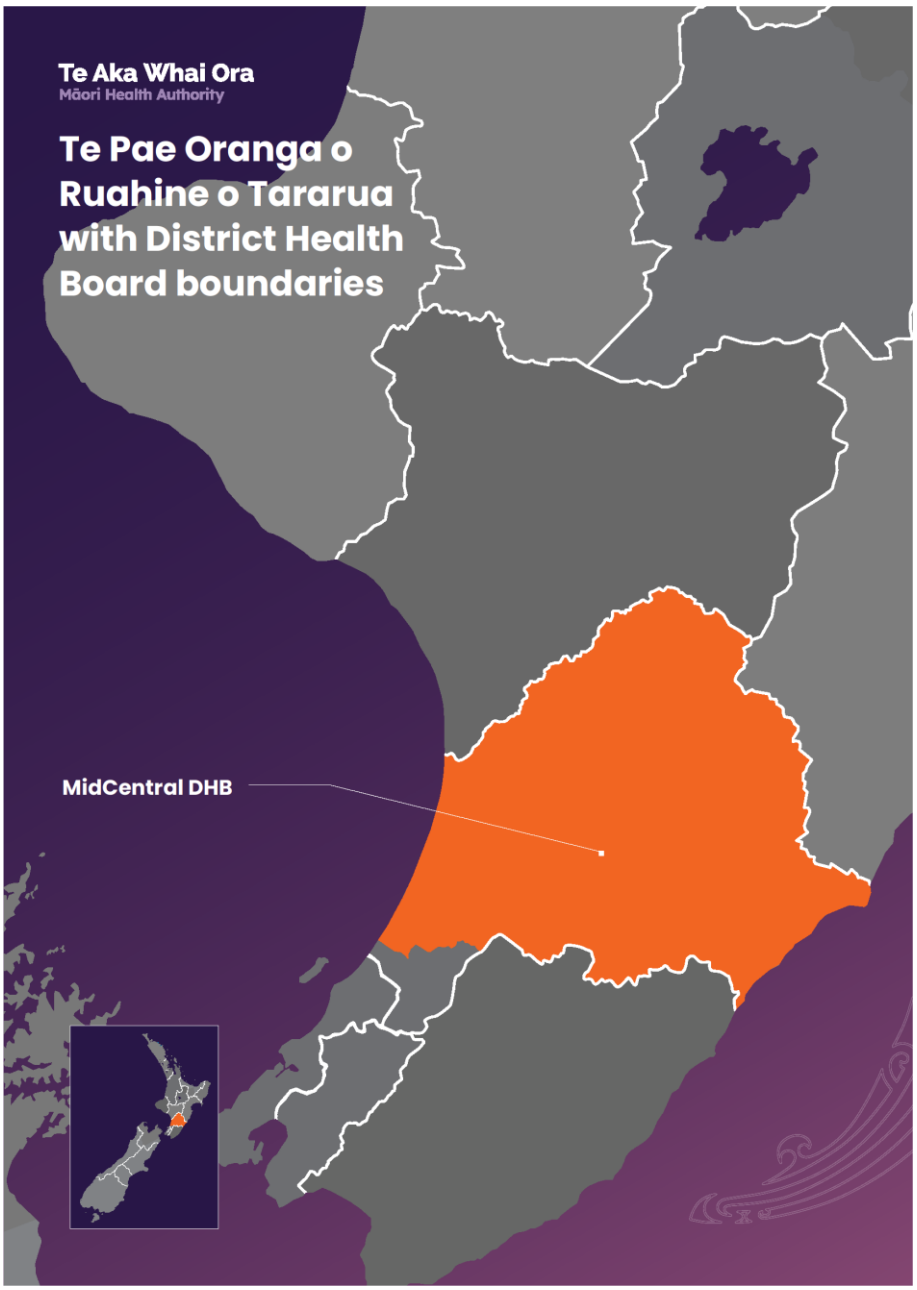


Table 1 shows the age breakdown of the population of Te Pae Oranga o Ruahine o Tararua. The Māori population of Te Pae Oranga o Ruahine o Tararua is very young, with 49% of the Māori population under the age of 25 years (compared to only 27% of the non-Māori population in the area). Over the next two decades, the Māori population is projected to grow to an estimate of 60,000 (Table 2) and to be older - by 2043, 11% of the Māori population will be over 65 years old, compared to 7% in 2023. The Māori population is projected to make up an increasing share of the IMPB population - from 22% in 2023 to 29% in 2043.

Table 1 - Population estimates by age group, Te Pae Oranga o Ruahine o Tararua, 2023

Age group (years)	Māori			non-Māori		Total IMPB number
	Number	Age distribution	% of IMPB	Number	Age distribution	
0-14	12,890	30%		22,680	15%	35,570
15-24	8,175	19%		17,330	12%	25,505
25-44	10,895	26%		35,960	24%	46,855
45-64	7,490	18%		37,570	26%	45,060
65+	2,790	7%		33,595	23%	36,385
Total	**42,550**	**100%**	**22%**	**146,860**	**100%**	**189,410**

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

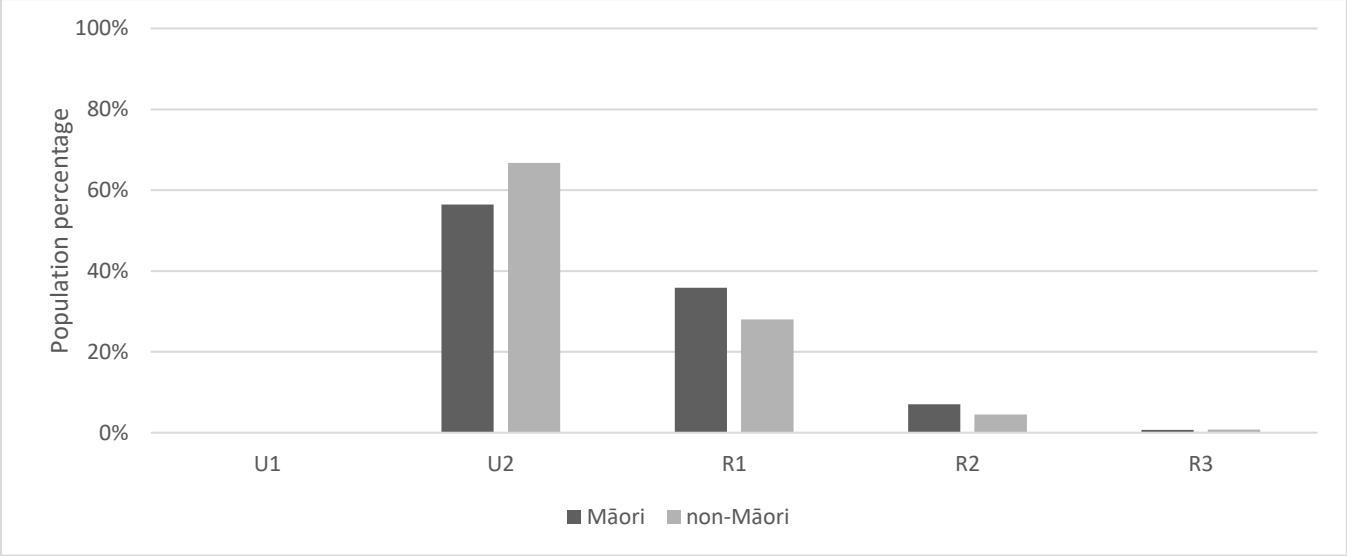
Table 2 - Population projections, Te Pae Oranga o Ruahine o Tararua, 2023 to 2043

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	42,550	22%	30%	62%	7%	146,860	78%	15%	62%	23%
2028	46,850	24%	28%	63%	8%	148,100	76%	15%	60%	26%
2033	51,320	26%	28%	63%	9%	147,990	74%	13%	59%	28%
2038	56,050	28%	27%	62%	10%	146,420	72%	12%	58%	30%
2043	60,000	29%	26%	63%	11%	144,450	71%	12%	58%	31%

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 New Zealand'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 MidCentral DHB (56%) live in urban areas, with 44% living in rural areas compared to 67% and 33% for non-Māori respectively (Figure 4).

Figure 4 - Population distribution by urban and rural classification, MidCentral 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 Pae Oranga o Ruahine o Tararua between 2018-2022 is 79.4 years for females and 77.9 years for males (Table 3). Māori life expectancy in Te Pae Oranga o Ruahine o Tararua is 4.0 years shorter for Māori females and 2.0 years shorter for Māori males, compared to non-Māori in Te Pae Oranga o Ruahine o Tararua.

Table 3 - Life expectancy at birth, Te Pae Oranga o Ruahine o Tararua, Māori and non-Māori, 2018 to 2022

Sex	Māori		non-Māori		Difference in years
	Years (95% credible interval)		Years (95% credible interval)		
Female	79.4	(78.0, 80.8)	83.4	(83.0, 83.9)	-4.0
Male	77.9	(75.4, 80.3)	79.9	(79.4, 80.4)	-2.0

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. Te Pae Oranga o Ruahine o Tararua is in the Central Region, which also includes Whanganui, Hawke's Bay, Capital and Coast, Hutt Valley, and Wairarapa DHBs. In the Central Region for 2018-2020, life expectancy for Māori was 76.7 years, 6.0 years lower than the non-Māori/non-Pacific population (82.6 years).

Avoidable deaths include those considered *amenable* to high-quality healthcare, *preventable* through public health interventions, or both. Among Māori in the Central Region, 2.0 years of the 6.0-year gap can be attributed to conditions that are considered both amenable and preventable followed by 1.1 years from conditions considered preventable only and 0.8 years from conditions considered amenable only. An additional 2.0 years can be attributed to conditions that are considered non avoidable[7].

The leading avoidable causes of death contributing to the life expectancy gap among Māori in the Central Region are coronary disease (0.7 years), lung cancer (0.6 years) and chronic obstructive pulmonary disease (COPD) (0.4 years). A list of the top 10 conditions and their contribution to the gap are presented in Table 4. In total, these conditions contribute 3.1 years of the 6.0-year gap. These data are not able to be disaggregated by sex for Māori at a regional level because the numbers are too small.

[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.

Table 4 - Decomposition of the ethnic gap in life expectancy by avoidable category - Māori compared with non-Māori/non-Pacific, 2018 to 2020, Central Region

Avoidable cause	Contribution (years)
Coronary disease	0.7
Lung cancer	0.6
Chronic obstructive pulmonary disease	0.4
Diabetes	0.3
Suicide	0.3
Stroke	0.2
Land transport injuries	0.2
Other accidental injuries	0.2
Valvular heart disease	0.2
Liver cancer	0.1
Total contribution from top 10 avoidable conditions	**3.1 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 Pae Oranga o Ruahine o Tararua reported their own health status as good, very good or excellent (Table 5), a similar percentage to Māori nationally (82.3%). A total of 16.6% of Māori in Te Pae Oranga o Ruahine o Tararua reported their health status as fair or poor.

Table 5 - Health status reported by Māori aged 15 years and over, Te Pae Oranga o Ruahine o Tararua, 2018

Health Status	Te Pae Oranga o Ruahine o Tararua		Aotearoa	
	%	(95% CI)	%	(95% CI)
Excellent	13.1	(9.2, 16.9)	15.1	(14.0,16.2)
Very Good	35.5	(31.0, 39.9)	36.9	(35.4, 38.3)
Good	34.8	(30.0, 39.7)	30.3	(29.0, 31.7)
Fair/poor	16.6	(13.2, 20.1)	17.7	(16.6, 18.8)

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

3.3. Mortality

The leading causes of death for Māori in MidCentral DHB in 2014-2018 were ischaemic heart disease, lung cancer, COPD, suicide and diabetes (Table 6). This is similar to the leading causes of death for Māori nationally (Table 7), although suicide is amongst the leading causes in MidCentral DHB, where cerebrovascular disease is in the leading causes for Māori nationally.

The leading causes of death for Māori in MidCentral DHB differ somewhat from the leading causes of death for non-Māori in MidCentral DHB, which were ischaemic heart disease, cerebrovascular disease, dementia, lung cancer, and COPD in 2014-2018.

The leading causes of death for Māori females in MidCentral DHB in 2014-2018 were lung cancer, ischaemic heart disease, COPD, cerebrovascular disease and suicide (Table 6). For Māori males, the leading causes of death in 2014-2018 were ischaemic heart disease, suicide, diabetes, lung cancer and cerebrovascular disease. Because of the small population size in the DHB, just 1-2 deaths from a particular cause can have a large impact on the ranking of leading causes of death. 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 7).

Table 6 - Leading causes of death for Māori, all ages, MidCentral 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	9	28.7	(12.8, 54.9)	33	9.4	(5.8, 13.9)	**3.07**	**(1.41, 6.71)**	19.3
Ischaemic heart disease	9	27.3	(12.2, 51.9)	92	11.4	(8.1, 15.3)	**2.38**	**(1.15, 4.94)**	15.9
COPD	6	18.9	(6.7, 41.6)	32	6.8	(4.0, 10.5)	**2.78**	**(1.09, 7.06)**	12.1
Cerebrovascular disease	4	11.1	(2.4, 30.5)	58	7.0	(4.7, 9.8)	1.58	(0.51, 4.88)	4.1
Suicide	3	15.3	(2.7, 46.5)	8	8.2	(2.5, 17.9)	1.87	(0.44, 8.03)	7.1
Male									
Ischaemic heart disease	11	42.7	(20.9, 77.0)	122	31.0	(23.5, 39.5)	1.38	(0.72, 2.64)	11.7
Suicide	4	21.9	(5.2, 58.1)	16	18.1	(9.3, 30.9)	1.21	(0.38, 3.90)	3.8
Diabetes mellitus	3	13.8	(2.4, 41.1)	16	4.7	(1.6, 9.3)	2.93	(0.73, 11.79)	9.1
Lung cancer	3	12.7	(2.7, 36.0)	36	10.6	(6.6, 15.8)	1.19	(0.37, 3.86)	2.1
Cerebrovascular disease	3	11.2	(1.8, 34.3)	47	9.8	(6.0, 14.5)	1.14	(0.32, 4.05)	1.4
Total									
Ischaemic heart disease	20	34.9	(21.1, 54.2)	214	20.7	(16.7, 25.2)	**1.69**	**(1.04, 2.74)**	14.2
Lung cancer	12	21.5	(11.1, 37.5)	70	9.9	(7.2, 13.2)	**2.17**	**(1.15, 4.11)**	11.6
COPD	8	14.3	(6.2, 27.8)	66	6.8	(4.9, 9.2)	2.09	(0.99, 4.41)	7.5
Suicide	7	18.1	(6.8, 38.5)	24	13.0	(7.6, 20.4)	1.39	(0.56, 3.45)	5.1
Diabetes mellitus	6	11.7	(4.1, 25.9)	31	3.6	(1.8, 6.0)	**3.23**	**(1.21, 8.66)**	8.1

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

Table 7 - 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.
Note: 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 (295 deaths each year per 100,000 people) was 1.6 times higher for Māori compared to non-Māori in MidCentral DHB in 2014-2018 (Table 8). This equates to an average of 77 Māori females and 71 Māori males dying each year in MidCentral DHB.

Table 8 - All-cause deaths, all ages, MidCentral 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	77	277.3	(215.6, 350.4)	656	150.3	(127.8, 174.3)	**1.84**	**(1.39, 2.44)**	127.0
Male	71	314.5	(243.1, 399.8)	677	218.3	(191.5, 246.6)	**1.44**	**(1.10, 1.89)**	96.2
Total	148	294.9	(247.3, 348.6)	1,333	182.9	(165.4, 201.2)	**1.61**	**(1.33, 1.96)**	112.0

Source: Mortality dataset, Ministry of Health.
Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates in the DHB. 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) compared to all deaths in MidCentral DHB (Table 9). The age-standardised potentially avoidable death rate (169 deaths each year per 100,000 people) was 1.7 times higher for Māori compared to non-Māori in MidCentral DHB in 2014-2018. This equates to an average of 38 avoidable deaths each year in Māori females aged 0-74 years, and 38 in Māori males in MidCentral DHB.

Table 9 - Potentially avoidable deaths, ages 0-74 years, MidCentral 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	38	158.9	(111.1, 219.8)	119	78.1	(58.8, 100.3)	**2.03**	**(1.34, 3.09)**	80.8
Male	38	181.3	(126.2, 251.5)	180	121.5	(98.1, 147.7)	**1.49**	**(1.01, 2.20)**	59.8
Total	76	169.3	(132.3, 213.3)	299	99.3	(84.0, 116.1)	**1.70**	**(1.29, 2.26)**	70.0

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

The leading causes of potentially avoidable deaths (those deaths considered amenable to high-quality healthcare, preventable through public health interventions, or both) for Māori aged 0-74 years in MidCentral DHB were ischaemic heart disease, lung cancer, suicide, diabetes and COPD (Table 10). These were also the five leading causes of potentially avoidable deaths for Māori nationally (Table 11).

The leading causes of potentially avoidable deaths for Māori females aged 0-74 years in MidCentral DHB in 2014-2018 were lung cancer, ischaemic heart disease, COPD, suicide and breast cancer (Table 10). For Māori males aged 0-74 years, the leading causes of death in 2014-2018 were ischaemic heart disease, suicide, diabetes, lung cancer and colorectal cancer. Because of the small population size in the DHB, just 1-2 deaths from a particular cause can have a large impact on the ranking of leading causes of death. 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 11).

Māori aged 0-74 years in MidCentral DHB in 2014-2018 had 4.5 times higher potentially avoidable mortality from diabetes compared to non-Māori, 2.2 times higher potentially avoidable mortality for suicide (Table 10).

Table 10 - Leading causes of potentially avoidable mortality, ages 0-74 years, MidCentral 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	6	21.5	(7.9, 46.9)	18	7.5	(4.2, 12.1)	**2.89**	**(1.12, 7.43)**	14.0
Ischaemic heart disease	4	14.2	(3.6, 37.2)	11	4.7	(2.0, 8.8)	3.03	(0.90, 10.17)	9.5
COPD	4	13.5	(3.5, 35.5)	13	4.8	(2.2, 8.7)	2.82	(0.86, 9.20)	8.7
Suicide and self-inflicted injuries	3	15.4	(2.7, 46.9)	7	8.2	(2.5, 18.1)	1.88	(0.44, 8.06)	7.2
Breast cancer	3	11.5	(2.3, 33.7)	14	9.6	(4.4, 17.2)	1.20	(0.33, 4.40)	1.9
Male									
Ischaemic heart disease	8	32.6	(13.8, 65.1)	42	20.3	(13.5, 29.0)	1.60	(0.72, 3.56)	12.3
Suicide and self-inflicted injuries	4	21.4	(4.9, 58.1)	15	18.1	(9.3, 31.1)	1.18	(0.36, 3.90)	3.3
Diabetes	3	13.2	(2.1, 40.7)	6	3.3	(0.5, 8.5)	4.01	(0.80, 19.98)	9.9
Lung cancer	3	12.1	(2.4, 35.4)	18	8.1	(4.3, 13.4)	1.49	(0.43, 5.22)	4.0
Colorectal cancer	3	10.2	(1.7, 32.1)	16	8.5	(4.0, 15.0)	1.20	(0.31, 4.69)	1.7
Total									
Ischaemic heart disease	12	23.1	(11.7, 40.8)	53	12.2	(8.6, 16.7)	1.89	(0.97, 3.66)	10.9
Lung cancer	9	17.1	(7.8, 32.4)	36	7.8	(5.2, 11.1)	**2.20**	**(1.04, 4.65)**	9.3
Suicide and self-inflicted injuries	6	18.0	(6.7, 38.7)	22	13.0	(7.6, 20.5)	1.38	(0.55, 3.46)	5.0
Diabetes	5	10.3	(3.2, 24.5)	9	2.3	(0.7, 4.9)	**4.53**	**(1.34, 15.37)**	8.0
COPD	5	9.5	(3.1, 22.3)	24	4.4	(2.7, 6.8)	2.17	(0.81, 5.81)	5.1

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

Table 11 - 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.
Note: Ratios in **bold** show that Māori rates were significantly different from non-Māori rates. Cerebrovascular disease includes stroke.

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 12), most Māori (75.6%) in Te Pae Oranga o Ruahine o Tararua reported their whānau was doing well (7/10 or greater), compared to 73.6% of Māori nationally. Just under a quarter of Māori (24.4%) in Te Pae Oranga o Ruahine o Tararua reported that their whānau was not doing well (6/10 or less).

Table 12 - Whānau well-being reported by Māori aged 15 years and over, Te Pae Oranga o Ruahine o Tararua and Aotearoa, 2018

How the whānau is doing	Te Pae Oranga o Ruahine o Tararua		Aotearoa	
	%	(95% CI)	%	(95% CI)
(10 out of 10)	16.1	(11.6, 20.7)	12.9	(12.1, 13.7)
(9 out of 10)	11.1 *	(7.5, 14.7)	12.8	(11.9, 13.6)
(8 out of 10)	25.2	(19.8, 30.6)	24.4	(23.3, 25.6)
(7 out of 10)	23.2	(17.9, 28.4)	23.5	(22.5, 24.6)
(0-6 out of 10)	24.4	(19.9, 28.9)	26.4	(25.2, 27.6)

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

When thinking about who made up the whānau, just under a quarter of Māori (22.8%) in Te Pae Oranga o Ruahine o Tararua included “close friends or others” (Table 13).

Table 13 - Whānau composition reported by Māori aged 15 years and over, Te Pae Oranga o Ruahine o Tararua and Aotearoa, 2018

Whānau description	Te Pae Oranga o Ruahine o Tararua		Aotearoa	
	%	(95% CI)	%	(95% CI)
Size of whānau				
10 or less	57.1	(51.2, 63.0)	52.1	(50.6, 53.6)
11 to 20	23.6	(19.2, 27.9)	24.2	(23.0, 25.4)
More than 20	19.3	(15.5, 23.2)	23.7	(22.3, 25.0)
Groups included in whānau				
Parents, partner, children, brothers and sisters	98.3	(97.0, 99.6)	97.4	(97.0, 97.8)
Grandparents, grandchildren	40.8	(35.0 46.6)	39.0	(37.5, 40.5)
Aunts and uncles, cousins, nephews and nieces, other in-laws	50.5	(44.6, 56.3)	48.6	(47.1, 50.2)
Close friends, others	22.8	(18.7, 27.0)	22.6	(21.3, 23.8)

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

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

Most Māori (77%) in Te Pae Oranga o Ruahine o Tararua reported it was easy or very easy to get support in times of need. Fewer Māori (64.8%) 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 (Table 14).

Table 14 - Access to whānau support, Māori aged 15 years and over, Te Pae Oranga o Ruahine o Tararua and Aotearoa, 2018

How easy is it to get help	Te Pae Oranga o Ruahine o Tararua		Aotearoa	
	%	(95% CI)	%	(95% CI)
Support in times of need				
Easy, very easy	77.0	(71.8, 82.3)	76.1	(74.9, 77.3)
Sometimes easy, sometimes hard	17.4	(12.6, 22.1)	16.4	(15.5, 17.4)
Hard, very hard	5.6 *	(3.3, 7.8)	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	64.8	(58.6, 70.9)	59.0	(57.7, 60.3)
Sometimes easy, sometimes hard	18.1	(13.6, 22.6)	18.9	(17.9, 19.9)
Hard, very hard	13.2 *	(8.7, 17.6)	18.1	(17.0, 19.2)

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

Being involved in Māori culture was very/quite important to 40.1% of Māori in Te Pae Oranga o Ruahine o Tararua, and spirituality was very/quite important to 44.1% of Māori in Te Pae Oranga o Ruahine o Tararua (Table 15). Only 11.3% of Māori respondents in Te Pae Oranga o Ruahine o Tararua reported that being involved in Māori culture was not at all important to them.

Table 15 - Importance of Māori culture and spirituality, Māori aged 15 years and over, Te Pae Oranga o Ruahine o Tararua and Aotearoa, 2018

	Te Pae Oranga o Ruahine o Tararua		Aotearoa	
	%	(95% CI)	%	(95% CI)
Importance of being involved in Māori culture				
Very important	20.1	(16.5, 23.6)	22.1	(21.1, 23.1)
Quite important	20.0	(16.3, 23.6)	23.2	(22.1, 24.3)
Somewhat	30.9	(26.0, 35.7)	25.8	(24.7, 26.9)
A little important	17.7	(13.4, 22.1)	18.3	(17.1, 19.5)
Not at all important	11.3 *	(7.0, 15.6)	10.6	(9.7, 11.6)
Importance of spirituality				
Very important	27.5	(22.9, 32.2)	30.7	(29.5, 31.9)
Quite important	16.6	(12.7, 20.6)	18.0	(16.9, 19.0)
Somewhat	19.1	(15.0, 23.1)	16.8	(15.9, 17.8)
A little important	18.2	(14.6, 21.8)	15.3	(14.3, 16.2)
Not at all important	18.5	(13.6, 23.4)	19.2	(18.1, 20.4)

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

In Te Pae Oranga o Ruahine o Tararua in 2018, 17.6% of Māori aged 15 years and over regularly used te reo Māori in the home (Table 16). Small numbers in the Te Kupenga survey sample make it difficult to assess the percentage of homes where te reo Māori is the main language in Te Pae Oranga o Ruahine o Tararua.

Table 16 - Use of te reo Māori in the home, Māori aged 15 years and over, Te Pae Oranga o Ruahine o Tararua and Aotearoa and Aotearoa, 2018

Language spoken at home	Te Pae Oranga o Ruahine o Tararua		Aotearoa	
	%	(95% CI)	%	(95% CI)
Māori is main language	S	(NA, NA)	1.8	(1.3, 2.2)
Māori is used regularly	17.6	(13.6, 21.7)	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 Pae Oranga o Ruahine o Tararua (97.1%) had been to a marae. Of those, 47.7% had been in the last 12 months (Table 17). Of those who had ever been to a marae, and who knew their ancestral marae, 85.1% had been to an ancestral marae at some time, with 39.4% of respondents noting that they had been in the last 12 months, and 59.8% reporting that they would like to go more often.

Table 17 - Access to marae, Māori aged 15 years and over, Te Pae Oranga o Ruahine o Tararua and Aotearoa, 2018

Been to marae	Te Pae Oranga o Ruahine o Tararua		Aotearoa	
	%	(95% CI)	%	(95% CI)
At some time	97.1	(94.9, 99.4)	96.6	(96.0, 97.1)
In previous 12 months [1]	47.7	(42.1, 53.3)	51.8	(50.6, 53.1)
Ancestral marae at some time [1][2]	85.1	(78.9, 91.3)	84.3	(82.9, 85.6)
Ancestral marae in previous 12 months [1][2]	39.4	(32.2, 46.6)	44.3	(42.6, 45.9)
Like to go to ancestral marae more often [1][2]	59.8	(52.5, 67.2)	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, 11.4% of Māori aged 15 years and over in Te Pae Oranga o Ruahine o Tararua had taken part in traditional healing or massage in the past 12 months (Table 18).

Table 18 - Māori aged 15 years and over who took part in traditional healing or massage in last 12 months, Te Pae Oranga o Ruahine o Tararua and Aotearoa, 2018

Te Pae Oranga o Ruahine o Tararua		Aotearoa	
%	(95% CI)	%	(95% CI)
11.4	(8.1, 14.7)	12.3	(11.4, 13.2)

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

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 MidCentral DHB geographical area, whereas Te Kupenga survey data is presented for the Te Pae Oranga o Ruahine o Tararua 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, 63% of Māori aged over 20 years in MidCentral DHB had achieved a Level 2 Certificate or higher, compared to 75.1% for non-Māori (Table 19).

Table 19 - Adults aged 20 years and over with a Level 2 Certificate or higher, MidCentral DHB, 2018

Year	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
2018	11,889	63.0	(61.8, 64.1)	67,830	75.1	(74.5, 75.8)	**0.84**	**(0.83, 0.85)**	-12.1

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.

5.2. Work

In 2018, 48% of Māori aged 15 years and over in MidCentral DHB were employed full time, and 15.1% were employed part time (Table 20). In 2018, 8.8% of Māori in MidCentral DHB were unemployed, and Māori were 1.1 times more likely than non-Māori to not be in the labour force.

Table 20 - Labour force status, 15 years and over, MidCentral 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	11,307	48.0	(47.1, 49.0)	54,330	52.8	(52.3, 53.3)	**0.91**	**(0.90, 0.92)**	-4.8
Employed part-time	3,552	15.1	(14.6, 15.6)	16,818	16.2	(15.9, 16.5)	**0.93**	**(0.90, 0.96)**	-1.1
Unemployed	2,013	8.8	(8.4, 9.2)	4,101	5.1	(4.9, 5.3)	**1.73**	**(1.65, 1.83)**	3.7
Not in the labour force	7,254	28.1	(27.4, 28.7)	41,010	25.9	(25.5, 26.2)	**1.08**	**(1.06, 1.11)**	2.2

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 MidCentral DHB were health care and social assistance (18.8%); education and training (15%); retail trade (10.7%); accommodation and food services (10.2%); and public administration and safety (8.1%) (Table 21). For Māori men, the leading industries were manufacturing (16.8%); construction (14%); public administration and safety (11%); agriculture, forestry and fishing (9.2%); and retail trade (6.9%).

Table 21 - Leading industries in which Māori were employed, MidCentral DHB, 2018

ANZSIC Industry	Māori			non-Māori		
	Number	%	Rank	Number	%	Rank
Females						
Health Care and Social Assistance	1,365	18.8%	1	6,906	20.4%	1
Education and Training	1,089	15.0%	2	5,109	15.1%	2
Retail Trade	774	10.7%	3	3,714	10.9%	3
Accommodation and Food Services	738	10.2%	4	2,280	6.7%	5
Public Administration and Safety	591	8.1%	5	2,268	6.7%	6
Males						
Manufacturing	1,275	16.8%	1	4,755	12.8%	1
Construction	1,068	14.0%	2	4,632	12.4%	2
Public Administration and Safety	834	11.0%	3	3,417	9.2%	4
Agriculture, Forestry and Fishing	699	9.2%	4	4,440	11.9%	3
Retail Trade	522	6.9%	5	2,964	8.0%	5

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 (Table 22), for employed Māori women in MidCentral DHB, the leading occupational groupings were community and personal service workers (20.6%); professionals (19.2%); labourers (15.4%); and clerical and administrative workers (14.9%). Māori men were most likely to be employed as labourers (24.1%); technicians and trade workers (16.4%); managers (14.2%); and machinery operators and drivers (14%).

Table 22 - Leading occupations in which Māori were employed, MidCentral DHB, 2018

ANZSCO Occupation	Māori			non-Māori		
	Number	%	Rank	Number	%	Rank
Females						
Community and Personal Service Workers	1,494	20.6%	1	5,088	15.0%	3
Professionals	1,395	19.2%	2	8,775	25.9%	1
Labourers	1,119	15.4%	3	2,922	8.6%	6
Clerical and Administrative Workers	1,083	14.9%	4	6,339	18.7%	2
Sales Workers	945	13.0%	5	3,978	11.7%	5
Managers	741	10.2%	6	4,446	13.1%	4
Technicians and Trades Workers	348	4.8%	7	1,872	5.5%	7
Machinery Operators and Drivers	135	1.9%	8	504	1.5%	8
Males						
Labourers	1,830	24.1%	1	5,124	13.8%	4
Technicians and Trades Workers	1,251	16.4%	2	6,708	18.0%	2
Managers	1,077	14.2%	3	8,526	22.9%	1
Machinery Operators and Drivers	1,062	14.0%	4	3,741	10.1%	5
Community and Personal Service Workers	888	11.7%	5	2,841	7.6%	6
Professionals	801	10.5%	6	6,039	16.2%	3
Sales Workers	405	5.3%	7	2,658	7.1%	7
Clerical and Administrative Workers	300	3.9%	8	1,566	4.2%	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 88.4% of Māori aged over 15 years in MidCentral DHB in 2018 reporting they performed unpaid work (Table 23). Māori in MidCentral DHB were significantly more likely than non-Māori to participate in unpaid work looking after a disabled or ill household (1.6 times) or non-household (1.2 times) member.

Table 23 - Unpaid work, 15 years and over, MidCentral DHB, 2018

Unpaid work	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	Number	%			
Any unpaid work	15,618	88.4	89,463	88.4	1.00	(0.99, 1.01)	0.0
Looking after disabled/ill household member	2,064	11.7	7,272	7.2	**1.63**	**(1.55, 1.70)**	4.5
Looking after disabled/ill non-household member	1,992	11.3	9,216	9.1	**1.24**	**(1.18, 1.30)**	2.2

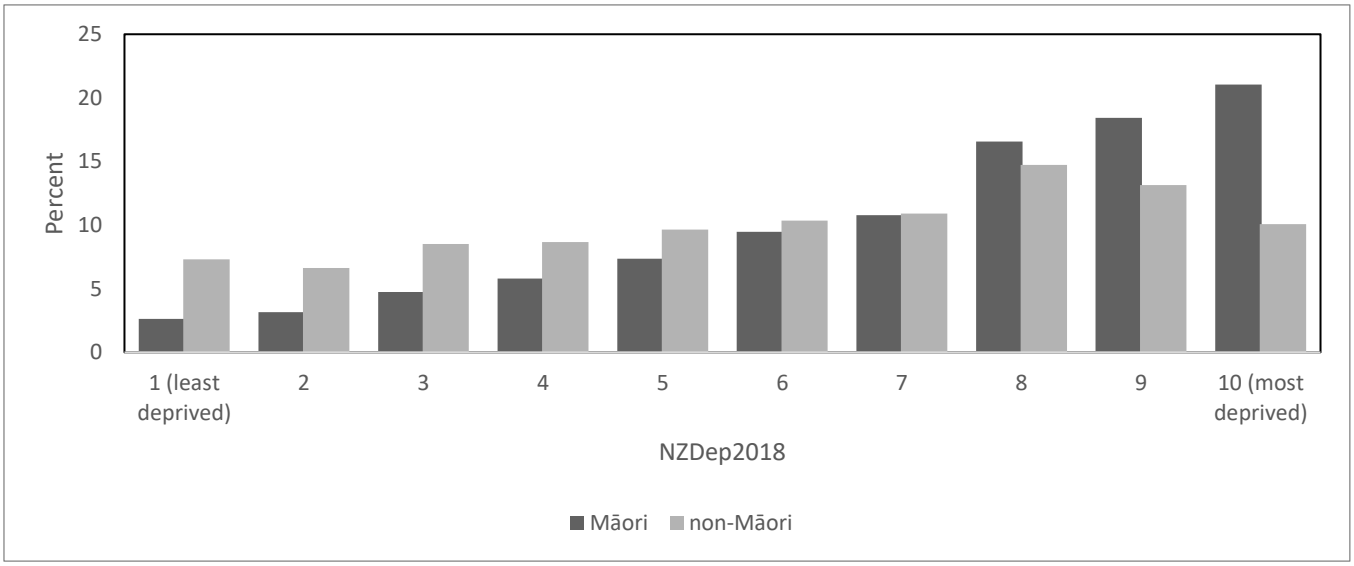
Source: 2018 Census, Statistics New Zealand.
Notes: Percentages are NOT age-standardised due to not having detailed age-group data available. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

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 MidCentral DHB, 39% of Māori lived in the two most deprived deciles in 2018, compared to 23% for non-Māori (Figure 5). A total of 6% of Māori in MidCentral DHB lived in the two least deprived deciles in 2018, compared to 14% of non-Māori in MidCentral DHB.

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



Source: Deprivation decile for estimated resident population (ERP), former DHB areas, prioritised ethnicity, provided by StatsNZ 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, 11.4% of Māori aged over 15 years in Te Pae Oranga o Ruahine o Tararua reported often postponing or putting off a doctor's visit, 6.1% often went without fresh fruit and vegetables, and 6.5% often put up with feeling cold, because of cost (Table 24).

Table 24 - Unmet needs reported by Māori aged 15 years and over to keep costs down in the last 12 months, Te Pae Oranga o Ruahine o Tararua and Aotearoa, 2018

Actions taken a lot to keep costs down	Te Pae Oranga o Ruahine o Tararua		Aotearoa	
	%	(95% CI)	%	(95% CI)
Put up with feeling the cold	6.5 *	(3.6, 9.4)	9.9	(9.1, 10.7)
Go without fresh fruit and vegetables	6.1 *	(3.8, 8.4)	6.2	(5.6, 6.9)
Postpone or put off visits to the doctor	11.4 *	(7.9, 14.8)	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%. 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 MidCentral DHB are significantly more likely than non-Māori to receive an income of $20,000 or less (Table 25). This equates to 35.5% of Māori aged 20 years and over lived on an income of $20,000 or less compared to 29.4% of non-Māori in 2018.

Table 25 - People 20 years and over whose total annual personal income in $20,000 or less, MidCentral 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	7,461	35.5	(34.6, 36.3)	33,579	29.4	(29.0, 29.8)	**1.20**	**(1.18, 1.23)**	6.0

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.

Māori in MidCentral DHB are almost 1.9 times more likely than non-Māori to be without access to a motor vehicle (Table 26). This equates to 5.5% of Māori (1,656 people) living in MidCentral DHB with no access to a motor vehicle compared to 3% of non-Māori in 2018.

Table 26 - People with no access to a motor vehicle, MidCentral DHB, 2018

Year	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
2018	1,656	5.5	(5.2, 5.8)	4,998	3.0	(2.8, 3.1)	**1.86**	**(1.76, 1.96)**	2.5

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.

Māori in MidCentral DHB are also 2.1 times more likely than non-Māori to have no access to telecommunications (Table 27). This equates to 1.5% of Māori (444 people) who had no access to any form of telecommunications (a functional cell phone, telephone, or the Internet) compared to 0.7% of non-Māori in 2018.

Table 27 - People with no access to telecommunications, MidCentral DHB, 2018

Year	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
2018	444	1.5	(1.4, 1.7)	891	0.7	(0.7, 0.8)	**2.11**	**(1.89, 2.37)**	0.8

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.

5.4. Housing

Māori in MidCentral DHB are less likely than non-Māori to own their home (Table 28). In 2018, 62.5% of Māori aged 20 years and over in MidCentral DHB lived in a home they did not own/partly own or hold in a family trust compared to 47.4% of non-Māori.

Table 28 - Housing tenure, 20 years and over, MidCentral 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	5,571	34.0	(33.1, 35.0)	50,322	45.1	(44.6, 45.6)	**0.75**	**(0.74, 0.77)**	-11.1
Held in a family trust	630	3.5	(3.2, 3.8)	10,827	7.5	(7.3, 7.7)	**0.46**	**(0.43, 0.50)**	-4.0
Not owned; not held in a family trust	9,243	62.5	(61.2, 63.9)	34,296	47.4	(46.8, 48.0)	**1.32**	**(1.30, 1.34)**	15.1

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.

Living in an overcrowded home was 2.1 times more common for Māori than non-Māori in MidCentral DHB in 2018 (Table 29). In the 2018 Census, 16.8% of Māori (4,923 people) in MidCentral DHB lived in overcrowded homes compared to 8.1% of non-Māori.

Table 29 - People living in crowded households (requiring at least one more bedroom), MidCentral DHB, 2018

Measure	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
Household crowding	4,923	16.8	(16.4, 17.3)	7,419	8.1	(7.9, 8.3)	**2.08**	**(2.01, 2.16)**	8.8

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, 37.1% of Māori in MidCentral DHB lived in a home that was sometimes or always damp, and 30.2% of Māori lived in a house with mould (Table 30). Māori in MidCentral DHB were 1.5 times more likely than non-Māori to live in a damp home and 1.5 times more likely to live in a mouldy home.

Table 30 - People experiencing housing quality issues sometimes or always, MidCentral 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	9,828	37.1	(36.4, 37.9)	24,504	24.7	(24.4, 25.1)	**1.50**	**(1.47, 1.53)**	12.4
Mould	8,118	30.2	(29.5, 30.8)	19,815	19.9	(19.5, 20.2)	**1.52**	**(1.48, 1.55)**	10.3

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 MidCentral DHB were also 1.3 times as likely as non-Māori to live in homes without any source of heating in 2018 (Table 31). This equates to 2.1% of Māori in MidCentral DHB (612 people) who were without heating compared to 1.7% of non-Māori in 2018.

Table 31 - People living in households where there is no source of heating, MidCentral 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	612	2.1	(1.9, 2.3)	1,743	1.7	(1.6, 1.8)	**1.26**	**(1.15, 1.38)**	0.4

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.

5.5. Primary Care Enrolment

In October 2023, 19.8% of Māori in MidCentral DHB were not enrolled with primary health care, compared to 3.5% for non-Māori (Table 32). 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 MidCentral 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 32 - People enrolled with primary care, MidCentral DHB, October 2023

Year	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)		Difference in percentage
	Number	%	(95% CI)	Number	%	(95% CI)			
2023	34,024	80.2	(79.4, 81.1)	143,445	96.5	(96.0, 97.0)	**0.83**	**(0.83, 0.84)**	-16.2

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 33 - Māori population projections, single year, MidCentral DHB, by 5-year age band, 2018 to 2043

Age Groups	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
	2018			2019			2020			2021		
00-04	1,940	2,150	4,090	1,960	2,160	4,120	1,980	2,190	4,160	2,030	2,190	4,230
05-09	2,070	2,150	4,220	2,070	2,130	4,200	2,080	2,130	4,220	2,030	2,160	4,200
10-14	1,960	2,070	4,040	2,030	2,120	4,150	2,090	2,230	4,330	2,160	2,250	4,410
15-19	1,750	1,930	3,680	1,810	1,960	3,770	1,870	1,960	3,830	1,930	2,020	3,950
20-24	1,620	1,690	3,310	1,630	1,760	3,390	1,620	1,820	3,440	1,680	1,870	3,550
25-29	1,500	1,510	3,010	1,480	1,530	3,010	1,520	1,590	3,110	1,490	1,640	3,140
30-34	1,220	1,160	2,380	1,330	1,250	2,580	1,410	1,310	2,730	1,490	1,400	2,890
35-39	1,120	970	2,090	1,120	970	2,090	1,160	1,020	2,170	1,200	1,050	2,250
40-44	1,050	1,010	2,060	1,050	1,010	2,060	1,070	960	2,040	1,090	1,000	2,090
45-49	1,100	970	2,070	1,130	970	2,090	1,080	1,000	2,080	1,110	980	2,080
50-54	990	930	1,920	970	940	1,910	1,020	940	1,960	1,040	960	1,990
55-59	870	840	1,710	910	850	1,770	940	840	1,780	990	860	1,850
60-64	650	580	1,220	670	620	1,290	710	690	1,410	700	730	1,430
65-69	480	460	940	500	470	970	520	470	1,000	580	500	1,080
70-74	330	260	600	360	290	650	370	330	700	420	360	780
75-79	190	180	370	210	210	410	240	200	440	230	200	430
80-84	130	80	210	130	70	200	140	90	230	140	110	250
85+	60	50	120	80	60	140	80	60	140	90	60	150
All Ages	**19,000**	**19,000**	**38,000**	**19,400**	**19,400**	**38,800**	**19,900**	**19,900**	**39,800**	**20,400**	**20,300**	**40,700**

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	2,060	2,210	4,260	2,080	2,170	4,250	2,110	2,210	4,320	2,130	2,230	4,370
05-09	2,020	2,160	4,180	2,020	2,210	4,230	2,050	2,230	4,280	2,050	2,250	4,300
10-14	2,210	2,280	4,500	2,200	2,250	4,440	2,200	2,230	4,430	2,210	2,220	4,430
15-19	1,970	2,080	4,040	2,100	2,170	4,270	2,170	2,230	4,400	2,230	2,340	4,570
20-24	1,710	1,920	3,640	1,730	2,040	3,780	1,790	2,080	3,870	1,840	2,070	3,910
25-29	1,500	1,630	3,120	1,540	1,600	3,130	1,540	1,670	3,210	1,530	1,720	3,250
30-34	1,570	1,470	3,040	1,580	1,520	3,100	1,550	1,540	3,090	1,580	1,600	3,180
35-39	1,240	1,130	2,360	1,290	1,180	2,470	1,390	1,280	2,680	1,480	1,340	2,820
40-44	1,100	990	2,090	1,160	990	2,140	1,150	990	2,140	1,190	1,030	2,220
45-49	1,080	990	2,070	1,050	1,000	2,050	1,050	1,000	2,060	1,070	960	2,030
50-54	1,070	950	2,020	1,080	940	2,020	1,110	940	2,060	1,060	970	2,030
55-59	970	870	1,840	970	900	1,860	950	910	1,860	1,000	910	1,910
60-64	790	770	1,560	840	800	1,640	890	820	1,710	920	800	1,720
65-69	590	510	1,100	620	540	1,160	640	580	1,230	680	650	1,330
70-74	420	390	810	440	410	850	450	420	880	480	430	910
75-79	260	210	480	280	220	500	310	240	550	320	270	590
80-84	140	120	260	150	140	280	160	160	320	190	160	350
85+	100	60	160	120	70	180	130	60	180	130	70	200
All Ages	**20,800**	**20,700**	**41,600**	**21,200**	**21,200**	**42,400**	**21,700**	**21,600**	**43,300**	**22,100**	**22,000**	**44,100**

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	2,160	2,260	4,420	2,180	2,290	4,480	2,210	2,320	4,530	2,230	2,350	4,580
05-09	2,110	2,250	4,360	2,130	2,270	4,400	2,150	2,240	4,390	2,180	2,270	4,450
10-14	2,150	2,250	4,400	2,140	2,250	4,380	2,140	2,300	4,440	2,170	2,320	4,480
15-19	2,290	2,350	4,640	2,350	2,390	4,740	2,330	2,350	4,680	2,340	2,330	4,670
20-24	1,890	2,120	4,020	1,930	2,180	4,100	2,060	2,270	4,330	2,130	2,340	4,470
25-29	1,580	1,760	3,350	1,610	1,820	3,430	1,630	1,930	3,560	1,680	1,970	3,650
30-34	1,540	1,630	3,180	1,550	1,620	3,160	1,590	1,590	3,180	1,600	1,660	3,250
35-39	1,550	1,420	2,970	1,630	1,490	3,120	1,630	1,540	3,180	1,610	1,560	3,160
40-44	1,220	1,050	2,280	1,260	1,130	2,400	1,320	1,190	2,510	1,420	1,290	2,720
45-49	1,090	990	2,080	1,100	980	2,080	1,150	980	2,130	1,150	970	2,120
50-54	1,090	950	2,030	1,060	960	2,010	1,030	970	2,000	1,040	970	2,010
55-59	1,010	920	1,940	1,050	920	1,970	1,060	910	1,970	1,090	910	2,000
60-64	960	820	1,780	950	830	1,780	940	860	1,800	930	870	1,800
65-69	660	680	1,350	750	720	1,480	810	750	1,560	860	770	1,620
70-74	530	450	980	540	460	1,010	570	490	1,060	590	530	1,120
75-79	360	300	650	360	320	680	370	350	720	390	360	750
80-84	180	150	330	210	170	380	220	160	390	250	180	430
85+	140	90	220	150	90	230	150	100	260	170	120	290
All Ages	**22,500**	**22,500**	**45,000**	**22,900**	**22,900**	**45,800**	**23,400**	**23,300**	**46,700**	**23,800**	**23,800**	**47,600**

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	2,270	2,370	4,640	2,290	2,400	4,690	2,320	2,420	4,740	2,340	2,450	4,790
05-09	2,210	2,300	4,510	2,240	2,330	4,560	2,270	2,360	4,620	2,290	2,390	4,680
10-14	2,170	2,340	4,510	2,230	2,340	4,570	2,260	2,360	4,620	2,280	2,330	4,610
15-19	2,350	2,320	4,670	2,290	2,340	4,630	2,280	2,340	4,620	2,280	2,400	4,680
20-24	2,200	2,440	4,640	2,260	2,460	4,720	2,320	2,490	4,820	2,310	2,460	4,760
25-29	1,730	1,960	3,690	1,790	2,010	3,800	1,830	2,070	3,900	1,960	2,170	4,130
30-34	1,580	1,710	3,290	1,630	1,750	3,390	1,670	1,810	3,470	1,690	1,920	3,610
35-39	1,630	1,610	3,250	1,600	1,650	3,250	1,600	1,640	3,240	1,650	1,610	3,260
40-44	1,510	1,350	2,860	1,580	1,430	3,020	1,660	1,510	3,170	1,660	1,560	3,220
45-49	1,180	1,020	2,200	1,220	1,040	2,270	1,260	1,120	2,390	1,320	1,180	2,500
50-54	1,050	930	1,990	1,070	960	2,030	1,080	960	2,040	1,140	950	2,090
55-59	1,040	940	1,980	1,070	910	1,980	1,040	920	1,960	1,010	940	1,950
60-64	980	870	1,850	990	890	1,880	1,030	880	1,910	1,040	870	1,910
65-69	880	750	1,630	930	770	1,700	910	780	1,690	910	810	1,720
70-74	620	590	1,220	600	620	1,230	690	660	1,350	750	690	1,430
75-79	410	360	770	460	380	850	470	400	870	490	420	910
80-84	250	200	450	290	220	510	290	240	530	300	270	570
85+	190	130	320	180	130	310	200	140	350	220	140	370
All Ages	**24,300**	**24,200**	**48,500**	**24,700**	**24,700**	**49,400**	**25,200**	**25,100**	**50,300**	**25,600**	**25,600**	**51,200**

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	2,370	2,490	4,860	2,390	2,510	4,910	2,430	2,550	4,980	2,460	2,590	5,050
05-09	2,320	2,410	4,730	2,350	2,440	4,790	2,370	2,470	4,840	2,400	2,500	4,900
10-14	2,310	2,360	4,670	2,340	2,390	4,730	2,370	2,420	4,790	2,400	2,450	4,850
15-19	2,300	2,420	4,720	2,310	2,440	4,750	2,360	2,450	4,810	2,390	2,460	4,850
20-24	2,310	2,440	4,750	2,320	2,430	4,750	2,260	2,450	4,710	2,250	2,450	4,700
25-29	2,030	2,240	4,270	2,100	2,350	4,450	2,170	2,360	4,530	2,230	2,400	4,630
30-34	1,740	1,960	3,700	1,790	1,950	3,740	1,840	2,010	3,850	1,880	2,070	3,950
35-39	1,650	1,680	3,330	1,640	1,730	3,370	1,690	1,770	3,470	1,730	1,830	3,550
40-44	1,640	1,570	3,210	1,670	1,630	3,300	1,630	1,670	3,310	1,640	1,650	3,290
45-49	1,430	1,280	2,710	1,510	1,340	2,850	1,590	1,420	3,010	1,660	1,500	3,160
50-54	1,130	950	2,080	1,170	990	2,160	1,210	1,010	2,220	1,250	1,100	2,340
55-59	1,020	940	1,960	1,040	900	1,940	1,050	930	1,990	1,060	930	1,990
60-64	1,070	870	1,950	1,020	900	1,920	1,050	880	1,920	1,020	890	1,910
65-69	890	830	1,720	940	830	1,770	950	850	1,800	990	840	1,840
70-74	800	700	1,490	820	680	1,510	870	700	1,570	850	720	1,570
75-79	510	450	960	540	510	1,050	520	530	1,050	610	570	1,170
80-84	320	280	590	340	280	620	380	300	690	390	310	700
85+	250	160	420	280	180	450	290	190	480	310	210	510
All Ages	**26,100**	**26,000**	**52,100**	**26,600**	**26,500**	**53,100**	**27,000**	**27,000**	**54,000**	**27,500**	**27,500**	**55,000**

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	2,500	2,610	5,110	2,520	2,650	5,170	2,560	2,690	5,250	2,600	2,730	5,320
05-09	2,430	2,530	4,960	2,460	2,560	5,020	2,490	2,590	5,080	2,520	2,620	5,150
10-14	2,430	2,480	4,910	2,450	2,510	4,970	2,480	2,540	5,020	2,510	2,570	5,080
15-19	2,410	2,440	4,850	2,450	2,470	4,910	2,480	2,500	4,970	2,510	2,530	5,030
20-24	2,250	2,510	4,750	2,270	2,520	4,800	2,280	2,550	4,820	2,330	2,550	4,890
25-29	2,210	2,360	4,570	2,220	2,340	4,560	2,230	2,330	4,560	2,170	2,350	4,520
30-34	2,020	2,170	4,190	2,100	2,240	4,330	2,170	2,350	4,510	2,230	2,370	4,600
35-39	1,740	1,940	3,690	1,800	1,990	3,780	1,850	1,980	3,830	1,900	2,040	3,940
40-44	1,680	1,630	3,310	1,690	1,700	3,390	1,680	1,750	3,430	1,730	1,790	3,520
45-49	1,670	1,550	3,220	1,650	1,570	3,220	1,670	1,630	3,300	1,640	1,670	3,310
50-54	1,300	1,160	2,460	1,410	1,260	2,670	1,500	1,320	2,810	1,580	1,400	2,970
55-59	1,120	920	2,040	1,120	920	2,030	1,150	960	2,110	1,190	980	2,180
60-64	1,000	910	1,900	1,000	910	1,920	1,020	870	1,890	1,040	910	1,940
65-69	1,010	830	1,840	1,040	830	1,870	990	860	1,850	1,020	840	1,860
70-74	850	750	1,590	830	760	1,590	880	770	1,650	890	790	1,680
75-79	660	590	1,250	710	600	1,310	730	590	1,320	780	610	1,380
80-84	400	330	730	420	350	770	440	400	850	420	420	840
85+	320	230	550	350	250	610	380	260	640	420	280	700
All Ages	**28,000**	**27,900**	**55,900**	**28,500**	**28,400**	**56,900**	**29,000**	**28,900**	**57,900**	**29,500**	**29,400**	**58,900**

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

Age Groups	Female	Male	Total	Female	Male	Total
	2042			2043		
00-04	2,630	2,760	5,400	2,670	2,800	5,460
05-09	2,560	2,660	5,220	2,590	2,700	5,280
10-14	2,540	2,600	5,140	2,570	2,630	5,200
15-19	2,540	2,560	5,100	2,570	2,590	5,160
20-24	2,360	2,570	4,930	2,390	2,550	4,930
25-29	2,150	2,350	4,510	2,150	2,410	4,560
30-34	2,290	2,400	4,700	2,280	2,370	4,650
35-39	1,940	2,100	4,040	2,080	2,200	4,280
40-44	1,760	1,850	3,610	1,780	1,960	3,750
45-49	1,650	1,650	3,300	1,690	1,620	3,310
50-54	1,650	1,470	3,130	1,660	1,530	3,190
55-59	1,240	1,070	2,300	1,290	1,130	2,420
60-64	1,050	900	1,950	1,100	900	2,000
65-69	1,000	850	1,850	970	870	1,840
70-74	930	780	1,710	950	770	1,720
75-79	760	620	1,380	760	650	1,410
80-84	500	450	950	550	470	1,020
85+	430	290	720	450	310	750
All Ages	**30,000**	**29,900**	**59,900**	**30,500**	**30,500**	**60,900**

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 34 - 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 socio-economically 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 socio-economic deprivation. It is based on nine variables from the 2018 Census which cover eight different dimensions of socio-economic 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 socio-economic 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 composed 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 35 - 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 36 - 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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