Te Aka Whai Ora
Māori Health Authority

Iwi-Māori Partnership Board Health Profile:

Te Taumata Hauora o Te Kahu o Taonui

Volume Two 2024

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Volume Two

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Kei ngā tauihu o te iwi,

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Te kupu takamua
Foreword

Te kupu takamua – Foreword

We are pleased to present Volume Two of the Iwi-Māori Partnership Board Health Profiles. Together with Volume One, completed in late 2023, these two reports represent the most up-to-date snapshot of Māori health for the health sector.

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 volume continues the commitment to excellence that Māori communities and whānau both need and deserve.

Volume One 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. Volume Two presents additional indicators focused on Te Aka Whai Ora-identified health priority areas including kahu taurima (early years), māuiuitanga taumaha (long-term conditions), mate pukupuku (cancer), oranga hinengaro (mental health and addictions) and ko ētahi atu tohu pūnaha (other system indicators) specific to each Iwi-Māori Partnership Board.

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. The data presented in these profiles also 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.

As the health sector transforms itself, Iwi-Māori Partnership Boards will play a pivotal role in understanding how the health sector is performing to meet the needs and aspirations of whānau in their area. This profile completes a commitment from Te Aka Whai Ora and Health New Zealand - Te Whatu Ora to provide Iwi-Māori Partnership Boards with data analysed from a Kaupapa Māori epidemiology positioning. As Te Aka Whai Ora as an entity is disestablished, the commitment from Health New Zealand - Te Whatu Ora to continue this important work remains.

We thank everyone who has contributed to both volumes of the profiles and hope that this commitment to excellence in Māori health continues - mō āke tonu atu.

Ngā mihi,

Tipa Mahuta

Waikato, Maniapoto, Ngāpuhi

Te Kaihautū (Board Chair)

Te Aka Whai Ora

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Av	Average
BMI	Body mass index
CABG	Coronary artery bypass graft
CI	Confidence interval
COPD	Chronic obstructive pulmonary disease
Dec	December
DHB	District Health Board
DMFT	Decayed, missing, or filled teeth
ED	Emergency department
GP	General practitioner
HbA1c	Glycated haemoglobin
HISO	Health Information Standards Organisation
HPV	Human papillomavirus
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification
IMPB	Iwi-Māori Partnership Board
Jan	January
K10	Kessler Psychological Distress Scale
LMC	Lead Maternity Carer
NGO	Non-Governmental Organisation
NHI	National Health Index
NIR	National Immunisation Register
NMDS	National Minimum Dataset
NNPAC	National Non-Admitted Patient Collection
No	Number
NSAIDs	Non-steroidal anti-inflammatory drugs
NZ	Aotearoa/New Zealand

NZCR	New Zealand Cancer Registry
NZHS	New Zealand Health Survey
NZDep2018	New Zealand Index of Deprivation 2018
Pacific	Pacific people(s)
Pae Ora Act	Pae Ora (Healthy Futures) Act 2022
PHO	Primary Health Organisation
PMMRC	Perinatal and Maternal Mortality Review Committee
PRIMHD	Programme for the Integration of Mental Health Data
RR	Rate ratio
SA2	Statistical area level 2
Sep	September
SSRIs	Selective serotonin reuptake inhibitors
StatsNZ	Statistics New Zealand
SUDI	Sudden unexpected death in infancy
TKHM	Te Kupenga Hauora Māori
VDR	Virtual Diabetes Register
Wai 2575	Wai 2575 Health Services and Outcomes Kaupapa Inquiry
WCTO	Well Child Tamariki Ora
WHO	World Health Organization

Kuputaka Māori – Māori Glossary

Aotearoa	New Zealand
Hapori Māori	Māori communities
Hapū	Sub-tribe
Hauora Māori	Māori health
Iwi	Tribe
Kahu taurima	Early years
Kaupapa Māori	Māori initiative, approach, topic, agenda, principle, ideology
Ko ētahi atu tohu pūnaha	Other system indicators
Kuputaka Māori	Māori glossary
Manatū Hauora	Ministry of Health
Mate pukupuku	Cancer
Māori	Indigenous people(s) of Aotearoa New Zealand
Māuiuitanga taumaha	Long-term conditions
Mauri ora	Overall health status
Mō āke tonu atu	Forever
Ngā āpitihanga	Appendices
Ngā kupu whakamihi	Acknowledgements
Ngā mihi	Greetings
Oranga hinengaro	Mental health and addictions
Pae ora	Healthy futures
Rangatahi	Youth
Rārangi papatau	List of figures
Rārangi tīporo	List of abbreviations, acronyms & initialisms
Rārangi tūtohi	List of tables
Rohe	Region
Tamariki Māori	Māori children
Taonga	Treasure
Tatau Kahukura	Māori Health Chartbook 2015
Te Aka Whai Ora	Māori Health Authority
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Te Kupenga Hauora Māori	Department of Māori Health, Faculty of Medical and Health Sciences, The University of Auckland
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Te Rau Hinengaro	New Zealand Mental Health Survey 2004
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
Wāhine Māori	Māori women
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 Act) is to "achieve equity in health outcomes among New Zealand's (NZ) 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

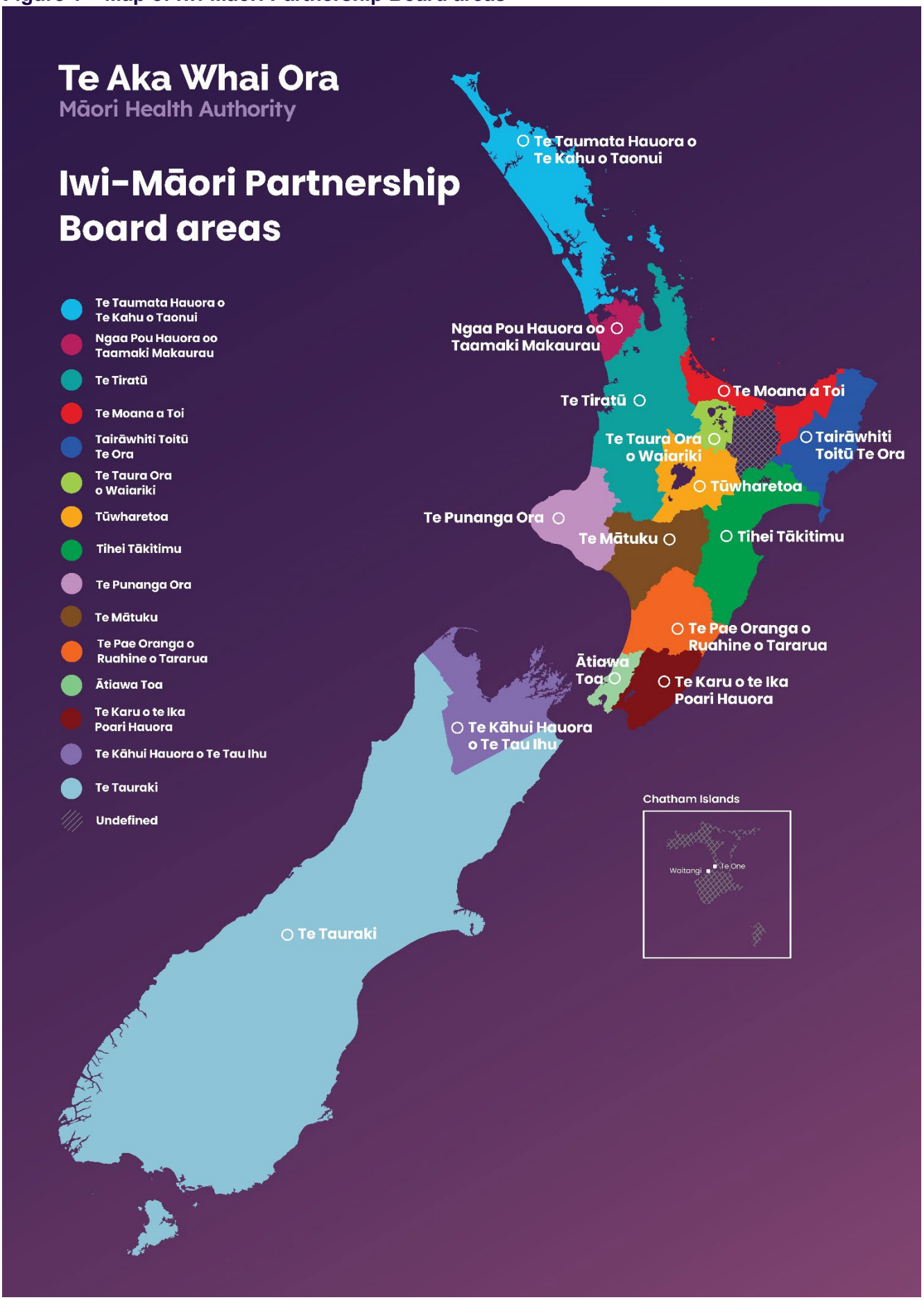
c) the organisation must demonstrate that it has the capacity and capability to perform the necessary functions of IMPBs as set out in the Act, and that the organisation can represent and be accountable to hapori Māori (Māori communities).

Once the Board of Te Aka Whai Ora[1] 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 May 2024, 15 IMPBs were listed in Schedule 4, as shown in Figure 1.

[1] Note: From 1 July 2024 the role of recognising IMPBs currently carried out by the Te Aka Whai Ora Board will be carried out by the Director-General of Health, who will then advise the Minister of Health.

Figure 1 – Map of Iwi-Māori Partnership Board areas



1.2. Purpose & 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

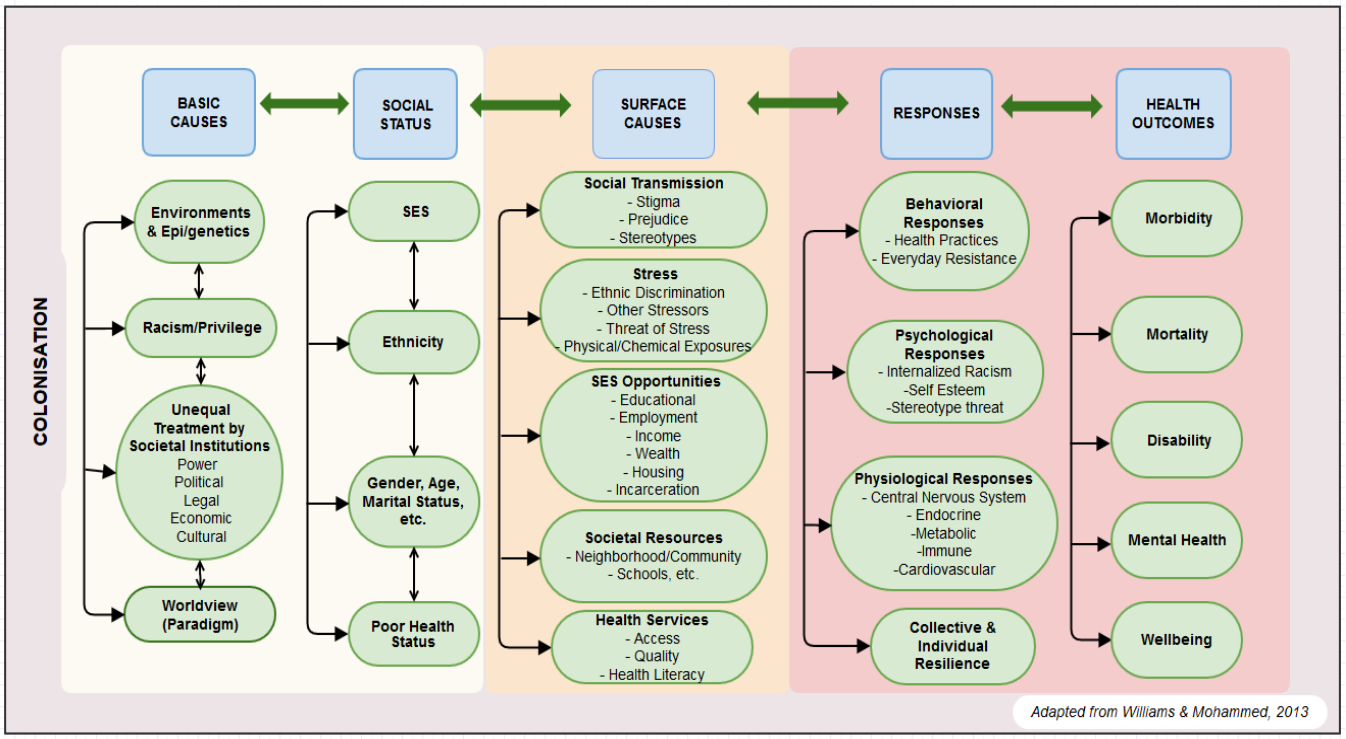
It is important to have a common understanding on what the fundamental drivers of Māori health and health inequities are in order to respond appropriately. A helpful framework is the 'Te Kupenga Hauora Māori (TKHM) modified model' (Curtis, Jones et al. 2023) - a Māori model that draws upon international 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.

1.5.1. Why focus on these health areas?

The four health priorities identified by Te Aka Whai Ora relate to the largest causes of avoidable death and illness for Māori, and also represent the greatest potential for government policy and health system intervention. All of these health issues have been insufficiently addressed over the last decades, and while we have provided a list of health issues to focus on, how these issues are addressed is crucial to success. Above all, we must ensure that the process of change benefits and occurs in partnership with Māori whānau, hapū, iwi and communities.

Beyond these four priorities, we also acknowledge that there are other conditions, though not necessarily major contributors on an absolute scale, that are leading causes of relative inequity for Māori, including rheumatic heart disease, viral hepatitis, cardiomyopathy, hypertensive heart disease, bronchiectasis and drug use disorder (Ministry of Health 2013).

Importantly, improving Māori hauora and realising Māori rights requires a focus beyond individual health conditions. Many of the health challenges share common causes, common system failures and affect the same whānau. It is important to move beyond a narrow focus on specific conditions to the system enablers which also need to be changed. Addressing the four health priorities for Māori requires actions in a core set of synergistic domains:

1. Māori governance that is empowered to govern,
2. Implementation of evidence-based policies for prevention,
3. Integrated whānau-centred services at all levels of the system,
4. Primary care that works for Māori,
5. A culturally-safe workforce, including a strengthened Māori workforce, and
6. Universal responsibility of the whole health sector for monitoring performance by ethnicity and requirement to act upon results.

1.5.2. Where else can we find Māori health data?

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[2]

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 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[3]

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.

A Window on the Quality of Aotearoa New Zealand's Health Care 2019 - a view on Māori health equity[4]

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 & 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[5]

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[6]

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.

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

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

[4] 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/

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

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

Hauora: Māori Standards of Health IV: A study of the years 2000-2005[7]

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.

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:

- National Maternity Collection
- National Immunisation Register
- Community Oral Health Service data
- National Minimum Dataset
- Mortality Collection
- 2018 Census of Population and Dwellings
- New Zealand Health Survey
- Virtual Diabetes Register
- New Zealand Cancer Registry
- Cancer screening programme data from the National Screening Unit
- National Non-Admitted Patient Collection
- Programme for the Integration of Mental Health 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.

When selecting which years of data to present, the most recent year range with complete, verified data has been chosen. Different data sources go through different processes of verification and for some data (e.g. deaths) there is a longer delay to make sure that all deaths have been accurately recorded with the correct cause.

[7] 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

1.7. 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 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.

1.8. About Te Taumata Hauora o Te Kahu o Taonui

Te Taumata Hauora o Te Kahu o Taonui was home to an estimated 180,562 Māori in 2023[8] and includes most of the geographic areas of the former Northland, Waitematā and Auckland DHBs (Figure 3). This report presents data for the IMPB health planning area overall, as well as presenting data for the three DHBs separately, to highlight any key differences for Māori within the IMPB. Most IMPB data presented in this report is mapped to the DHB boundaries. IMPB tables for missed first specialist appointments and diabetes complications are mapped to SA2 geographic boundaries. See the technical appendix at the end of this report for more details about how the geographic areas for the IMPB have been calculated.

[8] Volume Two of the IMPB profiles uses an updated methodology for calculating IMPB health planning areas, so this population estimate may differ from the estimate provided in 2023 in Volume One. Please see the technical appendix for more details about the refinements to the approach.

Figure 3 – Map of Te Taumata Hauora o Te Kahu o Taonui IMPB with DHB boundaries, 2023

Kahu taurima
Early years

2. Kahu taurima – Early years

The 1,000 days between pregnancy and a child's second birthday offer a unique window of opportunity to shape healthier and more prosperous futures. There is increasing evidence that factors during this 1,000-day window, including nutrition, stress, health, and relationships can have a profound impact on a child's ability to grow and learn. Many of the key causes of Māori illness and death such as obesity, heart disease, and mental health problems have their origins in early life (Moore 2017).

There are missed opportunities to deliver appropriate care and support for Māori women and children during this critical 1,000-day window. This includes actions to improve access to the positive determinants of health, and reduce exposure to the harmful determinants of health, including poverty, poor housing, unsafe environments, harmful foods and beverages, and substances such as tobacco. Nationally, three[9] of the nine measures of child poverty increased for the year ending June 2023, compared to 2022, and 21.5% of tamariki Māori lived in households experiencing material hardship (Statistics New Zealand 2024).

Volume One of this IMPB profile highlighted data on some of these key determinants of social, economic, and cultural wellbeing. This chapter will delve further into some of the key health system data relating to performance for Māori in these critical early years.

2.1. Maternal and infant mortality

Nationally, maternal and infant mortality are higher for Māori than non-Māori (Dawson, Jaye et al. 2019, Ministry of Health 2019). The numbers of these devastating deaths each year are too small to present for individual IMPBs, but national data highlights the importance of this issue for Māori. In their 2022 report, the government's Perinatal and Maternal Mortality Review Committee (PMMRC) noted that death rates and disparities have not decreased since reports began in 2007, and NZ continues to tolerate a system which fails Māori women and babies (Perinatal and Maternal Mortality Review Committee 2022).

Suicide is the leading cause of maternal mortality in NZ. Wāhine Māori were 2.9 times more likely to die by suicide as a direct result of maternal mortality than women of NZ European ethnicity in the 2006–2020 period (Perinatal and Maternal Mortality Review Committee 2022). Premature birth is the second leading cause of perinatal mortality after congenital abnormalities (Perinatal and Maternal Mortality Review Committee 2022). The leading causes of avoidable deaths in Māori children are all amenable to prevention including prematurity, sudden unexpected death in infancy (SUDI), respiratory disease and "external causes" (accident, injury and assault) (Mills, Reid et al. 2012).

The PMMRC makes a comprehensive set of recommendations (Perinatal and Maternal Mortality Review Committee 2022), including for government agencies, Te Whatu Ora districts, and health professionals/regulatory bodies, and these provide a very relevant guide for action at IMPB level. Priority recommendations include mandatory cultural safety training for all people working in antenatal and infant care, improving antenatal care/screening, communication/coordination, maternal mental health, SUDI prevention, and ethnicity data collection and analysis. They call for a particular focus on improving services for young mothers, recognising socioeconomic deprivation as a key independent risk factor for premature birth, and better identifying and addressing modifiable risk factors during pregnancy. Many of the most urgent recommendations from the 2022 PMMRC report are the same recommendations the committee has made in previous reports, indicating that action has not yet been taken.

[9] There were increases in the percentages of children living in material hardship, severe material hardship and in low-income households that had an after-housing-costs income that was less than 50 percent of the baseline year's median after-housing-costs equivalised disposable household income.

2.2. Births

In 2022, there were 3,543 Māori babies born in Te Taumata Hauora o Te Kahu o Taonui, making up 24.1% of all babies born (Table 1). Māori made up 60.3% of births in Northland DHB (Table 2), 15.5% in Auckland DHB (Table 3) and 18.2% in Waitematā DHB (Table 4).

Table 1 – Births, Te Taumata Hauora o Te Kahu o Taonui, 2022

Indicator	Māori		non-Māori
	Number	% of all live births	Number
Births	3,543	24.1	11,188

Source: National Maternity Collection, Ministry of Health: Maternity Qlik.

Table 2 – Births, Northland DHB, 2022

Indicator	Māori		non-Māori
	Number	% of all live births	Number
Births	1,428	60.3	941

Source: National Maternity Collection, Ministry of Health: Maternity Qlik.

Table 3 – Births, Auckland DHB, 2022

Indicator	Māori		non-Māori
	Number	% of all live births	Number
Births	767	15.5	4,174

Source: National Maternity Collection, Ministry of Health: Maternity Qlik.

Table 4 – Births, Waitematā DHB, 2022

Indicator	Māori		non-Māori
	Number	% of all live births	Number
Births	1,348	18.2	6,073

Source: National Maternity Collection, Ministry of Health: Maternity Qlik.

Being born with either an abnormally low or high birthweight is associated with a higher risk of a range of health outcomes (Hassan, Jahanfar et al. 2021, Magnusson, Laivuori et al. 2021). Between 2018 and 2022, 6.3% of Māori babies in Te Taumata Hauora o Te Kahu o Taonui had low birthweight (<2,500g) and 2.3% had high birthweight (>4,500g). Māori babies were 1.3 times more likely than non-Māori to be born prematurely (Table 5).

These patterns were similar across Northland DHB (Table 6), Auckland DHB (Table 7) and Waitematā DHB (Table 8). Māori babies in Northland DHB were 1.5 times more likely to be born prematurely compared to non-Māori (8.4% of Māori births in Northland DHB).

Table 5 – Birthweight and gestation, Te Taumata Hauora o Te Kahu o Taonui, 2018 to 2022

Indicator	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	% of live births (95% CI)		Av. no. per year	% of live births (95% CI)			
Low birthweight	217	6.3	(5.4, 7.1)	797	6.7	(6.3, 7.2)	**0.93**	**(0.92, 0.94)**
High birthweight	81	2.3	(1.8, 2.8)	199	1.7	(1.4, 1.9)	**1.39**	**(1.38, 1.40)**
Preterm	286	8.3	(7.3, 9.2)	778	6.6	(6.1, 7.0)	**1.26**	**(1.24, 1.27)**

Source: National Maternity Collection, Ministry of Health: Maternity Qlik.
Notes: Low birthweight is less than 2,500g. High birthweight is greater than or equal to 4,500g. Preterm is less than 37 weeks gestation. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 6 – Birthweight and gestation, Northland DHB, 2018 to 2022

Indicator	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	% of live births (95% CI)		Av. no. per year	% of live births (95% CI)			
Low birthweight	88	6.3	(5.0, 7.6)	61	6.4	(4.8, 8.0)	0.99	(0.97, 1.01)
High birthweight	33	2.4	(1.6, 3.2)	30	3.1	(2.0, 4.2)	**0.77**	**(0.76, 0.78)**
Preterm	116	8.4	(6.9, 9.9)	53	5.5	(4.0, 7.0)	**1.52**	**(1.49, 1.55)**

Source: National Maternity Collection, Ministry of Health: Maternity Qlik.
Notes: Low birthweight is less than 2,500g. High birthweight is greater than or equal to 4,500g. Preterm is less than 37 weeks gestation. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 7 – Birthweight and gestation, Auckland DHB, 2018 to 2022

Indicator	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	% of live births (95% CI)		Av. no. per year	% of live births (95% CI)			
Low birthweight	51	6.6	(4.7, 8.4)	302	6.6	(5.9, 7.4)	0.99	(0.97, 1.01)
High birthweight	13	1.7	(0.8, 2.6)	61	1.3	(1.0, 1.7)	**1.26**	**(1.25, 1.27)**
Preterm	65	8.5	(6.4, 10.5)	291	6.4	(5.7, 7.1)	**1.32**	**(1.30, 1.35)**

Source: National Maternity Collection, Ministry of Health: Maternity Qlik.
Notes: Low birthweight is less than 2,500g. High birthweight is greater than or equal to 4,500g. Preterm is less than 37 weeks gestation. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 8 – Birthweight and gestation, Waitematā DHB, 2018 to 2022

Indicator	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	% of live births (95% CI)		Av. no. per year	% of live births (95% CI)			
Low birthweight	79	6.0	(4.7, 7.4)	434	6.9	(6.2, 7.5)	**0.88**	**(0.87, 0.89)**
High birthweight	35	2.7	(1.8, 3.5)	108	1.7	(1.4, 2.0)	**1.55**	**(1.54, 1.56)**
Preterm	105	8.0	(6.5, 9.6)	434	6.9	(6.2, 7.5)	**1.17**	**(1.15, 1.19)**

Source: National Maternity Collection, Ministry of Health: Maternity Qlik.
Notes: Low birthweight is less than 2,500g. High birthweight is greater than or equal to 4,500g. Preterm is less than 37 weeks gestation. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

2.3. Antenatal and well child services

Early access to high quality antenatal care is important to ensure the optimum wellbeing of mothers and babies. Between 2018 and 2022 in Te Taumata Hauora o Te Kahu o Taonui, 56.1% of Māori women were enrolled with a Lead Maternity Carer in their first trimester (before 14 weeks of pregnancy), meaning just under half of Māori women missed out on this fundamental intervention (Table 9). Māori were 0.8 times as likely than non-Māori in Te Taumata Hauora o Te Kahu o Taonui to receive antenatal care in the first trimester of pregnancy.

In Waitematā DHB (Table 12), 61.2% of Māori women were enrolled in their first trimester followed by 57.8% in Northland DHB (Table 11) and 44.6% in Auckland DHB (Table 10). Māori women were 0.7-0.8 times less likely than non-Māori women to be enrolled with a Lead Maternity Carer in their first trimester across all DHBs.

Table 9 – Enrolment with Lead Maternity Carer in first trimester of pregnancy, Te Taumata Hauora o Te Kahu o Taonui, 2018 to 2022

Indicator	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	% of live births (95% CI)		Av. no. per year	% of live births (95% CI)			
First trimester registration	1,942	56.1	(53.6, 58.6)	8,773	74.2	(72.7, 75.8)	**0.76**	**(0.74, 0.77)**

Source: National Maternity Collection, Ministry of Health: Maternity Qlik.
Note: First trimester is defined as conception up until 14 weeks of pregnancy. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 10 – Enrolment with Lead Maternity Carer in first trimester of pregnancy, Northland DHB, 2018 to 2022

Indicator	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	% of live births (95% CI)		Av. no. per year	% of live births (95% CI)			
First trimester registration	800	57.8	(53.8, 61.8)	769	80.7	(75.0, 86.4)	**0.72**	**(0.69, 0.74)**

Source: National Maternity Collection, Ministry of Health: Maternity Qlik.
Note: First trimester is defined as conception up until 14 weeks of pregnancy. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 11 – Enrolment with Lead Maternity Carer in first trimester of pregnancy, Auckland DHB, 2018 to 2022

Indicator	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	% of live births (95% CI)		Av. no. per year	% of live births (95% CI)			
First trimester registration	345	44.6	(39.9, 49.3)	3,016	66.3	(64.0, 68.7)	**0.67**	**(0.65, 0.70)**

Source: National Maternity Collection, Ministry of Health: Maternity Qlik.
Note: First trimester is defined as conception up until 14 weeks of pregnancy. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 12 – Enrolment with Lead Maternity Carer in first trimester of pregnancy, Waitematā DHB, 2018 to 2022

Indicator	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	% of live births (95% CI)		Av. no. per year	% of live births (95% CI)			
First trimester registration	798	61.2	(56.9, 65.4)	4,988	78.9	(76.8, 81.1)	**0.77**	**(0.75, 0.80)**

Source: National Maternity Collection, Ministry of Health: Maternity Qlik.
Note: First trimester is defined as conception up until 14 weeks of pregnancy. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

In 2022, 75.9% of Māori babies in Te Taumata Hauora o Te Kahu o Taonui were enrolled with a primary care provider by the time they were three months old, compared to 91.4% of non-Māori babies (Table 13). This pattern was similar across the three DHBs.

Table 13 – Newborn enrolment with primary health care, Te Taumata Hauora o Te Kahu o Taonui, 2022

Indicator	Period	Māori		non-Māori	
		Number	%	Number	%
Newborns enrolled with a Primary Health Organisation (PHO) by three months old	Sep to Dec 2022	610	75.9	2,541	91.4

Source: Well Child/Tamariki Ora Indicators, Ministry of Health, March 2023.
Notes: Numerator source: PHO Enrolments. Denominator source: National Immunisation Register.

Table 14 – Newborn enrolment with primary health care, Northland DHB, 2022

Indicator	Period	Māori		non-Māori	
		Number	%	Number	%
Newborns enrolled with a Primary Health Organisation (PHO) by three months old	Sep to Dec 2022	269	74.3	229	88.4

Source: Well Child/Tamariki Ora Indicators, Ministry of Health, March 2023.
Notes: Numerator source: PHO Enrolments. Denominator source: National Immunisation Register.

Table 15 – Newborn enrolment with primary health care, Auckland DHB, 2022

Indicator	Period	Māori		non-Māori	
		Number	%	Number	%
Newborns enrolled with a Primary Health Organisation (PHO) by three months old	Sep to Dec 2022	131	74.4	903	91.9

Source: Well Child/Tamariki Ora Indicators, Ministry of Health, March 2023.
Notes: Numerator source: PHO Enrolments. Denominator source: National Immunisation Register.

Table 16 – Newborn enrolment with primary health care, Waitematā DHB, 2022

Indicator	Period	Māori		non-Māori	
		Number	%	Number	%
Newborns enrolled with a Primary Health Organisation (PHO) by three months old	Sep to Dec 2022	210	78.9	1,409	93.9

Source: Well Child/Tamariki Ora Indicators, Ministry of Health, March 2023.
Notes: Numerator source: PHO Enrolments. Denominator source: National Immunisation Register.

Breastfeeding is associated with many short- and long-term health benefits (Binns, Lee et al. 2016). Of those babies who were reviewed by their Lead Maternity Carer at two weeks of age, 63.0% of Māori babies in Te Taumata Hauora o Te Kahu o Taonui were exclusively or fully breastfed at two weeks old (Table 17). Breastfeeding was lowest for Māori in Auckland DHB, which was also the DHB with the lowest rates of Māori connected with a Lead Maternity Carer by the end of their first trimester of pregnancy (Table 19).

Table 17 – Breastfeeding at two weeks of age, Te Taumata Hauora o Te Kahu o Taonui, 2022

Indicator	Period	Māori		non-Māori	
		Number	%	Number	%
Infants are exclusively or fully breastfed at two weeks old	Jan to Dec 2022	2,287	63.0	7,240	65.0

Source: Well Child/Tamariki Ora Indicators, Ministry of Health, March 2023. National Maternity Collection, Ministry of Health: Maternity Qlik.

Table 18 – Breastfeeding at two weeks of age, Northland DHB, 2022

Indicator	Period	Māori		non-Māori	
		Number	%	Number	%
Infants are exclusively or fully breastfed at two weeks old	Jan to Dec 2022	958	67.0	716	76.0

Source: Well Child/Tamariki Ora Indicators, Ministry of Health, March 2023. National Maternity Collection, Ministry of Health: Maternity Qlik.

Table 19 – Breastfeeding at two weeks of age, Auckland DHB, 2022

Indicator	Period	Māori		non-Māori	
		Number	%	Number	%
Infants are exclusively or fully breastfed at two weeks old	Jan to Dec 2022	393	51.0	2,450	59.0

Source: Well Child/Tamariki Ora Indicators, Ministry of Health, March 2023. National Maternity Collection, Ministry of Health: Maternity Qlik.

Table 20 – Breastfeeding at two weeks of age, Waitematā DHB, 2022

Indicator	Period	Māori		non-Māori	
		Number	%	Number	%
Infants are exclusively or fully breastfed at two weeks old	Jan to Dec 2022	936	69.0	4,074	67.0

Source: Well Child/Tamariki Ora Indicators, Ministry of Health, March 2023. National Maternity Collection, Ministry of Health: Maternity Qlik.

Table 21 shows the numbers and percentages of tamariki Māori fully immunised with the core publicly funded immunisations, in Te Taumata Hauora o Te Kahu o Taonui in 2022, according to each key milestone in the National Immunisation Schedule. Māori immunisation rates are lower than non-Māori at every milestone age. At 18 months of age, less than half of Māori (40.1%) were fully vaccinated (compared to over 70% of non-Māori), which is especially concerning for diseases such as measles for which both vaccine doses are due before 18 months. By five years of age (a full year after the last vaccination on the young child immunisation schedule), 66.4% of Māori in Te Taumata Hauora o Te Kahu o Taonui were fully immunised compared to 78.4% for non-Māori – a rate 0.9 times lower for Māori compared to non-Māori.

Northland DHB had the lowest immunisation coverage at 18 months of age – with only 34.3% of Māori babies protected (Table 22). The pattern of immunisation coverage at five years of age was similar across three DHBs: Northland DHB (66.3% coverage and rate ratio of 0.9) (Table 22), Auckland DHB (66.4% coverage and rate ratio of 0.9) (Table 23) and Waitematā DHB (66.5% coverage and rate ratio of 0.8) (Table 24).

Table 21 – Children fully immunised by each milestone age, Te Taumata Hauora o Te Kahu o Taonui, January to December 2022

Milestone age	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	No. immunised	% immunised	No. immunised	% immunised		
6 months	1,504	45.9	9,164	74.9	**0.61**	**(0.59, 0.64)**
8 months	2,254	69.8	11,037	88.2	**0.79**	**(0.77, 0.81)**
12 months	2,435	76.1	11,361	90.9	**0.84**	**(0.82, 0.85)**
18 months	1,254	40.1	8,813	72.3	**0.55**	**(0.53, 0.58)**
2 years	1,997	63.0	10,044	84.5	**0.75**	**(0.73, 0.77)**
5 years	2,143	66.4	9,980	78.4	**0.85**	**(0.83, 0.87)**

Source: National Immunisation Register, Te Whatu Ora.
Notes: Fully immunised is defined as children who had completed all their age-appropriate immunisations by the time they turned the milestone age. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 22 – Children fully immunised by each milestone age, Northland DHB, January to December 2022

Milestone age	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	No. immunised	% immunised	No. immunised	% immunised		
6 months	541	38.5	700	64.6	**0.60**	**(0.55, 0.65)**
8 months	912	65.9	927	82.3	**0.80**	**(0.77, 0.84)**
12 months	957	72.2	995	84.1	**0.86**	**(0.82, 0.90)**
18 months	456	34.3	700	59.8	**0.57**	**(0.53, 0.63)**
2 years	818	58.8	875	77.4	**0.76**	**(0.72, 0.80)**
5 years	964	66.3	861	74.9	**0.88**	**(0.84, 0.93)**

Source: National Immunisation Register, Te Whatu Ora.
Notes: Fully immunised is defined as children who had completed all their age-appropriate immunisations by the time they turned the milestone age. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 23 – Children fully immunised by each milestone age, Auckland DHB, January to December 2022

Milestone age	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	No. immunised	% immunised	No. immunised	% immunised		
6 months	391	57.1	3,360	77.3	**0.74**	**(0.69, 0.79)**
8 months	510	75.4	3,987	89.4	**0.84**	**(0.81, 0.88)**
12 months	545	80.1	4,029	91.9	**0.87**	**(0.84, 0.91)**
18 months	295	46.5	3,128	74.2	**0.63**	**(0.58, 0.68)**
2 years	419	67.5	3,567	85.0	**0.79**	**(0.75, 0.84)**
5 years	357	66.4	3,512	78.0	**0.85**	**(0.80, 0.91)**

Source: National Immunisation Register, Te Whatu Ora.
Notes: Fully immunised is defined as children who had completed all their age-appropriate immunisations by the time they turned the milestone age. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 24 – Children fully immunised by each milestone age, Waitematā DHB, January to December 2022

Milestone age	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	No. immunised	% immunised	No. immunised	% immunised		
6 months	572	48.3	5,104	75.1	**0.64**	**(0.61, 0.68)**
8 months	832	71.1	6,123	88.4	**0.80**	**(0.77, 0.83)**
12 months	933	78.1	6,337	91.4	**0.85**	**(0.83, 0.88)**
18 months	503	43.1	4,985	73.3	**0.59**	**(0.55, 0.63)**
2 years	760	65.6	5,602	85.4	**0.77**	**(0.74, 0.80)**
5 years	822	66.5	5,607	79.2	**0.84**	**(0.81, 0.88)**

Source: National Immunisation Register, Te Whatu Ora.
Notes: Fully immunised is defined as children who had completed all their age-appropriate immunisations by the time they turned the milestone age. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

2.4. Oral health

Oral health care for children is free in NZ, and all children should be enrolled with their local community oral health service as soon as possible after birth. Usually, midwives and child health nurses support the enrolment of all children with their local oral health service. In 2021 in Te Taumata Hauora o Te Kahu o Taonui, 80.8% of Māori children aged 0-4 years were enrolled with community oral health services, compared to 100% of non-Māori children (Table 25). Patterns were similar across the three DHBs.

Table 25 – Enrolment with community oral health services for children aged 0 to 4 years of age, Te Taumata Hauora o Te Kahu o Taonui, January to December 2021

Indicator	Māori		non-Māori	
	Number	%	Number	%
Children aged 0-4 years enrolled with the community oral health service	13,577	80.8	60,680	100.0

Source: Well Child/Tamariki Ora Indicators, Ministry of Health, March 2023.
Notes: Numerator source: DHB reporting. Denominator source: StatsNZ population projections.

Table 26 – Enrolment with community oral health services for children aged 0 to 4 years of age, Northland DHB, January to December 2021

Indicator	Māori		non-Māori	
	Number	%	Number	%
Children aged 0-4 years enrolled with the community oral health service	5,467	79.7	4,914	86.2

Source: Well Child/Tamariki Ora Indicators, Ministry of Health, March 2023.
Notes: Numerator source: DHB reporting. Denominator source: StatsNZ population projections.

Table 27 – Enrolment with community oral health services for children aged 0 to 4 years of age, Auckland DHB, January to December 2021

Indicator	Māori		non-Māori	
	Number	%	Number	%
Children aged 0-4 years enrolled with the community oral health service	2,932	89.9	21,593	100.0

Source: Well Child/Tamariki Ora Indicators, Ministry of Health, March 2023.
Notes: Numerator source: DHB reporting. Denominator source: StatsNZ population projections.

Table 28 – Enrolment with to community oral health services for children aged 0 to 4 years of age, Waitematā DHB, January to December 2021

Indicator	Māori		non-Māori	
	Number	%	Number	%
Children aged 0-4 years enrolled with the community oral health service	5,178	77.5	34,173	100.0

Source: Well Child/Tamariki Ora Indicators, Ministry of Health, March 2023.
Notes: Numerator source: DHB reporting. Denominator source: StatsNZ population projections.

However, being enrolled with a community oral health service does not necessarily mean care is received. In 2022 in Te Taumata Hauora o Te Kahu o Taonui, only 42.9% of eligible Māori five-year-olds, and 42.7% of Māori Year 8 students, were examined by the community oral health service (Table 29). This compares to 45.5% of eligible non-Māori five-year-olds, and 49.2% of non-Māori Year 8 students.

Waitematā DHB (Table 32) had the lowest proportion (38.0%) of eligible Māori five-year-olds examined by a community health service (compared to 44.7% for non-Māori). Northland DHB (Table 30) had the lowest proportion (35.7%) of eligible Year 8 Māori students examined by a community health service across DHBs (compared to 32.7% for non-Māori).

These data mean that most tamariki Māori in Te Taumata Hauora o Te Kahu o Taonui did not receive care from the community oral health service in 2022.

Table 29 – Children attending community oral health services at age 5 or in Year 8, Te Taumata Hauora o Te Kahu o Taonui, 2022

Age group	Māori			non-Māori		
	No. eligible	No. examined	% examined	No. eligible	No. examined	% examined
Age 5	3,260	1,399	42.9	12,530	5,703	45.5
Year 8	3,800	1,621	42.7	13,100	6,443	49.2

Source: For number eligible: StatsNZ population projection for 2022. For number examined: Community Oral Health Service, Ministry of Health.

Table 30 – Children attending community oral health services at age 5 or in Year 8, Northland DHB, 2022

Age group	Māori			non-Māori		
	No. eligible	No. examined	% examined	No. eligible	No. examined	% examined
Age 5	1,400	644	46.0	1,190	540	45.4
Year 8	1,630	582	35.7	1,270	415	32.7

Source: For number eligible: StatsNZ population projection for 2022. For number examined: Community Oral Health Service, Ministry of Health.

Table 31 – Children attending community oral health services at age 5 or in Year 8, Auckland DHB, 2022

Age group	Māori			non-Māori		
	No. eligible	No. examined	% examined	No. eligible	No. examined	% examined
Age 5	5,10	242	47.5	4,400	2,060	46.8
Year 8	6,60	339	51.4	4,810	2,413	50.2

Source: For number eligible: StatsNZ population projection for 2022. For number examined: Community Oral Health Service, Ministry of Health.

Table 32 – Children attending community oral health services at age 5 or in Year 8, Waitematā DHB, 2022

Age group	Māori			non-Māori		
	No. eligible	No. examined	% examined	No. eligible	No. examined	% examined
Age 5	1,350	513	38.0	6,940	3,103	44.7
Year 8	1,510	700	46.4	7,020	3,615	51.5

Source: For number eligible: StatsNZ population projection for 2022. For number examined: Community Oral Health Service, Ministry of Health.

Of those children who were examined, 65.0% of Māori 5-year-olds had decayed teeth (1.5 times the rate for non-Māori 5-year-olds). Of the small portion of eligible Year 8 students who were seen by the community oral health service, around one third (34.5%) had decayed teeth (Table 33). However, caution is needed when applying these rates to all Māori children, as most tamariki Māori in Te Taumata Hauora o Te Kahu o Taonui did not receive community oral health services and are therefore not included in these data.

Over two thirds (70.3%) of the Māori five-year-olds examined in Northland DHB (Table 34) had decayed teeth which was 1.7 times the rate for non-Māori five-year-olds. Half of all Year 8 Māori students (50.7%) examined in Northland DHB had decayed teeth which was 1.8 times that of non-Māori. A higher proportion of decayed teeth was also seen across the other DHBs with the Māori five-year-olds who were examined being 1.4 times and Māori Year 8 students being 1.3 times more likely to have decayed teeth compared to non-Māori in Auckland DHB (Table 35) and 1.4 times more likely for five-year-olds and Year 8 students to have decayed teeth compared to non-Māori in Waitematā DHB (Table 36).

Table 33 – Oral health status of children attending community oral health services at age 5 or in Year 8, Te Taumata Hauora o Te Kahu o Taonui, 2022

Age group	Māori				non-Māori				Māori/non-Māori rate ratio for having caries (95% CI)	
	No. with caries	% with caries (95% CI)		mean no. of DMFT	No. with caries	% with caries (95% CI)		mean no. of DMFT		
Age 5	909	65.0	(60.8, 69.2)	3.52	2,469	43.3	(41.6, 45.0)	1.87	**1.50**	**(1.46, 1.54)**
Year 8	560	34.5	(31.7, 37.4)	0.95	1,263	19.6	(18.5, 20.7)	0.37	**1.76**	**(1.72, 1.81)**

Source: Community Oral Health Service, Ministry of Health.
Notes: Dental caries are tooth decay. DMFT is decayed, missing, or filled teeth. Fluoridated and non-fluoridated water is combined. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 34 – Oral health status of children attending community oral health services at age 5 or in Year 8, Northland DHB, 2022

Age group	Māori				non-Māori				Māori/non-Māori rate ratio for having caries (95% CI)	
	No. with caries	% with caries (95% CI)		mean no. of DMFT	No. with caries	% with caries (95% CI)		mean no. of DMFT		
Age 5	453	70.3	(63.9, 76.8)	4.52	221	40.9	(35.5, 46.3)	1.84	**1.72**	**(1.63, 1.81)**
Year 8	295	50.7	(44.9, 56.5)	1.64	116	28.0	(22.9, 33.0)	0.64	**1.81**	**(1.71, 1.92)**

Source: Community Oral Health Service, Ministry of Health.
Notes: Dental caries are tooth decay. DMFT is decayed, missing, or filled teeth. Fluoridated and non-fluoridated water is combined. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 35 – Oral health status of children attending community oral health services at age 5 or in Year 8, Auckland DHB, 2022

Age group	Māori				non-Māori				Māori/non-Māori rate ratio for having caries (95% CI)	
	No. with caries	% with caries (95% CI)		mean no. of DMFT	No. with caries	% with caries (95% CI)		mean no. of DMFT		
Age 5	151	62.4	(52.4, 72.3)	3.05	892	43.3	(40.5, 46.1)	1.94	**1.44**	**(1.35, 1.54)**
Year 8	82	24.2	(19.0, 29.4)	0.58	462	19.1	(17.4, 20.9)	0.37	**1.26**	**(1.20, 1.33)**

Source: Community Oral Health Service, Ministry of Health.
Notes: Dental caries are tooth decay. DMFT is decayed, missing, or filled teeth. Fluoridated and non-fluoridated water is combined. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 36 – Oral health status of children attending community oral health services at age 5 or in Year 8, Waitematā DHB, 2022

Age group	Māori				non-Māori				Māori/non-Māori rate ratio for having caries (95% CI)	
	No. with caries	% with caries (95% CI)		mean no. of DMFT	No. with caries	% with caries (95% CI)		mean no. of DMFT		
Age 5	305	59.5	(52.8, 66.1)	2.48	1,356	43.7	(41.4, 46.0)	1.82	**1.36**	**(1.30, 1.42)**
Year 8	183	26.1	(22.4, 29.9)	0.55	685	18.9	(17.5, 20.4)	0.33	**1.38**	**(1.33, 1.43)**

Source: Community Oral Health Service, Ministry of Health.
Notes: Dental caries are tooth decay. DMFT is decayed, missing, or filled teeth. Fluoridated and non-fluoridated water is combined. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

2.5. Avoidable hospitalisations

Potentially avoidable hospitalisations are those admissions which could have been prevented by primary care, public health, or social policy interventions. Between July 2022 to June 2023 in Te Taumata Hauora o Te Kahu o Taonui, there were 3,936 potentially avoidable hospitalisations in Māori children aged one month to 14 years (Table 37). The rate of potentially avoidable hospitalisations was 1.2 times higher for Māori children than non-Māori children.

Māori children in Auckland DHB had a much higher rate of potentially avoidable hospitalisations than Māori in the other DHBs. This may be due to hospital admission thresholds being lower in Auckland DHB. In Northland DHB (Table 38), there were 1,633 potentially avoidable hospitalisations in Māori children aged one month to 14 years, a rate that was 1.3 times higher for Māori children than non-Māori children. Although smaller in number compared to Northland DHB, Auckland DHB (Table 39) had 923 potentially avoidable hospitalisations, however this was also 1.3 times higher for Māori children than non-Māori children. Waitematā DHB (Table 40) had 1,380 potentially avoidable hospitalisations that was only slightly higher for Māori compared to non-Māori (1.1 times).

Table 37 – Potentially avoidable hospitalisations for children aged 1 month to 14 years, Te Taumata Hauora o Te Kahu o Taonui, July 2022 to June 2023

	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
Total	3,936	7,941	(7,693, 8,189)	12,170	6,900	(6,778, 7,023)	**1.15**	**(1.11, 1.19)**

Source: NMDS, Ministry of Health.
Note: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 38 – Potentially avoidable hospitalisations for children aged 1 month to 14 years, Northland DHB, July 2022 to June 2023

	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
Total	1,633	7,940	(7,555, 8,325)	1,008	5,971	(5,602, 6,339)	**1.33**	**(1.23, 1.43)**

Source: NMDS, Ministry of Health.
Note: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 39 – Potentially avoidable hospitalisations for children aged 1 month to 14 years, Auckland DHB, July 2022 to June 2023

	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
Total	923	10,674	(9,986, 11,363)	5,128	8,107	(7,885, 8,329)	**1.32**	**(1.23, 1.41)**

Source: NMDS, Ministry of Health.
Note: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 40 – Potentially avoidable hospitalisations for children aged 1 month to 14 years, Waitematā DHB, July 2022 to June 2023

	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
Total	1,380	6,788	(6,430, 7,146)	6,034	6,268	(6,110, 6,427)	**1.08**	**(1.02, 1.15)**

Source: NMDS, Ministry of Health.
Note: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Māuiuitanga taumaha
Long-term conditions

3. Māuiuitanga taumaha – Long-term conditions

A small group of long-term noncommunicable conditions: diabetes, cardiovascular disease, chronic respiratory disease, and stroke, not only form the leading causes of death and disability for Māori, but often coexist in the same people, and share common modifiable risk factors. These long-term conditions are highly preventable, and Māori experience higher rates of exposure to the leading causes of these conditions, namely tobacco, obesogenic environments, unhealthy diets, and alcohol. These risk factors are strongly patterned by social, commercial, and environmental determinants such as poverty, food availability and marketing, social exclusion, and racism.

Tobacco alone causes 22.6% of Māori deaths (Walsh and Wright 2020). Compared to non-Māori non-Pacific, 28.4% of the gap in life expectancy for Māori men and 32.9% of gap in life expectancy for Māori women is due to smoking attributable deaths (Walsh and Wright 2020). There is great potential in NZ to implement internationally recommended evidence-based interventions (World Health Organization 2023) on shared risk factors, especially tobacco, alcohol and unhealthy diet (including addressing the commercial determinants of obesogenic environments).

Nationally, coronary disease is the leading contributor to the life expectancy gap between Māori and non-Māori non-Pacific people (Walsh 2023). Diabetes is the third leading contributor to the Māori life expectancy gap and chronic obstructive pulmonary disease (COPD) is the fourth. Ischaemic heart disease, COPD, diabetes, and cerebrovascular disease (stroke) are four of the five leading causes of death for Māori nationally, as well as leading causes of potentially avoidable deaths (those deaths considered amenable to high-quality healthcare, preventable through public health interventions, or both) and Māori die at much higher rates from all of these conditions than non-Māori. See Volume One of this IMPB profile for more information about the leading causes for specific geographic regions.

Not only do Māori experience higher rates of morbidity and mortality from these long-term conditions, but Māori suffer earlier onset of illness and disability. For example, nationally Māori develop diabetes up to 10 years younger and progress earlier to more serious disease, yet are less likely to receive appropriate HbA1c monitoring and appropriate diabetes-related renal-screening tests than non-Māori (Health Quality and Safety Commission 2019).

3.1. Tobacco

According to the NZ Census 2018, 26.4% of Māori aged 15 years and over (26.7% of Māori women and 26.1% of Māori men) in Te Taumata Hauora o Te Kahu o Taonui were regular (daily) smokers (Table 41). Compared to non-Māori in Te Taumata Hauora o Te Kahu o Taonui, Māori were 2.8 times as likely to be regular smokers. Māori women were 3.9 times more likely than non-Māori women to smoke regularly, and Māori men were 2.2 times more likely than non-Māori men.

A similar high pattern is seen across DHBs, with Māori aged 15 years and over being 2.3 times as likely to be regular smokers compared to non-Māori in Northland DHB (Table 42), 2.7 times as likely to be regular smokers compared to non-Māori in Auckland DHB (Table 43) and 2.4 times as likely to be regular smokers compared to non-Māori in Waitematā DHB (Table 44).

Table 41 – Cigarette smoking status, aged 15 years and over, Te Taumata Hauora o Te Kahu o Taonui, 2018

Smoking status	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female								
Regular smoker	15,192	26.7	(26.3, 27.2)	31,296	6.9	(6.8, 6.9)	**3.90**	**(3.83, 3.97)**
Ex-smoker	14,166	22.5	(22.1, 22.9)	77,361	13.4	(13.3, 13.5)	**1.67**	**(1.65, 1.70)**
Never smoked	28,107	50.8	(50.2, 51.4)	345,207	79.7	(79.4, 80.0)	**0.64**	**(0.63, 0.64)**
Male								
Regular smoker	13,959	26.1	(25.6, 26.5)	49,977	11.9	(11.8, 12.0)	**2.20**	**(2.16, 2.23)**
Ex-smoker	12,024	20.1	(19.7, 20.5)	94,647	16.9	(16.7, 17.0)	**1.19**	**(1.17, 1.21)**
Never smoked	28,797	53.9	(53.2, 54.5)	289,866	71.3	(71.0, 71.6)	**0.76**	**(0.75, 0.76)**
Total								
Regular smoker	29,157	26.4	(26.1, 26.7)	81,261	9.3	(9.3, 9.4)	**2.83**	**(2.80, 2.86)**
Ex-smoker	26,187	21.3	(21.0, 21.6)	172,014	15.1	(15.0, 15.2)	**1.41**	**(1.39, 1.43)**
Never smoked	56,898	52.3	(51.8, 52.7)	635,079	75.6	(75.4, 75.8)	**0.69**	**(0.69, 0.70)**

Source: 2018 Census, StatsNZ.
Notes: Regular smokers smoke one or more cigarettes per day. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 42 – Cigarette smoking status, aged 15 years and over, Northland DHB, 2018

Smoking status	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female								
Regular smoker	7,152	33.0	(32.2, 33.8)	5,412	12.3	(11.8, 12.7)	**2.69**	**(2.61, 2.78)**
Ex-smoker	5,979	22.8	(22.1, 23.4)	13,335	20.0	(19.5, 20.5)	**1.14**	**(1.11, 1.17)**
Never smoked	9,537	44.2	(43.3, 45.2)	30,513	67.8	(66.8, 68.9)	**0.65**	**(0.64, 0.66)**
Male								
Regular smoker	6,510	32.9	(32.0, 33.7)	6,729	16.5	(16.0, 17.0)	**1.99**	**(1.93, 2.05)**
Ex-smoker	4,983	20.3	(19.7, 20.9)	15,339	20.8	(20.4, 21.3)	0.97	(0.95, 1.00)
Never smoked	9,624	46.8	(45.9, 47.8)	26,337	62.6	(61.6, 63.5)	**0.75**	**(0.74, 0.76)**
Total								
Regular smoker	13,665	32.9	(32.3, 33.5)	12,135	14.4	(14.1, 14.8)	**2.28**	**(2.23, 2.33)**
Ex-smoker	10,962	21.6	(21.2, 22.1)	28,677	20.4	(20.1, 20.7)	**1.06**	**(1.04, 1.08)**
Never smoked	19,158	45.4	(44.8, 46.1)	56,853	65.2	(64.5, 65.9)	**0.70**	**(0.69, 0.71)**

Source: 2018 Census, StatsNZ.
Notes: Regular smokers smoke one or more cigarettes per day. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 43 – Cigarette smoking status, aged 15 years and over, Auckland DHB, 2018

Smoking status	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female								
Regular smoker	3,408	23.5	(22.7, 24.3)	11,013	6.0	(5.8, 6.1)	**3.95**	**(3.81, 4.09)**
Ex-smoker	3,276	21.2	(20.5, 22.0)	25,362	11.5	(11.4, 11.7)	**1.84**	**(1.78, 1.90)**
Never smoked	7,731	55.2	(53.9, 56.5)	146,925	82.5	(82.1, 83.0)	**0.67**	**(0.66, 0.68)**
Male								
Regular smoker	3,132	22.5	(21.7, 23.3)	19,875	11.2	(11.0, 11.3)	**2.02**	**(1.95, 2.09)**
Ex-smoker	2,832	19.0	(18.3, 19.8)	32,025	15.0	(14.9, 15.2)	**1.27**	**(1.22, 1.31)**
Never smoked	7,884	58.4	(57.1, 59.8)	125,637	73.8	(73.4, 74.2)	**0.79**	**(0.78, 0.80)**
Total								
Regular smoker	6,540	23.1	(22.5, 23.6)	30,888	8.5	(8.4, 8.6)	**2.70**	**(2.64, 2.76)**
Ex-smoker	6,105	20.1	(19.6, 20.7)	57,390	13.3	(13.1, 13.4)	**1.52**	**(1.48, 1.56)**
Never smoked	15,615	56.8	(55.9, 57.7)	272,562	78.2	(77.9, 78.5)	**0.73**	**(0.72, 0.73)**

Source: 2018 Census, StatsNZ.
Notes: Regular smokers smoke one or more cigarettes per day. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 44 – Cigarette smoking status, aged 15 years and over, Waitematā DHB, 2018

Smoking status	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female								
Regular smoker	4,632	22.8	(22.1, 23.5)	14,871	6.7	(6.6, 6.9)	**3.39**	**(3.29, 3.49)**
Ex-smoker	4,911	23.0	(22.3, 23.7)	38,664	13.8	(13.6, 13.9)	**1.67**	**(1.63, 1.72)**
Never smoked	10,839	54.2	(53.2, 55.3)	167,769	79.5	(79.1, 80.0)	**0.68**	**(0.67, 0.69)**
Male								
Regular smoker	4,317	22.0	(21.3, 22.7)	23,373	11.8	(11.6, 11.9)	**1.87**	**(1.81, 1.92)**
Ex-smoker	4,209	20.6	(19.9, 21.2)	47,283	17.5	(17.3, 17.7)	**1.18**	**(1.14, 1.21)**
Never smoked	11,289	57.5	(56.4, 58.5)	137,892	70.7	(70.3, 71.1)	**0.81**	**(0.80, 0.82)**
Total								
Regular smoker	8,952	22.4	(21.9, 22.9)	38,238	9.2	(9.1, 9.3)	**2.43**	**(2.38, 2.48)**
Ex-smoker	9,120	21.8	(21.3, 22.2)	85,947	15.6	(15.4, 15.7)	**1.40**	**(1.37, 1.43)**
Never smoked	22,125	55.8	(55.1, 56.6)	305,664	75.2	(74.9, 75.5)	**0.74**	**(0.74, 0.75)**

Source: 2018 Census, StatsNZ.
Notes: Regular smokers smoke one or more cigarettes per day. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

For rangatahi, 12.5% of Māori aged 15 to 19 years (11.6% of Māori females and 13.3% of Māori males) in Te Taumata Hauora o Te Kahu o Taonui were regular smokers (Table 45). These rates were 3.5 times higher than non-Māori, and 4.3 times higher than for non-Māori females and 3.0 times higher than for non-Māori males, respectively.

Northland DHB had significantly higher rates of Māori youth smoking than the other DHBs, with 16.8% of rangatahi smoking daily (Table 46). Regular smoking rates were higher for Māori across all the DHBs including 3.0 times higher than non-Māori in Northland DHB (Table 46), 10.9% of youth (3.1 times higher than non-Māori) in Auckland DHB (Table 47) and 9.1% of youth (2.8 times higher than non-Māori) in Waitematā DHB (Table 48).

Table 45 – Cigarette smoking status, aged 15 to 19 years old, Te Taumata Hauora o Te Kahu o Taonui, 2018

Smoking status	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female								
Regular smoker	798	11.6	(10.8, 12.4)	819	2.7	(2.5, 2.9)	**4.29**	**(3.91, 4.71)**
Ex-smoker	201	2.9	(2.5, 3.3)	423	1.4	(1.3, 1.5)	**2.09**	**(1.77, 2.47)**
Never smoked	5,898	85.5	(83.3, 87.7)	29,142	95.9	(94.8, 97.0)	**0.89**	**(0.88, 0.90)**
Male								
Regular smoker	984	13.3	(12.5, 14.2)	1,419	4.5	(4.2, 4.7)	**2.99**	**(2.77, 3.23)**
Ex-smoker	249	3.4	(3.0, 3.8)	576	1.8	(1.7, 2.0)	**1.86**	**(1.61, 2.16)**
Never smoked	6,153	83.4	(81.3, 85.5)	29,826	93.7	(92.6, 94.8)	**0.89**	**(0.88, 0.90)**
Total								
Regular smoker	1,782	12.5	(11.9, 13.1)	2,241	3.6	(3.5, 3.8)	**3.47**	**(3.27, 3.68)**
Ex-smoker	447	3.1	(2.8, 3.4)	999	1.6	(1.5, 1.7)	**1.95**	**(1.75, 2.18)**
Never smoked	12,048	84.4	(82.9, 85.9)	58,971	94.8	(94.0, 95.6)	**0.89**	**(0.88, 0.90)**

Source: 2018 Census, StatsNZ.
Notes: Regular smokers smoke one or more cigarettes per day. Percentages are not age-standardised. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 46 – Cigarette smoking status, aged 15 to 19 years old, Northland DHB, 2018

Smoking status	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female								
Regular smoker	393	14.9	(13.4, 16.4)	105	4.4	(3.5, 5.2)	**3.40**	**(2.76, 4.19)**
Ex-smoker	105	4.0	(3.2, 4.7)	54	2.3	(1.7, 2.9)	**1.77**	**(1.28, 2.44)**
Never smoked	2,133	81.0	(77.5, 84.4)	2,241	93.6	(89.7, 97.5)	**0.87**	**(0.85, 0.88)**
Male								
Regular smoker	528	18.6	(17.0, 20.2)	174	6.6	(5.6, 7.6)	**2.82**	**(2.39, 3.31)**
Ex-smoker	108	3.8	(3.1, 4.5)	54	2.1	(1.5, 2.6)	**1.86**	**(1.34, 2.56)**
Never smoked	2,199	77.6	(74.3, 80.8)	2,403	91.3	(87.7, 95.0)	**0.85**	**(0.83, 0.87)**
Total								
Regular smoker	921	16.8	(15.8, 17.9)	282	5.6	(5.0, 6.3)	**3.00**	**(2.64, 3.41)**
Ex-smoker	213	3.9	(3.4, 4.4)	105	2.1	(1.7, 2.5)	**1.86**	**(1.48, 2.35)**
Never smoked	4,335	79.3	(76.9, 81.6)	4,641	92.4	(89.7, 95.0)	**0.86**	**(0.84, 0.87)**

Source: 2018 Census, StatsNZ.
Notes: Regular smokers smoke one or more cigarettes per day. Percentages are not age-standardised. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 47 – Cigarette smoking status, aged 15 to 19 years old, Auckland DHB, 2018

Smoking status	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female								
Regular smoker	180	11.2	(9.6, 12.9)	330	2.6	(2.3, 2.9)	**4.28**	**(3.60, 5.09)**
Ex-smoker	27	1.7	(1.0, 2.3)	162	1.3	(1.1, 1.5)	1.31	(0.87, 1.96)
Never smoked	1,395	87.1	(82.5, 91.6)	12,078	96.1	(94.3, 97.8)	**0.91**	**(0.89, 0.92)**
Male								
Regular smoker	177	10.4	(8.9, 11.9)	582	4.5	(4.1, 4.9)	**2.31**	**(1.97, 2.72)**
Ex-smoker	57	3.4	(2.5, 4.2)	252	1.9	(1.7, 2.2)	**1.72**	**(1.30, 2.28)**
Never smoked	1,470	86.4	(82, 90.8)	12,105	93.5	(91.9, 95.2)	**0.92**	**(0.91, 0.94)**
Total								
Regular smoker	360	10.9	(9.8, 12.0)	909	3.6	(3.3, 3.8)	**3.06**	**(2.72, 3.44)**
Ex-smoker	84	2.5	(2.0, 3.1)	417	1.6	(1.5, 1.8)	**1.56**	**(1.23, 1.96)**
Never smoked	2,862	86.6	(83.5, 89.8)	24,189	94.8	(93.6, 96.0)	**0.91**	**(0.90, 0.93)**

Source: 2018 Census, StatsNZ.
Notes: Regular smokers smoke one or more cigarettes per day. Percentages are not age-standardised. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 48 – Cigarette smoking status, aged 15 to 19 years old, Waitematā DHB, 2018

Smoking status	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female								
Regular smoker	225	8.4	(7.3, 9.5)	384	2.5	(2.2, 2.7)	**3.39**	**(2.89, 3.98)**
Ex-smoker	69	2.6	(2.0, 3.2)	207	1.3	(1.2, 1.5)	**1.93**	**(1.47, 2.52)**
Never smoked	2,370	89.0	(85.4, 92.5)	14,823	96.2	(94.6, 97.7)	**0.92**	**(0.91, 0.94)**
Male								
Regular smoker	279	9.8	(8.7, 11.0)	663	4.1	(3.8, 4.4)	**2.41**	**(2.10, 2.75)**
Ex-smoker	84	3.0	(2.3, 3.6)	270	1.7	(1.5, 1.9)	**1.78**	**(1.40, 2.26)**
Never smoked	2,484	87.3	(83.9, 90.8)	15,318	94.2	(92.7, 95.7)	**0.93**	**(0.91, 0.94)**
Total								
Regular smoker	501	9.1	(8.3, 9.9)	1,050	3.3	(3.1, 3.5)	**2.75**	**(2.48, 3.04)**
Ex-smoker	150	2.7	(2.0, 3.2)	477	1.5	(1.4, 1.6)	**1.81**	**(1.51, 2.17)**
Never smoked	4,851	88.2	(85.7, 90.6)	30,141	95.2	(94.1, 96.2)	**0.93**	**(0.92, 0.94)**

Source: 2018 Census, StatsNZ.
Notes: Regular smokers smoke one or more cigarettes per day. Percentages are not age-standardised. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Vapes or e-cigarettes heat a liquid, turning it into a vapour that the user breathes in. They may or may not contain nicotine and may be flavoured. Evidence shows that vaping poses only a small fraction of the risks of smoking and switching from smoking to vaping conveys substantial health benefits (McNeill, Brose et al. 2018). However, vaping is not risk-free, and should not be encouraged in non-smokers (particularly young people who are non-smokers). Vaping has been associated with various physical and behavioural health risks, and its full health effects, including on learning and brain development in young people, are not known (Becker and Rice 2022).

Based on data from the New Zealand Health Survey (NZHS), in Te Taumata Hauora o Te Kahu o Taonui between 2017 and 2022, 7.9% of Māori aged 15 years and over were vaping on a daily basis, a rate 1.9 times higher than non-Māori (Table 49). The higher rate of daily vaping was particularly high for Māori females (2.6 times) compared to non-Māori females.

In Northland DHB (Table 50) – 5.3% of Māori vaped regularly (3.5 times higher for Māori females compared to non-Māori females), in Auckland DHB (Table 51) – 8.3% of Māori vaped regularly (3.4 times higher for Māori females compared to non-Māori females) and in Waitematā DHB (Table 52) - 9.2% of Māori vaped regularly (2.4 times higher than non-Māori).

DHB-level data is not available on vaping among young people (separately to adult-level data). However, national survey data of Year 10 students in 2022 showed that while youth vaping and smoking were both declining for young people in NZ overall, vaping was increasing for Māori young people (Action for Smokefree 2025 (ASH) 2022). Compared to 2021, daily vaping increased a statistically significant amount for Māori participants (19.1% in 2021 to 21.7% in 2022), especially for Māori girls (21.3% to 25.2%).

Table 49 – Prevalence of daily vaping/e-cigarettes use, aged 15 years and over, Te Taumata Hauora o Te Kahu o Taonui, 2017 to 2022

Sex	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	8.4	(5.6, 11.9)	4.0	(2.7, 5.6)	**2.57**	**(1.65, 4.00)**
Male	7.4	(4.2, 11.7)	5.0	(3.9, 6.2)	1.47	(0.90, 2.42)
Total	7.9	(5.7, 10.6)	4.4	(3.5, 5.5)	**1.91**	**(1.39, 2.64)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Daily electronic cigarette users (aged 15+ years) use electronic cigarettes or a vaping device at least once a day. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 50 – Prevalence of daily vaping/e-cigarettes use, aged 15 years and over, Northland DHB, 2017 to 2022

Sex	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	6.9	(3.4, 12.1)	1.9*	(0.8, 3.9)	**3.53***	**(1.77, 7.05)**
Male	3.8*	(1.6, 7.5)	6.1*	(1.7, 15.0)	0.70*	(0.25, 2.02)
Total	5.3	(3.4, 7.9)	3.6*	(1.6, 6.7)	1.71	(0.96, 3.03)

Source: New Zealand Health Survey, Ministry of Health.
Notes: Daily electronic cigarette users (aged 15+ years) use electronic cigarettes or a vaping device at least once a day. An asterisk (*) shows a relative standard error between 30% to 100%. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 51 – Prevalence of daily vaping/e-cigarettes use, aged 15 years and over, Auckland DHB, 2017 to 2022

Sex	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	11.6*	(4.5, 23.1)	4.6	(2.4, 7.9)	**3.34***	**(1.45, 7.71)**
Male	4.7*	(1.1, 12.4)	5.8	(3.8, 8.5)	0.87*	(0.25, 3.00)
Total	8.3	(4.3, 14.2)	5.3	(3.4, 7.7)	1.90*	(0.98, 3.69)

Source: New Zealand Health Survey, Ministry of Health.
Notes: Daily electronic cigarette users (aged 15+ years) use electronic cigarettes or a vaping device at least once a day. An asterisk (*) shows a relative standard error between 30% to 100%. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 52 – Prevalence of daily vaping/e-cigarettes use, aged 15 years and over, Waitematā DHB, 2017 to 2022

Sex	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	7.8	(3.8, 13.7)	3.7	(2.2, 5.7)	**2.21***	**(1.13, 4.33)**
Male	10.6*	(5.1, 18.9)	4.4	(3.2, 5.8)	**2.45***	**(1.30, 4.62)**
Total	9.2	(5.4, 14.3)	3.9	(3.0, 5.1)	**2.41**	**(1.49, 3.88)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Daily electronic cigarette users (aged 15+ years) use electronic cigarettes or a vaping device at least once a day. An asterisk (*) shows a relative standard error between 30% to 100%. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

3.2. Overweight and obesity

A healthy body size is recognised as important for good health and wellbeing. Evidence shows that obese children and adults are at greater risk of short- and long-term health consequences (Ministry of Health 2023). Body mass index (BMI) provides a useful population-level indicator of excess body weight, and is used internationally to classify underweight, overweight and obesity. It should be noted that BMI does not distinguish between weight associated with muscle and weight associated with fat. However, it is considered to be a good estimate of increased risk of health conditions associated with obesity (World Health Organization 2006).

Based on findings from the NZHS, between 2017 and 2021, 72.7% of Māori (aged ≥15 years) in Te Taumata Hauora o Te Kahu o Taonui were overweight or obese, 1.3 times higher than non-Māori (Table 53). Māori in Northland DHB (Table 54) and Auckland DHB (Table 55) were 1.3 times more likely to be obese than non-Māori and 1.2 times more likely in Waitematā DHB (Table 56).

Table 53 – Prevalence of overweight or obese, aged 15 years and over, Te Taumata Hauora o Te Kahu o Taonui, 2017 to 2021

Sex	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	72.6	(68.5, 76.4)	49.8	(47.5, 52.1)	**1.37**	**(1.31, 1.43)**
Male	73.0	(67.2, 78.4)	59.9	(57.4, 62.3)	**1.20**	**(1.13, 1.28)**
Total	72.7	(69.2, 75.9)	54.9	(53.1, 56.6)	**1.28**	**(1.23, 1.33)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: BMI greater than 25.0 (or equivalent for <18 years). Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 54 – Prevalence of overweight or obese, aged 15 years and over, Northland DHB, 2017 to 2021

Sex	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	74.4	(67.3, 80.6)	58.0	(48.6, 67.0)	**1.23**	**(1.13, 1.33)**
Male	82.8	(77.4, 87.4)	63.5	(57.3, 69.5)	**1.27**	**(1.15, 1.41)**
Total	78.0	(73.3, 82.2)	59.8	(54.6, 64.9)	**1.25**	**(1.17, 1.33)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: BMI greater than 25.0 (or equivalent for <18 years). Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 55 – Prevalence of overweight or obese, aged 15 years and over, Auckland DHB, 2017 to 2021

Sex	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	79.4	(71.7, 85.8)	48.0	(44.5, 51.5)	**1.54**	**(1.40, 1.70)**
Male	63.7	(46.2, 78.8)	55.8	(51.8, 59.7)	**1.11**	**(0.91, 1.34)**
Total	71.5	(61.5, 80.2)	52.2	(49.6, 54.9)	**1.30**	**(1.18, 1.43)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: BMI greater than 25.0 (or equivalent for <18 years). Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 56 – Prevalence of overweight or obese, aged 15 years and over, Waitematā DHB, 2017 to 2021

Sex	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	67.2	(59.5, 74.3)	49.8	(46.4, 53.2)	**1.27**	**(1.18, 1.38)**
Male	72.1	(63.7, 79.5)	62.2	(58.9, 65.5)	**1.16**	**(1.05, 1.28)**
Total	69.9	(64.0, 75.4)	56.0	(53.6, 58.4)	**1.21**	**(1.13, 1.30)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: BMI greater than 25.0 (or equivalent for <18 years). Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Based on findings from the NZHS, between 2017 and 2021, 43.7% of Māori (aged ≥15 years) in Te Taumata Hauora o Te Kahu o Taonui were obese, 1.8 times higher than non-Māori (Table 57). Similar findings are seen for Northland DHB where 50.3% of Māori (aged ≥15 years) were obese, 1.7 times higher than non-Māori (Table 58), Auckland DHB where 44.3% of Māori (aged ≥15 years) were obese, 1.9 times higher than non-Māori (Table 59) and Waitematā DHB where 38.8% of Māori (aged ≥15 years) were obese, 1.7 times higher than non-Māori (Table 60).

Table 57 – Prevalence of overweight (but not obese) and obese, aged 15 years and over, Te Taumata Hauora o Te Kahu o Taonui, 2017 to 2021

Body Size	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Overweight (but not obese)						
Female	28.9	(24.6, 33.6)	26.2	(23.9, 28.7)	1.05	(0.90, 1.23)
Male	29.1	(24.2, 34.4)	37.5	(35.2, 39.9)	**0.79**	**(0.66, 0.94)**
Total	29.0	(25.4, 32.8)	31.9	(30.3, 33.5)	0.89	(0.79, 1.02)
Obese						
Female	43.7	(38.5, 48.9)	23.6	(21.2, 26.1)	**1.74**	**(1.53, 1.97)**
Male	44.0	(37.8, 50.2)	22.4	(20.3, 24.5)	**1.91**	**(1.67, 2.19)**
Total	43.7	(39.1, 48.3)	23.0	(21.4, 24.6)	**1.82**	**(1.65, 2.02)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Overweight (but not obese): BMI of 25.0-29.9 (or equivalent for <18 years); Obese: BMI greater than 25.0 (or equivalent for <18 years). Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 58 – Prevalence of overweight (but not obese) and obese, aged 15 years and over, Northland DHB, 2017 to 2021

Body Size	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Overweight (but not obese)						
Female	27.0	(20.8, 34.1)	29.6	(23.0, 37.0)	0.91	(0.71, 1.15)
Male	28.7	(19.4, 39.4)	35.5	(28.8, 42.6)	0.82	(0.62, 1.08)
Total	27.7	(22.3, 33.5)	31.8	(27.3, 36.6)	0.87	(0.72, 1.04)
Obese						
Female	47.3	(38.8, 56.0)	28.4	(22.3, 35.1)	**1.57**	**(1.27, 1.92)**
Male	54.2	(44.0, 64.1)	28.0	(20.0, 37.2)	**1.87**	**(1.53, 2.29)**
Total	50.3	(43.2, 57.4)	28.0	(23.0, 33.5)	**1.70**	**(1.44, 2.01)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Overweight (but not obese): BMI of 25.0-29.9 (or equivalent for <18 years); Obese: BMI greater than 25.0 (or equivalent for <18 years). Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 59 – Prevalence of overweight (but not obese) and obese, aged 15 years and over, Auckland DHB, 2017 to 2021

Body Size	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Overweight (but not obese)						
Female	26.5	(18.1, 36.4)	25.2	(21.7, 29.0)	1.03	(0.80, 1.32)
Male	27.5	(15.7, 42.0)	33.6	(29.8, 37.6)	0.80	(0.49, 1.30)
Total	27.2	(19.2, 36.6)	29.6	(27.3, 32.0)	0.90	(0.69, 1.18)
Obese						
Female	52.9	(41.4, 64.2)	22.8	(18.8, 27.1)	**2.16**	**(1.81, 2.57)**
Male	36.2	(23.2, 50.8)	22.2	(18.5, 26.1)	**1.60**	**(1.07, 2.38)**
Total	44.3	(34.7, 54.2)	22.6	(19.9, 25.5)	**1.88**	**(1.54, 2.29)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Overweight (but not obese): BMI of 25.0-29.9 (or equivalent for <18 years); Obese: BMI greater than 25.0 (or equivalent for <18 years). Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 60 – Prevalence of overweight (but not obese) and obese, aged 15 years and over, Waitematā DHB, 2017 to 2021

Body Size	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Overweight (but not obese)						
Female	32.0	(25.2, 39.3)	26.3	(22.5, 30.5)	1.12	(0.86, 1.44)
Male	31.1	(23.8, 39.2)	40.2	(37.3, 43.1)	0.79	(0.61, 1.02)
Total	31.1	(26.0, 36.6)	33.3	(31.1, 35.5)	0.91	(0.75, 1.10)
Obese						
Female	35.3	(28.2, 42.9)	23.5	(20.4, 26.8)	**1.47**	**(1.20, 1.81)**
Male	41.0	(32.2, 50.3)	22.0	(19.2, 25.1)	**1.84**	**(1.52, 2.23)**
Total	38.8	(32.3, 45.7)	22.7	(20.5, 25.0)	**1.66**	**(1.42, 1.94)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Overweight (but not obese): BMI of 25.0-29.9 (or equivalent for <18 years); Obese: BMI greater than 25.0 (or equivalent for <18 years). Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

3.3. Cardiovascular disease

Between 2020 and 2023, Māori in Te Taumata Hauora o Te Kahu o Taonui were 1.9 times more likely than non-Māori to be hospitalised for circulatory system diseases (Table 61). This includes hospitalisations from conditions such as rheumatic fever, high blood pressure, ischemic heart disease, strokes, and other forms of heart disease. An average of 5,698 Māori per year in Te Taumata Hauora o Te Kahu o Taonui were hospitalised from circulatory diseases.

Auckland DHB had the highest circulatory disease hospitalisation rate for Māori, which may be due to lower admission thresholds and the availability of hospital care. The rate of hospitalisation for circulatory system disease was higher for Māori compared to non-Māori across all the DHBs including 2.1 times higher for Northland DHB (Table 62) and Auckland DHB (Table 63) and 1.8 times higher for Waitematā DHB (Table 64).

Table 61 – Hospitalisations for circulatory system disease, aged 25 years and over, Te Taumata Hauora o Te Kahu o Taonui, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	2,651	3,641	(3,502, 3,779)	17,813	1,863	(1,835, 1,890)	**1.95**	**(1.88, 2.03)**
Male	3,040	4,618	(4,454, 4,783)	22,204	2,596	(2,562, 2,631)	**1.78**	**(1.71, 1.85)**
Total	5,698	4,112	(4,005, 4,219)	40,051	2,218	(2,196, 2,240)	**1.85**	**(1.80, 1.90)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: I00-I99. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 62 – Hospitalisations for circulatory system disease, aged 25 years and over, Northland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	1,117	3,281	(3,088, 3,473)	2,363	1,504	(1,443, 1,565)	**2.18**	**(2.04, 2.34)**
Male	1,276	4,292	(4,056, 4,527)	3,384	2,158	(2,085, 2,230)	**1.99**	**(1.87, 2.12)**
Total	2,397	3,754	(3,603, 3,904)	5,766	1,826	(1,779, 1,873)	**2.06**	**(1.96, 2.15)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: I00-I99. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 63 – Hospitalisations for circulatory system disease, aged 25 years and over, Auckland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	716	4,493	(4,164, 4,822)	6,539	1,945	(1,898, 1,992)	**2.31**	**(2.14, 2.49)**
Male	808	5,488	(5,110, 5,867)	7,965	2,764	(2,704, 2,825)	**1.99**	**(1.85, 2.13)**
Total	1,526	4,976	(4,726, 5,226)	14,514	2,342	(2,303, 2,380)	**2.13**	**(2.02, 2.24)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: I00-I99. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 64 – Hospitalisations for circulatory system disease, aged 25 years and over, Waitematā DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	817	3,533	(3,291, 3,776)	8,910	1,898	(1,858, 1,937)	**1.86**	**(1.74, 2.00)**
Male	956	4,516	(4,230, 4,803)	10,854	2,597	(2,548, 2,646)	**1.74**	**(1.63, 1.85)**
Total	1,775	4,014	(3,827, 4,200)	19,771	2,233	(2,202, 2,264)	**1.80**	**(1.71, 1.88)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: I00-I99. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Looking more specifically at ischemic heart disease, Māori in Te Taumata Hauora o Te Kahu o Taonui were significantly more likely than non-Māori to be admitted for ischaemic heart disease, angiography, and acute coronary syndrome (Table 65). However, these data show that Māori are not significantly more likely than non-Māori to get angioplasty or coronary artery bypass grafts (CABGs), which are the key interventions for ischemic heart disease.

Māori aged 25 years and over in Northland DHB (Table 66) were 1.5 times more likely than non-Māori to be admitted for ischemic heart disease, acute coronary syndrome and angiography as well as being 1.7 times more likely than non-Māori to be admitted for a CABG than non-Māori. Māori aged 25 years and over in Auckland DHB (Table 67) were 1.5 times more likely than non-Māori to be admitted for ischemic heart disease, acute coronary syndrome, and angiography. No statistically significant differences were seen for angioplasty or CABG hospitalisation for Māori in Auckland DHB. Māori aged 25 years and over in Waitematā DHB (Table 68) were 1.4 times more likely than non-Māori to be admitted for angiography. No other statistically significant differences were seen for Māori in Waitematā DHB.

The data in this report do not tell us whether Māori are receiving appropriate levels of treatment. New Zealand-wide research has found that Māori do receive lower rates of angioplasty or CABGs than would be expected taking into account the number of heart attacks (Sandiford, Bramley et al. 2015). This lower intervention rate, together with the higher Māori death rate from cardiovascular disease, has raised questions about health care access barriers and ethnic biases in clinical decision making (Curtis, Harwood et al. 2010). An Auckland review of intervention rates in people with a heart attack who received angiography, suggests most of the ethnic difference in angioplasty and CABGs may be explained by differences in disease type and comorbidities (Sandiford, El-Jack et al. 2015) - Māori patients present with a pattern of ischaemic heart disease that is less amenable to angioplasty, and higher comorbidities make CABGs less suitable. However, it is not clear whether this pattern is true for Māori in the rest of the country, and it is important to continue to investigate whether Māori with ischemic heart disease are receiving the interventions they need.

Table 65 – Hospitalisations for ischaemic heart disease indicators, aged 25 years and over, Te Taumata Hauora o Te Kahu o Taonui, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
Ischaemic heart disease [1]								
Female	205	260.7	(225.0, 296.4)	1,304	120.5	(114.0, 127.0)	**2.16**	**(1.87, 2.51)**
Male	286	415.1	(367.0, 463.2)	2,782	345.1	(332.3, 357.9)	**1.20**	**(1.07, 1.36)**
Total	493	335.5	(305.9, 365.1)	4,091	230.1	(223.0, 237.2)	**1.46**	**(1.33, 1.60)**
Angiography procedures [2]								
Female	197	269.2	(231.6, 306.8)	1,270	137.9	(130.3, 145.5)	**1.95**	**(1.68, 2.27)**
Male	327	493.1	(439.7, 546.5)	2,823	371.5	(357.8, 385.2)	**1.33**	**(1.18, 1.49)**
Total	525	377.4	(345.1, 409.7)	4,096	251.9	(244.2, 259.6)	**1.50**	**(1.37, 1.64)**
Angioplasty procedures [3]								
Female	52	65.2	(47.5, 82.9)	411	41.5	(37.5, 45.5)	**1.57**	**(1.18, 2.09)**
Male	118	183.4	(150.3, 216.5)	1,309	182.4	(172.5, 192.3)	1.01	(0.83, 1.21)
Total	171	122.7	(104.3, 141.1)	1,722	110.4	(105.2, 115.6)	1.11	(0.95, 1.30)
Coronary Artery Bypass Grafts [4]								
Female	22	27.0	(15.7, 38.3)	109	11.8	(9.6, 14.0)	**2.30**	**(1.45, 3.63)**
Male	60	83.0	(61.9, 104.1)	614	80.3	(73.9, 86.7)	1.03	(0.79, 1.35)
Total	82	53.8	(42.1, 65.5)	723	45.1	(41.8, 48.4)	1.19	(0.95, 1.50)
Acute coronary syndrome [5]								
Female	120	153.4	(125.9, 180.9)	801	69.7	(64.9, 74.5)	**2.20**	**(1.82, 2.67)**
Male	155	228.6	(192.6, 264.6)	1,603	203.3	(193.3, 213.3)	1.12	(0.95, 1.33)
Total	276	190.3	(167.8, 212.8)	2,407	135.1	(129.7, 140.5)	**1.41**	**(1.24, 1.60)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: [1] I20 – I25; [2] 38215-00, 38218-00, 38218-01, 38218-02, 59900-00, 59900-01, 59900-02, 38200-00, 38203-00, 38206-00; [3] 35304-00, 35305-00, 35310-00, 35310-01, 35310-02, 38300-00, 38303-00, 38306-00, 38306-01, 38306-02, 38309-00, 38312-00, 38312-01, 38315-00, 38318-00, 38318-01, 90218-00, 90218-01, 90218-02, 90218-03; [4] 38497-00 – 38497-07, 38500-00 – 38500-04, 38503-00 – 38503-04, 90201-00 – 90201-03; [5] I20.0, I21 – I24. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 66 – Hospitalisations for ischaemic heart disease indicators, aged 25 years and over, Northland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
Ischaemic heart disease [1]								
Female	116	320.3	(262.0, 378.6)	269	137.5	(121.1, 153.9)	**2.33**	**(1.87, 2.89)**
Male	152	473.4	(398.1, 548.7)	571	378.6	(347.5, 409.7)	**1.25**	**(1.05, 1.49)**
Total	268	390.9	(344.1, 437.7)	842	256.8	(239.5, 274.1)	**1.52**	**(1.33, 1.75)**
Angiography procedures [2]								
Female	103	302.7	(244.2, 361.2)	234	145.3	(126.7, 163.9)	**2.08**	**(1.65, 2.62)**
Male	155	515.5	(434.3, 596.7)	543	395.5	(362.2, 428.8)	**1.30**	**(1.09, 1.56)**
Total	258	402.8	(353.6, 452.0)	778	268.8	(249.9, 287.7)	**1.50**	**(1.30, 1.72)**
Angioplasty procedures [3]								
Female	24	60.9	(36.4, 85.4)	77	43.6	(33.9, 53.3)	1.40	(0.88, 2.22)
Male	54	186.7	(137.0, 236.4)	234	181.5	(158.2, 204.8)	1.03	(0.77, 1.38)
Total	78	120.4	(93.7, 147.1)	312	111.5	(99.1, 123.9)	1.08	(0.84, 1.38)
Coronary Artery Bypass Grafts [4]								
Female	16	43.3	(21.8, 64.8)	27	17.9	(11.1, 24.7)	**2.41**	**(1.29, 4.51)**
Male	41	130.3	(90.6, 170.0)	127	79.5	(65.7, 93.3)	**1.64**	**(1.16, 2.33)**
Total	57	84.4	(62.5, 106.3)	153	48.4	(40.7, 56.1)	**1.74**	**(1.29, 2.36)**
Acute coronary syndrome [5]								
Female	67	191.0	(145.3, 236.7)	154	77.3	(65.1, 89.5)	**2.47**	**(1.85, 3.29)**
Male	80	246.8	(192.6, 301.0)	309	207.8	(184.6, 231.0)	1.19	(0.93, 1.52)
Total	147	216.4	(181.4, 251.4)	464	141.8	(128.9, 154.7)	**1.53**	**(1.27, 1.84)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: [1] I20 – I25; [2] 38215-00, 38218-00, 38218-01, 38218-02, 59900-00, 59900-01, 59900-02, 38200-00, 38203-00, 38206-00; [3] 35304-00, 35305-00, 35310-00, 35310-01, 35310-02, 38300-00, 38303-00, 38306-00, 38306-01, 38306-02, 38309-00, 38312-00, 38312-01, 38315-00, 38318-00, 38318-01, 90218-00, 90218-01, 90218-02, 90218-03; [4] 38497-00 – 38497-07, 38500-00 – 38500-04, 38503-00 – 38503-04, 90201-00 – 90201-03; [5] I20.0, I21 – I24. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 67 – Hospitalisations for ischaemic heart disease indicators, aged 25 years and over, Auckland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
Ischaemic heart disease [1]								
Female	43	246.3	(172.4, 320.2)	374	102.4	(92.0, 112.8)	**2.41**	**(1.75, 3.30)**
Male	56	388.2	(286.8, 489.6)	879	329.3	(307.5, 351.1)	1.18	(0.90, 1.54)
Total	100	317.2	(254.9, 379.5)	1,254	213.3	(201.5, 225.1)	**1.49**	**(1.21, 1.82)**
Angiography procedures [2]								
Female	38	238.9	(162.6, 315.2)	375	121.2	(108.9, 133.5)	**1.97**	**(1.41, 2.75)**
Male	65	446.7	(338.1, 555.3)	839	328.5	(306.3, 350.7)	**1.36**	**(1.06, 1.75)**
Total	103	341.4	(275.6, 407.2)	1,214	222.6	(210.1, 235.1)	**1.53**	**(1.25, 1.87)**
Angioplasty procedures [3]								
Female	10	60.0	(23.4, 96.6)	127	36.7	(30.3, 43.1)	1.64	(0.87, 3.09)
Male	28	197.5	(124.4, 270.6)	403	163.6	(147.6, 179.6)	1.21	(0.82, 1.77)
Total	39	128.8	(88.4, 169.2)	530	98.9	(90.5, 107.3)	1.30	(0.94, 1.80)
Coronary Artery Bypass Grafts [4]								
Female	2	13.3	(0.0, 31.7)	39	13.2	(9.1, 17.3)	1.01	(0.24, 4.18)
Male	9	58.6	(20.3, 96.9)	209	87.7	(75.8, 99.6)	0.67	(0.34, 1.30)
Total	11	35.2	(14.4, 56.0)	248	49.7	(43.5, 55.9)	0.71	(0.39, 1.30)
Acute coronary syndrome [5]								
Female	23	134.2	(79.7, 188.7)	214	53.6	(46.4, 60.8)	**2.50**	**(1.63, 3.84)**
Male	30	208.6	(133.9, 283.3)	456	174.5	(158.5, 190.5)	1.20	(0.83, 1.73)
Total	54	171.6	(125.7, 217.5)	671	113.0	(104.4, 121.6)	**1.52**	**(1.15, 2.00)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: [1] I20 – I25; [2] 38215-00, 38218-00, 38218-01, 38218-02, 59900-00, 59900-01, 59900-02, 38200-00, 38203-00, 38206-00; [3] 35304-00, 35305-00, 35310-00, 35310-01, 35310-02, 38300-00, 38303-00, 38306-00, 38306-01, 38306-02, 38309-00, 38312-00, 38312-01, 38315-00, 38318-00, 38318-01, 90218-00, 90218-01, 90218-02, 90218-03; [4] 38497-00 – 38497-07, 38500-00 – 38500-04, 38503-00 – 38503-04, 90201-00 – 90201-03; [5] I20.0, I21 – I24. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 68 – Hospitalisations for ischaemic heart disease indicators, aged 25 years and over, Waitematā DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
Ischaemic heart disease [1]								
Female	46	188.6	(134.3, 242.9)	661	126.8	(117.1, 136.5)	**1.49**	**(1.10, 2.00)**
Male	78	353.4	(275.0, 431.8)	1,332	341.4	(323.1, 359.7)	1.04	(0.82, 1.30)
Total	125	270.2	(222.8, 317.6)	1,994	230.8	(220.7, 240.9)	1.17	(0.98, 1.40)
Angiography procedures [2]								
Female	56	244.4	(180.4, 308.4)	661	146.3	(135.1, 157.5)	**1.67**	**(1.27, 2.19)**
Male	107	494.1	(400.6, 587.6)	1,442	393.2	(372.9, 413.5)	**1.26**	**(1.03, 1.53)**
Total	164	367.0	(310.8, 423.2)	2,104	266.0	(254.6, 277.4)	**1.38**	**(1.18, 1.62)**
Angioplasty procedures [3]								
Female	18	73.9	(39.8, 108.0)	207	43.6	(37.7, 49.5)	**1.70**	**(1.05, 2.74)**
Male	35	169.1	(113.4, 224.8)	673	194.8	(180.1, 209.5)	0.87	(0.62, 1.22)
Total	54	121.0	(88.6, 153.4)	881	117.1	(109.4, 124.8)	1.03	(0.78, 1.36)
Coronary Artery Bypass Grafts [4]								
Female	4	14.8	(0.9, 28.7)	43	8.8	(6.2, 11.4)	1.68	(0.63, 4.52)
Male	9	38.2	(13.7, 62.7)	279	71.8	(63.4, 80.2)	0.53	(0.28, 1.02)
Total	14	26.0	(12.2, 39.8)	322	39.2	(34.9, 43.5)	0.66	(0.39, 1.14)
Acute coronary syndrome [5]								
Female	29	118.2	(75.4, 161.0)	433	78.2	(70.8, 85.6)	**1.51**	**(1.04, 2.20)**
Male	45	212.7	(150.8, 274.6)	838	219.9	(205.0, 234.8)	0.97	(0.72, 1.30)
Total	75	166.3	(128.7, 203.9)	1,273	147.0	(138.9, 155.1)	1.13	(0.90, 1.43)

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: [1] I20 – I25; [2] 38215-00, 38218-00, 38218-01, 38218-02, 59900-00, 59900-01, 59900-02, 38200-00, 38203-00, 38206-00; [3] 35304-00, 35305-00, 35310-00, 35310-01, 35310-02, 38300-00, 38303-00, 38306-00, 38306-01, 38306-02, 38309-00, 38312-00, 38312-01, 38315-00, 38318-00, 38318-01, 90218-00, 90218-01, 90218-02, 90218-03; [4] 38497-00 – 38497-07, 38500-00 – 38500-04, 38503-00 – 38503-04, 90201-00 – 90201-03; [5] I20.0, I21 – I24. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Māori in Te Taumata Hauora o Te Kahu o Taonui were 4.0 times more likely than non-Māori to be hospitalised for heart failure (Table 69). Rates of hospitalisation from heart failure were higher for Māori compared to non-Māori across all DHBs including 5.2 times higher in Northland DHB (Table 70), 4.3 times higher in Auckland DHB (Table 71) and 3.6 times higher in Waitematā DHB (Table 72).

Table 69 – Hospitalisations for heart failure, aged 25 years and over, Te Taumata Hauora o Te Kahu o Taonui, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	185	217.4	(186.1, 248.7)	939	59.2	(55.4, 63.0)	**3.67**	**(3.14, 4.30)**
Male	307	450.2	(399.9, 500.5)	1,203	105.8	(99.8, 111.8)	**4.25**	**(3.75, 4.82)**
Total	493	330.1	(301.0, 359.2)	2,145	81.8	(78.3, 85.3)	**4.04**	**(3.66, 4.45)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 code: I50. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 70 – Hospitalisations for heart failure, aged 25 years and over, Northland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	91	228.7	(181.6, 275.8)	122	45.3	(37.3, 53.3)	**5.05**	**(3.85, 6.62)**
Male	135	472.5	(392.7, 552.3)	198	87.6	(75.4, 99.8)	**5.39**	**(4.33, 6.71)**
Total	226	345.5	(300.4, 390.6)	322	66.0	(58.8, 73.2)	**5.23**	**(4.41, 6.20)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 code: I50. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 71 – Hospitalisations for heart failure, aged 25 years and over, Auckland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	47	255.7	(182.6, 328.8)	345	60.5	(54.1, 66.9)	**4.23**	**(3.12, 5.73)**
Male	81	514.6	(402.8, 626.4)	414	117.7	(106.4, 129.0)	**4.37**	**(3.45, 5.54)**
Total	128	381.6	(315.6, 447.6)	760	88.5	(82.2, 94.8)	**4.31**	**(3.58, 5.19)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 code: I50. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 72 – Hospitalisations for heart failure, aged 25 years and over, Waitematā DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	47	177.1	(126.7, 227.5)	471	62.1	(56.5, 67.7)	**2.85**	**(2.12, 3.84)**
Male	91	405.6	(322.4, 488.8)	592	101.8	(93.6, 110.0)	**3.98**	**(3.20, 4.96)**
Total	139	287.9	(240.0, 335.8)	1,063	80.9	(76.0, 85.8)	**3.56**	**(2.98, 4.25)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 code: I50. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Māori in Te Taumata Hauora o Te Kahu o Taonui were 1.9 times more likely than non-Māori to be hospitalised for stroke (Table 73). Between 2020 and 2023, an average of 295 Māori each year in Te Taumata Hauora o Te Kahu o Taonui were hospitalised for stroke. Higher rates of hospitalisation for stroke for Māori compared to non-Māori were seen in Northland DHB – 2.4 times (Table 74), Auckland DHB - 1.8 times (Table 75) and Waitematā DHB – 1.7 times (Table 76).

Table 73 – Hospitalisations for stroke, aged 25 years and over, Te Taumata Hauora o Te Kahu o Taonui, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	152	202.3	(170.2, 234.4)	1,022	90.1	(84.6, 95.6)	**2.24**	**(1.89, 2.66)**
Male	143	202.7	(169.4, 236.0)	1,165	126.0	(118.8, 133.2)	**1.61**	**(1.35, 1.91)**
Total	295	202.4	(179.3, 225.5)	2,189	107.6	(103.1, 112.1)	**1.88**	**(1.67, 2.12)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: I60 – I69. These data in ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 74 – Hospitalisations for stroke, aged 25 years and over, Northland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	78	216.5	(168.4, 264.6)	156	88.9	(74.9, 102.9)	**2.44**	**(1.86, 3.20)**
Male	75	229.0	(177.1, 280.9)	201	99.6	(85.8, 113.4)	**2.30**	**(1.76, 3.00)**
Total	153	221.8	(186.7, 256.9)	358	94.3	(84.5, 104.1)	**2.35**	**(1.95, 2.84)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: I60 – I69. These data in ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 75 – Hospitalisations for stroke, aged 25 years and over, Auckland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	32	200.1	(130.8, 269.4)	385	93.0	(83.7, 102.3)	**2.15**	**(1.50, 3.08)**
Male	29	194.2	(123.1, 265.3)	413	133.3	(120.4, 146.2)	1.46	(1.00, 2.13)
Total	61	197.1	(147.5, 246.7)	798	112.7	(104.9, 120.5)	**1.75**	**(1.35, 2.27)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: I60 – I69. These data in ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 76 – Hospitalisations for stroke, aged 25 years and over, Waitematā DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	42	180.2	(125.9, 234.5)	481	89.4	(81.4, 97.4)	**2.02**	**(1.47, 2.76)**
Male	39	175.5	(120.6, 230.4)	551	126.5	(115.9, 137.1)	1.39	(1.00, 1.92)
Total	82	178.1	(139.5, 216.7)	1,033	107.3	(100.8, 113.8)	**1.66**	**(1.33, 2.08)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: I60 – I69. These data in ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Māori in Te Taumata Hauora o Te Kahu o Taonui, were 1.8 times more likely than non-Māori to be hospitalised for hypertensive disease (disease related to high blood pressure) (Table 77).

In Northland DHB (Table 78), Māori aged 25 years and over were 3.2 times more likely to be hospitalised for hypertensive disease compared to non-Māori. Both Auckland DHB (Table 79) and Waitematā DHB (Table 80) had a rate of hospitalisation for hypertensive disease that was 2.1 times higher for Māori compared to non-Māori.

Table 77 – Hospitalisations for hypertensive disease, aged 25 years and over, Te Taumata Hauora o Te Kahu o Taonui, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	54	86.9	(63.8, 110.0)	401	48.8	(44.0, 53.6)	**1.78**	**(1.34, 2.37)**
Male	44	79.3	(55.8, 102.8)	264	41.4	(36.4, 46.4)	**1.91**	**(1.39, 2.64)**
Total	98	83.4	(66.9, 99.9)	665	45.3	(41.9, 48.7)	**1.84**	**(1.49, 2.28)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: I10 – I15. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 78 – Hospitalisations for hypertensive disease, aged 25 years and over, Northland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	16	64.2	(32.4, 96.0)	28	22.6	(14.3, 30.9)	**2.84**	**(1.53, 5.27)**
Male	11	54.5	(22.3, 86.7)	18	15.2	(8.2, 22.2)	**3.59**	**(1.69, 7.59)**
Total	27	59.4	(36.8, 82.0)	46	18.9	(13.5, 24.3)	**3.15**	**(1.96, 5.07)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: I10 – I15. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 79 – Hospitalisations for hypertensive disease, aged 25 years and over, Auckland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	20	137.2	(77.1, 197.3)	183	60.3	(51.5, 69.1)	**2.27**	**(1.43, 3.61)**
Male	14	104.1	(50.2, 158.0)	125	53.0	(43.7, 62.3)	**1.96**	**(1.14, 3.39)**
Total	34	121.3	(80.7, 161.9)	308	57.0	(50.6, 63.4)	**2.13**	**(1.50, 3.03)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: I10 – I15. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 80 – Hospitalisations for hypertensive disease, aged 25 years and over, Waitematā DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	19	87.7	(47.9, 127.5)	190	48.1	(41.3, 54.9)	**1.82**	**(1.13, 2.93)**
Male	18	99.2	(53.8, 144.6)	121	39.9	(32.8, 47.0)	**2.49**	**(1.52, 4.07)**
Total	37	93.4	(63.3, 123.5)	311	44.2	(39.3, 49.1)	**2.11**	**(1.50, 2.97)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: I10 – I15. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Māori in Te Taumata Hauora o Te Kahu o Taonui were 3.3 times more likely (3.8 times for Māori women and 3.1 times for Māori men) than non-Māori to die from circulatory disease before the age of 75 years (Table 81). On average, there were 133 premature Māori deaths each year from circulatory disease in Te Taumata Hauora o Te Kahu o Taonui, between 2014 to 2018.

A similarly high pattern of premature death from circulatory disease was seen for Māori compared to non-Māori in Northland DHB – 3.4 times (Table 82), Auckland DHB – 3.0 times (Table 83) and Waitematā DHB – 2.8 times (Table 84).

Table 81 – Early death from circulatory system disease, Te Taumata Hauora o Te Kahu o Taonui, 2014 to 2018

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	47	33.4	(23.8, 43.0)	126	8.8	(7.3, 10.3)	**3.80**	**(2.72, 5.31)**
Male	86	68.9	(54.3, 83.5)	294	22.2	(19.7, 24.7)	**3.10**	**(2.44, 3.94)**
Total	133	50.4	(41.8, 59.0)	420	15.3	(13.8, 16.8)	**3.28**	**(2.70, 3.99)**

Source: Mortality Collections, Te Whatu Ora.
Notes: "Early deaths" are defined as those occurring under 75 years of age. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 82 – Early death from circulatory system disease, Northland DHB, 2014 to 2018

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	24	36.7	(21.9, 51.5)	20	9.0	(5.0, 13.0)	**4.07**	**(2.24, 7.38)**
Male	46	83.3	(59.2, 107.4)	53	25.3	(18.5, 32.1)	**3.29**	**(2.22, 4.88)**
Total	70	58.8	(45.0, 72.6)	73	17.1	(13.2, 21.0)	**3.43**	**(2.47, 4.76)**

Source: Mortality Collections, Te Whatu Ora.
Notes: "Early deaths" are defined as those occurring under 75 years of age. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 83 – Early death from circulatory system disease, Auckland DHB, 2014 to 2018

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	11	33.4	(13.6, 53.2)	47	9.2	(6.6, 11.8)	**3.64**	**(1.89, 7.02)**
Male	21	71.0	(40.9, 101.1)	117	25.6	(21.0, 30.2)	**2.78**	**(1.75, 4.40)**
Total	32	51.7	(33.9, 69.5)	164	17.2	(14.6, 19.8)	**3.01**	**(2.06, 4.38)**

Source: Mortality Collections, Te Whatu Ora.
Notes: "Early deaths" are defined as those occurring under 75 years of age. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 84 – Early death from circulatory system disease, Waitematā DHB, 2014 to 2018

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	12	28.5	(12.4, 44.6)	60	8.5	(6.3, 10.7)	**3.35**	**(1.80, 6.22)**
Male	18	48.0	(26.1, 69.9)	123	19.0	(15.6, 22.4)	**2.53**	**(1.55, 4.12)**
Total	30	37.8	(24.4, 51.2)	183	13.6	(11.6, 15.6)	**2.78**	**(1.89, 4.08)**

Source: Mortality Collections, Te Whatu Ora.
Notes: "Early deaths" are defined as those occurring under 75 years of age. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

3.4. Diabetes

Based on data held in the Virtual Diabetes Register (VDR), roughly 11,118 Māori (5,747 women and 5,371 men) aged ≥25 years in Te Taumata Hauora o Te Kahu o Taonui had diabetes in 2022 (Table 85), which equates to 8.9% of the Māori population aged ≥25 years. After adjusting for differences in the population age structures, Māori in Te Taumata Hauora o Te Kahu o Taonui were 1.6 times more likely than non-Māori to have diabetes (1.7 times for Māori females and 1.5 times for Māori males).

Diabetes prevalence was similarly high for Māori ranging from 7.8% to 9.7% of Māori adults across all the DHBs – 2.6 times higher for Māori compared to non-Māori in Northland DHB (Table 86), 1.4 times higher for Māori compared to non-Māori in Auckland DHB (Table 87) and 1.5 times higher for Māori compared to non-Māori in Waitematā DHB (Table 88). Half of the Māori in Te Taumata Hauora o Te Kahu o Taonui with diabetes lived in Northland. Diabetes prevalence was significantly higher for Māori in Northland compared to the other two DHBs, and the gap between Māori and non-Māori was the widest.

The VDR contains data about people suspected as having diabetes, identified through their use of diabetes related health services (including hospital admissions and outpatient appointments, laboratory tests, and pharmaceutical dispensing). Diabetes prevalence estimates are based on the number of people alive and enrolled in a PHO, at 31 December of the year in question. There are some limitations to the quality of the VDR data. For example, it will miss people with diabetes who have died during the year, or who are not known to health services.

Table 85 – Diabetes prevalence, aged 25 years and over, Te Taumata Hauora o Te Kahu o Taonui, 2022

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female	5,747	9.0	(8.7, 9.3)	33,408	5.3	(5.3, 5.4)	**1.68**	**(1.63, 1.74)**
Male	5,371	8.9	(8.6, 9.1)	37,991	6.0	(5.9, 6.1)	**1.47**	**(1.43, 1.52)**
Total	11,118	8.9	(8.7, 9.1)	71,399	5.7	(5.6, 5.7)	**1.57**	**(1.54, 1.61)**

Source: Virtual Diabetes Register, Ministry of Health.
Notes: Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 86 – Diabetes prevalence, aged 25 years and over, Northland DHB, 2022

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female	2,841	9.9	(9.5, 10.3)	3,142	3.7	(3.5, 3.9)	**2.67**	**(2.49, 2.86)**
Male	2,608	9.6	(9.2, 10.0)	4,154	3.9	(3.7, 4.1)	**2.47**	**(2.32, 2.63)**
Total	5,449	9.7	(9.4, 10.0)	7,296	3.8	(3.7, 3.9)	**2.57**	**(2.45, 2.69)**

Source: Virtual Diabetes Register, Ministry of Health.
Notes: Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 87 – Diabetes prevalence, aged 25 years and over, Auckland DHB, 2022

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female	1,260	9.1	(8.6, 9.7)	14,388	6.6	(6.5, 6.7)	**1.39**	**(1.30, 1.48)**
Male	1,205	9.0	(8.5, 9.5)	15,332	6.8	(6.7, 7.0)	**1.32**	**(1.24, 1.40)**
Total	2,465	9.1	(8.7, 9.4)	29,720	6.7	(6.6, 6.8)	**1.35**	**(1.30, 1.42)**

Source: Virtual Diabetes Register, Ministry of Health.
Notes: Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 88 – Diabetes prevalence, aged 25 years and over, Waitematā DHB, 2022

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female	1,646	7.8	(7.4, 8.2)	15,878	4.9	(4.8, 4.9)	**1.61**	**(1.53, 1.70)**
Male	1,558	7.8	(7.4, 8.2)	18,505	6.0	(5.9, 6.1)	**1.31**	**(1.24, 1.38)**
Total	3,204	7.8	(7.5, 8.1)	34,383	5.4	(5.3, 5.5)	**1.45**	**(1.39, 1.50)**

Source: Virtual Diabetes Register, Ministry of Health.
Notes: Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 89 shows how many people with diabetes are receiving medication, regular monitoring (HbA1c blood tests), and screening for diabetes complications. Ideally, all people with diabetes should be receiving regular monitoring (with appropriate adjustments to treatment), and screening for complications such as renal (kidney) damage. In 2022, only 84.0% of Māori with diabetes in Te Taumata Hauora o Te Kahu o Taonui were receiving regular HbA1c monitoring, and 65.7% were receiving the necessary screening for renal disease, and these rates were significantly lower (0.9 times) than those for non-Māori with diabetes.

Māori in Te Taumata Hauora o Te Kahu o Taonui were also significantly less likely (0.9 times) than non-Māori with diabetes to be regularly receiving diabetes medicines (Table 89). While not all people with diabetes require medication, those that do should take it regularly for optimum diabetes control. The presence of ethnic differences in medication receipt raises questions about the quality of care and access to appropriate treatment for Māori, especially when Māori with diabetes in Te Taumata Hauora o Te Kahu o Taonui have higher rates of preventable diabetes complications.

In Northland DHB (Table 90), Māori with diabetes were less likely (0.8 times) to be receiving diabetes medicines. In Waitematā and Auckland DHBs (Table 92 and Table 91), Māori with diabetes were less likely (0.9 times) to receive regular screening for diabetes complications, and in Waitematā, Māori were also less likely than non-Māori to receive regular monitoring (HbA1c blood tests).

Table 89 – Diabetes medication use, monitoring of blood glucose and screening for renal disease, aged 25 years and over, Te Taumata Hauora o Te Kahu o Taonui, 2022

Indicator	Māori				non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
People with diabetes regularly receiving metformin or insulin [1]									
Total	4,511	40.6	32,909	(31,276, 34,579)	31,923	35,205	(34,383, 36,034)	**0.93**	**(0.88, 0.99)**
People with diabetes having regular HbA1c monitoring [2]									
Total	9,343	84.0	75,397	(72,849, 77,984)	63,270	81,591	(80,317, 82,873)	**0.92**	**(0.89, 0.96)**
People with diabetes having regular screening for renal disease [3]									
Total	7,309	65.7	52,962	(50,944, 55,015)	50,669	60,670	(59,618, 61,729)	**0.87**	**(0.84, 0.91)**

Source: [1] Pharmaceutical Collection, Ministry of Health. [2],[3] Laboratory Collection, Ministry of Health.
Notes: Percentages are crude. Rates are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 90 – Diabetes medication use, monitoring of blood glucose and screening for renal disease, aged 25 years and over, Northland DHB, 2022

Indicator	Māori				non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
People with diabetes regularly receiving metformin or insulin [1]									
Total	2,200	40.4	30,753	(28,323, 33,260)	3,549	40,042	(36,560, 43,611)	**0.77**	**(0.68, 0.86)**
People with diabetes having regular HbA1c monitoring [2]									
Total	4,626	84.9	74,596	(70,635, 78,644)	6,534	78,437	(73,585, 83,378)	0.95	(0.88, 1.03)
People with diabetes having regular screening for renal disease [3]									
Total	3,652	67.0	52,374	(49,256, 55,569)	5,136	54,452	(50,648, 58,336)	0.96	(0.88, 1.06)

Source: [1] Pharmaceutical Collection, Ministry of Health. [2],[3] Laboratory Collection, Ministry of Health.
Notes: Percentages are crude. Rates are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 91 – Diabetes medication use, monitoring of blood glucose and screening for renal disease, aged 25 years and over, Auckland DHB, 2022

Indicator	Māori				non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
People with diabetes regularly receiving metformin or insulin [1]									
Total	972	39.4	32,316	(29,266, 35,515)	12,687	31,297	(30,246, 32,362)	1.03	(0.93, 1.14)
People with diabetes having regular HbA1c monitoring [2]									
Total	2,020	82.0	74,980	(70,163, 79,959)	25,760	79,495	(77,744, 81,261)	0.94	(0.88, 1.01)
People with diabetes having regular screening for renal disease [3]									
Total	1,517	61.5	49,517	(45,850, 53,327)	20,626	57,740	(56,320, 59,174)	**0.86**	**(0.79, 0.93)**

Source: [1] Pharmaceutical Collection, Ministry of Health. [2],[3] Laboratory Collection, Ministry of Health.
Notes: Percentages are crude. Rates are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 92 – Diabetes medication use, monitoring of blood glucose and screening for renal disease, aged 25 years and over, Waitematā DHB, 2022

Indicator	Māori				non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
People with diabetes regularly receiving metformin or insulin [1]									
Total	1,339	41.8	36,248	(33,147, 39,477)	15,687	39,215	(37,829, 40,617)	0.92	(0.84, 1.02)
People with diabetes having regular HbA1c monitoring [2]									
Total	2,697	84.2	76,521	(71,950, 81,224)	30,976	84,527	(82,503, 86,568)	**0.91**	**(0.85, 0.97)**
People with diabetes having regular screening for renal disease [3]									
Total	2,140	66.8	56,487	(52,717, 60,380)	24,907	65,424	(63,700, 67,164)	**0.86**	**(0.80, 0.93)**

Source: [1] Pharmaceutical Collection, Ministry of Health. [2],[3] Laboratory Collection, Ministry of Health.
Notes: Percentages are crude. Rates are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Māori:non-Māori inequities in access to diabetes monitoring, medication (where required), and screening for complications are particularly concerning given that on average, 1,955 Māori with diabetes in Te Taumata Hauora o Te Kahu o Taonui were hospitalised for renal failure each year between 2019-2021 (Table 94). Māori were 2.6 times more likely than non-Māori with diabetes to be hospitalised for renal failure. Similarly, Māori with diabetes were 2.7 times more likely to be hospitalised for lower limb amputations in Te Taumata Hauora o Te Kahu o Taonui (Table 93).

Table 93 – Hospitalisations for lower limb amputations with concurrent diabetes, aged 15 years and over, Te Taumata Hauora o Te Kahu o Taonui, 2019 to 2021

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	14	99.1	(48.4, 251.8)	32	113.7	(59.8, 197.4)	0.87	(0.38, 1.98)
Male	42	722.9	(424.0, 1,170)	120	226.2	(122.5, 373.5)	**3.20**	**(1.57, 6.49)**
Total	58	457.5	(292.6, 681.3)	155	172.8	(116.0, 245.7)	**2.65**	**(1.54, 4.55)**

Source: NMDS, Te Whatu Ora. Whakamaua Dashboard.
Notes: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 94 – Hospitalisations for renal failure with concurrent diabetes, aged 15 years and over, Te Taumata Hauora o Te Kahu o Taonui, 2019 to 2021

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	802	11,827	(10,427, 13,342)	2,955	5,496	(5,049, 5,969)	**2.15**	**(1.86, 2.49)**
Male	1,153	16,225	(14,547, 18,037)	4,437	5,469	(5,019, 5,946)	**2.97**	**(2.59, 3.40)**
Total	1,955	14,184	(13,067, 15,361)	7,392	5,492	(5,176, 5,821)	**2.58**	**(2.34, 2.85)**

Source: NMDS, Te Whatu Ora. Whakamaua Dashboard.
Notes: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

3.5. Respiratory disease

Between 2020-2023, an average of 166 Māori children (≤14 years) per year in Te Taumata Hauora o Te Kahu o Taonui were hospitalised for asthma (Table 95). Asthma hospitalisations were higher for Māori across all age groups but particularly high for Māori aged 35-64 years, with an average of 196 admissions per year – 4.4 times the rate of non-Māori in that age group in Te Taumata Hauora o Te Kahu o Taonui.

In Northland DHB (Table 96), the asthma hospitalisation rate was higher for Māori across all age groups but highest among tamariki, with an average of 78 admissions per year – 2.0 times the rate of non-Māori in that age group.

In Auckland DHB (Table 97), the asthma hospitalisation rate was higher for Māori across all age groups but highest among tamariki, with an average of 34 admissions per year – 1.5 times the rate of non-Māori in that age group. Māori aged 35-64 years also had an average of 34 admissions per year – 3.3 times the rate of non-Māori in that age group.

In contrast in Waitematā DHB (Table 98), while asthma hospitalisations were higher for Māori across all age groups, the hospitalisation rate was highest for Māori aged 35-64 years, with an average of 105 admissions per year – 6.0 times the rate of non-Māori in that age group.

Table 95 – Hospitalisations for asthma, all ages, Te Taumata Hauora o Te Kahu o Taonui, July 2020 to June 2023

Sex and Age group	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
0 to 14 years								
Female	71	290.9	(223.1, 358.7)	147	161.3	(135.2, 187.4)	**1.80**	**(1.36, 2.39)**
Male	95	365.5	(291.9, 439.1)	247	260.1	(227.6, 292.6)	**1.41**	**(1.11, 1.78)**
Total	166	330.1	(279.8, 380.4)	394	212.2	(191.2, 233.2)	**1.56**	**(1.30, 1.86)**
15 to 34 years								
Female	89	294.8	(233.6, 356.0)	152	111.9	(94.1, 129.7)	**2.64**	**(2.03, 3.42)**
Male	40	131.1	(90.6, 171.6)	113	78.9	(64.3, 93.5)	**1.66**	**(1.16, 2.38)**
Total	129	211.6	(175.1, 248.1)	265	95.1	(83.7, 106.5)	**2.23**	**(1.80, 2.75)**
35 to 64 years								
Female	139	510.9	(426.1, 595.7)	285	117.7	(104.0, 131.4)	**4.34**	**(3.54, 5.31)**
Male	57	208.8	(154.4, 263.2)	114	46.7	(38.1, 55.3)	**4.47**	**(3.25, 6.14)**
Total	196	362.8	(312.0, 413.6)	399	82.8	(74.7, 90.9)	**4.38**	**(3.70, 5.20)**
65 years and over								
Female	17	228.7	(121.0, 336.4)	112	102.2	(83.2, 121.2)	**2.24**	**(1.35, 3.71)**
Male	14	221.1	(105.3, 336.9)	43	47.3	(33.2, 61.4)	**4.67**	**(2.56, 8.54)**
Total	31	225.3	(146.4, 304.2)	155	76	(64.0, 88.0)	**2.96**	**(2.02, 4.35)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: J45 – J46.These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 96 – Hospitalisations for asthma, all ages, Northland DHB, July 2020 to June 2023

Sex and Age group	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
0 to 14 years								
Female	33	318.6	(209.9, 427.3)	14	163.1	(78.7, 247.5)	**1.95**	**(1.05, 3.63)**
Male	44	402.1	(283.7, 520.5)	19	207.1	(114.8, 299.4)	**1.94**	**(1.14, 3.31)**
Total	78	363.2	(282.4, 444.0)	34	184.7	(122.3, 247.1)	**1.97**	**(1.31, 2.95)**
15 to 34 years								
Female	31	297.0	(193.0, 401.0)	9	82.6	(27.6, 137.6)	**3.6**	**(1.70, 7.63)**
Male	12	108.2	(46.1, 170.3)	4	40.9	(2.4, 79.4)	2.64	(0.88, 7.96)
Total	43	200.7	(140.7, 260.7)	13	61.3	(28.0, 94.6)	**3.27**	**(1.76, 6.09)**
35 to 64 years								
Female	37	332.6	(225.9, 439.3)	19	69.1	(38.3, 99.9)	**4.81**	**(2.78, 8.33)**
Male	19	171.0	(94.8, 247.2)	9	33.6	(12.0, 55.2)	**5.09**	**(2.33, 11.11)**
Total	57	254.3	(188.1, 320.5)	29	51.4	(32.6, 70.2)	**4.95**	**(3.16, 7.75)**
65 years and over								
Female	9	247.0	(88.5, 405.5)	16	90.5	(46.1, 134.9)	**2.73**	**(1.22, 6.11)**
Male	9	268.9	(89.9, 447.9)	5	25.5	(2.4, 48.6)	**10.56**	**(3.43, 32.51)**
Total	18	255.6	(137.5, 373.7)	21	58.2	(33.1, 83.3)	**4.39**	**(2.34, 8.26)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: J45 – J46.These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 97 – Hospitalisations for asthma, all ages, Auckland DHB, July 2020 to June 2023

Sex and Age group	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
0 to 14 years								
Female	16	403.5	(207.8, 599.2)	68	207.3	(157.9, 256.7)	**1.95**	**(1.13, 3.34)**
Male	18	399.9	(213.4, 586.4)	115	337.4	(275.8, 399.0)	1.19	(0.72, 1.95)
Total	34	401.6	(266.6, 536.6)	183	274.9	(235.1, 314.7)	**1.46**	**(1.01, 2.11)**
15 to 34 years								
Female	23	293.5	(173.6, 413.4)	65	104.5	(79.2, 129.8)	**2.81**	**(1.75, 4.51)**
Male	7	90.3	(24.9, 155.7)	51	71.7	(52.0, 91.4)	1.26	(0.58, 2.73)
Total	30	190.2	(122.5, 257.9)	116	87.9	(71.9, 103.9)	**2.16**	**(1.45, 3.23)**
35 to 64 years								
Female	19	276.0	(153.0, 399.0)	94	112.7	(89.9, 135.5)	**2.45**	**(1.50, 4.00)**
Male	15	264.1	(130.5, 397.7)	47	50.5	(36.0, 65.0)	**5.23**	**(2.92, 9.35)**
Total	34	266.9	(177.6, 356.2)	140	81.8	(68.3, 95.3)	**3.26**	**(2.25, 4.74)**
65 years and over								
Female	3	151.0	(0.0, 332.2)	36	96.3	(64.8, 127.8)	1.57	(0.45, 5.43)
Male	2	129.3	(0.0, 325.6)	17	63.1	(32.8, 93.4)	2.05	(0.42, 10.06)
Total	4	141.7	(8.3, 275.1)	53	81.3	(59.3, 103.3)	1.74	(0.65, 4.64)

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: J45 – J46.These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 98 – Hospitalisations for asthma, all ages, Waitematā DHB, July 2020 to June 2023

Sex and Age group	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
0 to 14 years								
Female	21	218.4	(125.7, 311.1)	65	131.6	(99.6, 163.6)	**1.66**	**(1.02, 2.71)**
Male	33	310.7	(204.2, 417.2)	112	218.0	(177.6, 258.4)	**1.42**	(0.97, 2.10)
Total	54	266.1	(195.1, 337.1)	177	176.0	(150.1, 201.9)	**1.51**	**(1.12, 2.05)**
15 to 34 years								
Female	35	294.8	(196.7, 392.9)	78	121.5	(94.6, 148.4)	**2.43**	**(1.63, 3.62)**
Male	21	179.2	(103.2, 255.2)	57	89.2	(66.1, 112.3)	**2.01**	**(1.22, 3.30)**
Total	56	236.6	(174.6, 298.6)	136	105.2	(87.5, 122.9)	**2.25**	**(1.65, 3.07)**
35 to 64 years								
Female	83	865.2	(678.7, 1,052)	172	131.8	(112.1, 151.5)	**6.57**	**(5.06, 8.53)**
Male	22	219.3	(128.4, 310.2)	58	47.2	(35.1, 59.3)	**4.65**	**(2.86, 7.57)**
Total	105	544.0	(439.9, 648.1)	230	90.4	(78.7, 102.1)	**6.02**	**(4.78, 7.58)**
65 years and over								
Female	5	250.4	(37.9, 462.9)	60	110.6	(82.5, 138.7)	2.26	(0.93, 5.48)
Male	4	212.3	(0.0, 429.6)	22	44.8	(26.1, 63.5)	**4.73**	**(1.57, 14.29)**
Total	9	233.3	(80.9, 385.7)	82	79.4	(62.2, 96.6)	**2.94**	**(1.48, 5.85)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: J45 – J46.These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Māori aged ≥45 years in Te Taumata Hauora o Te Kahu o Taonui were 4.2 times more likely than non-Māori to be hospitalised for chronic obstructive pulmonary disease (COPD) (Table 99). COPD hospitalisations were 5.0 times higher for Māori women, and 3.4 times higher for Māori men, compared to non-Māori women and men in Te Taumata Hauora o Te Kahu o Taonui. An average of 541 Māori aged ≥45 years were hospitalised for COPD in Te Taumata Hauora o Te Kahu o Taonui each year between 2020-2023.

COPD hospitalisations, were 3.6 times higher than non-Māori in Northland DHB (Table 100), 5.0 times higher than non-Māori in Auckland DHB (Table 101) and 4.0 times higher than non-Māori in Waitematā DHB (Table 102).

Table 99 – Hospitalisations for chronic obstructive pulmonary disease, aged 45 years and over, Te Taumata Hauora o Te Kahu o Taonui, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	320	963.2	(857.7, 1,069)	799	192.1	(178.8, 205.4)	**5.02**	**(4.41, 5.71)**
Male	220	767.3	(666.0, 868.6)	868	224.0	(209.1, 238.9)	**3.42**	**(2.96, 3.97)**
Total	541	872.4	(798.9, 945.9)	1,672	207.5	(197.6, 217.4)	**4.20**	**(3.82, 4.63)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: J40 – J44.These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 100 – Hospitalisations for chronic obstructive pulmonary disease, aged 45 years and over, Northland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	147	913.0	(765.2, 1,061)	153	248.4	(209.0, 287.8)	**3.67**	**(2.93, 4.60)**
Male	107	771.2	(624.8, 917.6)	159	218.7	(184.7, 252.7)	**3.53**	**(2.76, 4.50)**
Total	254	850.1	(745.6, 954.6)	316	235.0	(209.1, 260.9)	**3.62**	**(3.07, 4.26)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: J40 – J44.These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 101 – Hospitalisations for chronic obstructive pulmonary disease, aged 45 years and over, Auckland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	75	1,080	(835.3, 1,324)	213	141.3	(122.3, 160.3)	**7.64**	**(5.88, 9.93)**
Male	49	754.7	(544.1, 965.3)	281	229.1	(202.3, 255.9)	**3.29**	**(2.44, 4.46)**
Total	124	923.7	(761.3, 1,086)	494	183.9	(167.7, 200.1)	**5.02**	**(4.13, 6.11)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: J40 – J44.These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 102 – Hospitalisations for chronic obstructive pulmonary disease, aged 45 years and over, Waitematā DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	98	975.6	(782.8, 1,168)	433	210.1	(190.3, 229.9)	**4.64**	**(3.73, 5.77)**
Male	64	735.6	(555.9, 915.3)	428	221.6	(200.6, 242.6)	**3.32**	**(2.56, 4.31)**
Total	163	864.5	(731.6, 997.4)	862	215.1	(200.7, 229.5)	**4.02**	**(3.40, 4.75)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: J40 – J44.These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Hospitalisations for bronchiectasis were 2.2 times more common in Māori in Te Taumata Hauora o Te Kahu o Taonui compared to non-Māori (Table 103).

Bronchiectasis hospitalisations were 1.8 times higher than non-Māori in Northland DHB (Table 104) and 1.9 times higher than non-Māori in Auckland DHB (Table 105) and Waitematā DHB (Table 106).

Table 103 – Hospitalisations for bronchiectasis, all ages, Te Taumata Hauora o Te Kahu o Taonui, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	39	32.5	(22.4, 42.6)	180	18.1	(15.5, 20.7)	**1.80**	**(1.27, 2.54)**
Male	32	32.6	(21.3, 43.9)	105	11.5	(9.3, 13.7)	**2.84**	**(1.91, 4.22)**
Total	71	32.8	(25.2, 40.4)	285	14.8	(13.1, 16.5)	**2.22**	**(1.71, 2.88)**

Source: NMDS, Te Whatu Ora.
Notes: Excluding congenital bronchiectasis. ICD-10 code: J47. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 104 – Hospitalisations for bronchiectasis, all ages, Northland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	19	40.2	(22.0, 58.4)	21	22.7	(13.0, 32.4)	1.77	(0.95, 3.30)
Male	17	45.9	(24.3, 67.5)	12	25.0	(10.6, 39.4)	1.83	(0.87, 3.85)
Total	36	43.3	(29.2, 57.4)	33	24.1	(15.8, 32.4)	**1.79**	**(1.12, 2.88)**

Source: NMDS, Te Whatu Ora.
Notes: Excluding congenital bronchiectasis. ICD-10 code: J47. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 105 – Hospitalisations for bronchiectasis, all ages, Auckland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	7	24.7	(6.4, 43.0)	64	18.3	(13.8, 22.8)	1.35	(0.62, 2.94)
Male	8	38.4	(11.2, 65.6)	53	14.6	(10.7, 18.5)	**2.63**	**(1.24, 5.62)**
Total	15	31.9	(15.6, 48.2)	117	16.4	(13.4, 19.4)	**1.94**	**(1.13, 3.34)**

Source: NMDS, Te Whatu Ora.
Notes: Excluding congenital bronchiectasis. ICD-10 code: J47. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 106 – Hospitalisations for bronchiectasis, all ages, Waitematā DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	14	27.6	(13.0, 42.2)	95	16.9	(13.5, 20.3)	1.63	(0.93, 2.88)
Male	7	16.5	(4.2, 28.8)	40	7.3	(5.0, 9.6)	**2.26**	**(1.01, 5.05)**
Total	21	22.4	(12.8, 32.0)	135	12.1	(10.1, 14.1)	**1.85**	**(1.16, 2.94)**

Source: NMDS, Te Whatu Ora.
Notes: Excluding congenital bronchiectasis. ICD-10 code: J47. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

On average, there were 36 premature Māori deaths each year from respiratory disease in Te Taumata Hauora o Te Kahu o Taonui between 2014 to 2018 – 3.3 times the rate of non-Māori (Table 107). These do not include deaths from lung cancer, which will be covered separately in the following chapter.

Similarly high rates of premature death from respiratory disease are seen in Northland DHB (Table 108) – 4.2 times higher than non-Māori, Auckland DHB (Table 109) – 2.5 times higher than non-Māori, and Waitematā DHB (Table 110) – 2.6 times higher than non-Māori.

Table 107 – Early death from respiratory disease, Te Taumata Hauora o Te Kahu o Taonui, 2014 to 2018

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	19	13.4	(7.4, 19.4)	51	3.3	(2.4, 4.2)	**4.03**	**(2.39, 6.81)**
Male	17	13.7	(7.2, 20.2)	72	4.9	(3.8, 6.0)	**2.77**	**(1.64, 4.71)**
Total	36	13.6	(9.2, 18.0)	123	4.1	(3.4, 4.8)	**3.30**	**(2.28, 4.78)**

Source: Mortality Collections, Te Whatu Ora.
Notes: "Early deaths" are defined as those occurring under 75 years of age. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 108 – Early death from respiratory disease, Northland DHB, 2014 to 2018

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	12	18.5	(8.1, 28.9)	12	4.7	(2.1, 7.3)	**3.97**	**(1.79, 8.80)**
Male	10	18.0	(6.8, 29.2)	13	4.0	(1.8, 6.2)	**4.52**	**(1.98, 10.32)**
Total	22	18.3	(10.7, 25.9)	25	4.3	(2.6, 6.0)	**4.23**	**(2.39, 7.50)**

Source: Mortality Collections, Te Whatu Ora.
Notes: "Early deaths" are defined as those occurring under 75 years of age. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 109 – Early death from respiratory disease, Auckland DHB, 2014 to 2018

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	3	9.7	(0.0, 20.7)	17	3.5	(1.9, 5.1)	2.80	(0.82, 9.52)
Male	4	13.0	(0.0, 26.0)	27	5.8	(3.6, 8.0)	2.25	(0.77, 6.59)
Total	7	11.3	(2.8, 19.8)	44	4.6	(3.2, 6.0)	**2.45**	**(1.09, 5.50)**

Source: Mortality Collections, Te Whatu Ora.
Notes: "Early deaths" are defined as those occurring under 75 years of age. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 110 – Early death from respiratory disease, Waitematā DHB, 2014 to 2018

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	4	9.5	(0.4, 18.6)	21	2.8	(1.6, 4.0)	**3.40**	**(1.19, 9.67)**
Male	3	8.7	(0.0, 18.2)	32	4.4	(2.9, 5.9)	1.99	(0.63, 6.29)
Total	7	9.2	(2.6, 15.8)	53	3.6	(2.6, 4.6)	**2.57**	**(1.19, 5.55)**

Source: Mortality Collections, Te Whatu Ora.
Notes: "Early deaths" are defined as those occurring under 75 years of age. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

3.6. Gout

Gout is the most common form of inflammatory arthritis, and is caused by an inflammatory response to monosodium urate crystals, which form in the presence of high urate in the blood (Jackson, Dalbeth et al. 2014). Patients typically experience recurrent flares of severe joint inflammation, which if not properly treated, over time can lead to tophi, chronic arthritis, and joint damage.

In 2022, 10,602 Māori (≥20 years) in Te Taumata Hauora o Te Kahu o Taonui were identified as having gout, which affected more Māori men (n=7,844) than women (n=2,758) (Table 111), which equated to 7.5% of the Māori population ≥20 years. Māori in Te Taumata Hauora o Te Kahu o Taonui were 2.1 times more likely than non-Māori to suffer from gout.

The patterns were similar across all DHBs, with Māori in Northland DHB being 2.5 times more likely to have gout than non-Māori (Table 112), Māori in Auckland DHB were 1.9 times more likely to have gout than non-Māori (Table 113) and Māori in Waitematā DHB were 1.8 times more likely to have gout than non-Māori (Table 114).

These data are based on people who have either been hospitalised with gout or prescribed a gout medication, who are enrolled with a Primary Health Organisation (PHO). These data will therefore not capture all people with gout – previous analysis has found that these data miss approximately 20% of people with gout (Jackson, Wright et al. 2012).

Table 111 – Gout prevalence, aged 20 years and over, Te Taumata Hauora o Te Kahu o Taonui, 2022

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female	2,758	3.2	(3.1, 3.3)	11,082	1.2	(1.2, 1.2)	**2.66**	**(2.54, 2.79)**
Male	7,844	12.0	(11.7, 12.3)	40,643	6.1	(6.0, 6.2)	**1.97**	**(1.92, 2.02)**
Total	10,602	7.5	(7.3, 7.6)	51,725	3.6	(3.6, 3.6)	**2.07**	**(2.03, 2.12)**

Source: NMDS, Pharmaceutical Collection, PHO enrolments, Mortality Collection, New Zealand Cancer Registry, Ministry of Health.
Notes: Includes those enrolled with PHOs only. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 112 – Gout prevalence, aged 20 years and over, Northland DHB, 2022

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female	1,416	3.5	(3.3, 3.7)	1,481	1.0	(0.9, 1.1)	**3.49**	**(3.13, 3.89)**
Male	3,865	13.7	(13.3, 14.2)	6,133	5.7	(5.5, 5.9)	**2.42**	**(2.30, 2.55)**
Total	5,281	8.4	(8.2, 8.7)	7,614	3.3	(3.2, 3.5)	**2.52**	**(2.40, 2.64)**

Source: NMDS, Pharmaceutical Collection, PHO enrolments, Mortality Collection, New Zealand Cancer Registry, Ministry of Health.
Notes: Includes those enrolled with PHOs only. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 113 – Gout prevalence, aged 20 years and over, Auckland DHB, 2022

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female	629	3.4	(3.2, 3.7)	4,306	1.3	(1.3, 1.4)	**2.56**	**(2.34, 2.81)**
Male	1,703	11.6	(11.0, 12.2)	15,300	6.4	(6.3, 6.5)	**1.80**	**(1.71, 1.90)**
Total	2,332	7.4	(7.1, 7.8)	19,606	3.8	(3.8, 3.9)	**1.93**	**(1.84, 2.02)**

Source: NMDS, Pharmaceutical Collection, PHO enrolments, Mortality Collection, New Zealand Cancer Registry, Ministry of Health.
Notes: Includes those enrolled with PHOs only. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 114 – Gout prevalence, aged 20 years and over, Waitematā DHB, 2022

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	%	(95% CI)	Number	%	(95% CI)		
Female	713	2.6	(2.4, 2.9)	5,295	1.2	(1.1, 1.2)	**2.28**	**(2.09, 2.48)**
Male	2,276	10.3	(9.9, 10.8)	19,210	6.0	(5.9, 6.1)	**1.73**	**(1.65, 1.81)**
Total	2,989	6.4	(6.2, 6.7)	24,505	3.5	(3.4, 3.6)	**1.83**	**(1.76, 1.91)**

Source: NMDS, Pharmaceutical Collection, PHO enrolments, Mortality Collection, New Zealand Cancer Registry, Ministry of Health.
Notes: Includes those enrolled with PHOs only. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Appropriate treatment of gout is important to prevent permanent complications. Long-term urate-lowering therapy, such as allopurinol, is recommended to prevent gout flares and prevent tophus formation, bony erosions, and permanent disability in people with gout. Table 115 shows that only 38.8% Māori with gout in Te Taumata Hauora o Te Kahu o Taonui were receiving regular urate-lowering therapy. This percentage is roughly the same as for non-Māori, however Māori with gout have earlier onset and more severe disease, so to achieve equitable care would require higher levels of urate-lowering therapy than non-Māori (Health Quality and Safety Commission 2024).

This was similar across DHBs, with 40.2% of Māori with gout in Northland DHB (Table 116) receiving regular urate-lowering therapy, 36.0% in Auckland DHB (Table 117) and 38.6% in Waitematā DHB (Table 118). Māori in Auckland DHB were 0.9 times less likely than non-Māori to receive regular urate-lowering therapy.

Gout flares can also be treated with non-steroidal anti-inflammatory drugs (NSAIDs). Although NSAIDs are effective at treating acute gout flares, these medicines have important side effects including kidney injury and peptic ulcer disease, and they should not be used long-term in gout without urate-lowering therapy. Table 115 shows that 14.7% of Māori with gout in Te Taumata Hauora o Te Kahu o Taonui were prescribed NSAIDs without urate-lowering therapy. Some of these people with gout may have been prescribed a NSAID for a non-gout reason, however high rates of NSAID dispensing without urate-lowering therapy can also be a marker of inappropriate (and potentially harmful) gout treatment. These data do also not include people with gout using over-the-counter NSAIDs.

This was similar across DHBs, with 13.7% of Māori with gout in Northland DHB (Table 116) being prescribed NSAIDs without urate-lowering therapy, 15.1% in Auckland DHB (Table 117) and 16.4% in Waitematā DHB (Table 118).

Table 115 – Gout treatment, aged 20 years and over, Te Taumata Hauora o Te Kahu o Taonui, 2022

Indicator	Māori				non-Māori				Māori/non-Māori rate ratio (95% CI)	
	Number	% of those with gout	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)				
People with gout who received urate-lowering therapy regularly										
Total	4,118	38.8	21,893	(20,649, 23,165)	20,096	22,344	(21,644, 23,051)		0.98	(0.92, 1.05)
People with gout given NSAIDs but not urate-lowering therapy										
Total	1,557	14.7	22,071	(19,995, 24,227)	8,056	23,299	(22,179, 24,438)		0.95	(0.85, 1.05)

Source: NMDS, Pharmaceutical Collection, PHO enrolments, Mortality Collection, New Zealand Cancer Registry, Ministry of Health.
Notes: Percentages are crude. Rates are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 116 – Gout treatment, aged 20 years and over, Northland DHB, 2022

Indicator	Māori				non-Māori				Māori/non-Māori rate ratio (95% CI)	
	Number	% of those with gout	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)				
People with gout who received urate-lowering therapy regularly										
Total	2,123	40.2	22,626	(20,625, 24,692)	3,260	21,383	(18,901, 23,930)		1.06	(0.91, 1.23)
People with gout given NSAIDs but not urate-lowering therapy										
Total	723	13.7	23,227	(19,754, 26,897)	1,024	24,123	(19,597, 28,862)		0.96	(0.75, 1.23)

Source: NMDS, Pharmaceutical Collection, PHO enrolments, Mortality Collection, New Zealand Cancer Registry, Ministry of Health.
Notes: Percentages are crude. Rates are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 117 – Gout treatment, aged 20 years and over, Auckland DHB, 2022

Indicator	Māori				non-Māori				Māori/non-Māori rate ratio (95% CI)	
	Number	% of those with gout	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)				
People with gout who received urate-lowering therapy regularly										
Total	840	36.0	19,802	(17,887, 21,817)	7,356	22,592	(21,535, 23,669)		**0.88**	**(0.79, 0.98)**
People with gout given NSAIDs but not urate-lowering therapy										
Total	452	15.1	21,132	(17,724, 24,787)	3,811	23,175	(21,531, 24,858)		0.91	(0.76, 1.09)

Source: NMDS, Pharmaceutical Collection, PHO enrolments, Mortality Collection, New Zealand Cancer Registry, Ministry of Health.
Notes: Percentages are crude. Rates are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 118 – Gout treatment, aged 20 years and over, Waitematā DHB, 2022

Indicator	Māori				non-Māori				Māori/non-Māori rate ratio (95% CI)	
	Number	% of those with gout	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)				
People with gout who received urate-lowering therapy regularly										
Total	1,155	38.6	22,616	(20,271, 25,065)	9,480	22,179	(21,177, 23,197)		1.02	(0.91, 1.14)
People with gout given NSAIDs but not urate-lowering therapy										
Total	382	16.4	21,613	(17,902, 25,616)	3,221	23,335	(21,714, 25,000)		0.93	(0.77, 1.12)

Source: NMDS, Pharmaceutical Collection, PHO enrolments, Mortality Collection, New Zealand Cancer Registry, Ministry of Health.
Notes: Percentages are crude. Rates are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Māori were much more likely than non-Māori in Te Taumata Hauora o Te Kahu o Taonui to be hospitalised for gout. Despite being only 2.1 times more likely than non-Māori to be identified with gout (Table 111), Māori in Te Taumata Hauora o Te Kahu o Taonui were 3.5 times more likely than non-Māori to be hospitalised for gout (Table 119). Māori women were 4.9 times more likely and Māori men were 3.4 times more likely to be hospitalised for gout compared to non-Māori women and men, respectively.

Māori aged 25 years and over were 4.9 times as likely to be hospitalised for gout compared to non-Māori in Northland DHB (Table 120), 4.2 times as likely to be hospitalised for gout compared to non-Māori in Auckland DHB (Table 121) and 2.9 times as likely to be hospitalised for gout compared to non-Māori in Waitematā DHB (Table 122). Across all three DHBs, the rate of gout hospitalisation was higher for Māori men compared to Māori females, although the relative difference between Māori and non-Māori was higher for women compared to men.

Table 119 – Hospitalisations for gout, aged 25 years and over, Te Taumata Hauora o Te Kahu o Taonui, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	30	40.2	(25.8, 54.6)	68	8.3	(6.3, 10.3)	**4.85**	**(3.15, 7.44)**
Male	113	223.7	(182.4, 265.0)	308	66.5	(59.1, 73.9)	**3.36**	**(2.71, 4.17)**
Total	143	129.6	(108.3, 150.9)	377	37.0	(33.3, 40.7)	**3.50**	**(2.89, 4.24)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 code: M10. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 120 – Hospitalisations for gout, aged 25 years and over, Northland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	12	36.8	(16.0, 57.6)	6	3.1	(0.7, 5.5)	**11.70**	**(4.47, 30.63)**
Male	47	221.0	(157.6, 284.4)	31	47.8	(30.9, 64.7)	**4.63**	**(2.94, 7.30)**
Total	59	125.6	(93.4, 157.8)	37	25.6	(17.4, 33.8)	**4.91**	**(3.26, 7.41)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 code: M10. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 121 – Hospitalisations for gout, aged 25 years and over, Auckland DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	11	67.6	(27.6, 107.6)	28	9.3	(5.9, 12.7)	**7.30**	**(3.63, 14.68)**
Male	35	305.2	(204.6, 405.8)	135	79.0	(65.7, 92.3)	**3.87**	**(2.67, 5.60)**
Total	46	185.1	(131.8, 238.4)	163	43.9	(37.2, 50.6)	**4.22**	**(3.04, 5.84)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 code: M10. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 122 – Hospitalisations for gout, aged 25 years and over, Waitematā DHB, July 2020 to June 2023

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	7	27.4	(7.1, 47.7)	34	8.8	(5.8, 11.8)	**3.10**	**(1.38, 6.99)**
Male	31	174.8	(112.9, 236.7)	143	60.9	(50.9, 70.9)	**2.87**	**(1.94, 4.24)**
Total	38	100.0	(68.1, 131.9)	177	34.3	(29.3, 39.3)	**2.92**	**(2.05, 4.15)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 code: M10. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Mate pukupuku
Cancer

4. Mate pukupuku – Cancer

Cancer is a leading cause of illness and death for Māori, making up 25% of amenable mortality for Māori females and 10% for Māori males (Ministry of Health 2010). There are persisting disparities in cancer incidence, mortality and survival between Māori and non-Māori, with cancer making an important contribution to the life expectancy gap for Māori (Walsh and Grey 2019, Walsh 2023). Nationally between 2016 and 2020, compared to non-Māori, Māori were 1.2 times more likely to be diagnosed with cancer and 1.7 times more likely to die from cancer. Lung cancer alone contributes almost one year to the life expectancy gap between Māori and non-Māori non-Pacific women (Walsh and Grey 2019), and is the second leading cause of potentially avoidable death for Māori nationwide. Māori diagnosed with cancer are more likely to be diagnosed at a later stage, die (and to die sooner) than non-Māori with cancer (Gurney, Campbell et al. 2019).

The factors underpinning overall worse cancer incidence, mortality and survival for Māori are systemic. Broad health system actions that impact multiple cancers, such as improving access for Māori to prevention, timely diagnosis and appropriate treatment (regardless of income or place of residence), increased Māori control in cancer decision making and Māori-led services are crucial (Gurney, Robson et al. 2020).

More than two-thirds of all Māori cancer deaths occur from very poor-prognosis cancers. A key to reducing cancer deaths for Māori is by preventing the cancer in the first place (Gurney, Robson et al. 2020). More than half of the top 10 most common cancers and cancer deaths among Māori have known causal exposures that disproportionately impact Māori:

- tobacco exposure (lung and pancreatic cancers),
- infectious diseases (stomach and liver cancers),
- obesogenic environment/diet and obesity/diabetes mellitus (breast, uterine, colorectal, and pancreatic cancers), and
- familial genetic predisposition (stomach cancer).

Where prevention is not possible, or is unsuccessful, early detection can save lives if cancers are detected, when curative treatment is still possible. Screening programmes, such as breast, cervical and bowel screening, and hepatitis B & C surveillance, need to work much better for Māori. However, many of the most commonly diagnosed cancers among Māori are diagnosed outside of screening programmes. Diagnosis of these cancers principally relies on detection through primary care, so barriers to primary care for Māori need to be removed. Once cancer is diagnosed, the priority becomes ensuring access to timely best-practice treatment.

4.1. Cancer vaccines

Two common cancers, liver and cervix, can be largely prevented by childhood vaccinations which are already included in the free routine National Immunisation Schedule in NZ.

Globally, half of all liver cancers are caused by Hepatitis B infection (Zamor, deLemos et al. 2017). Hepatitis B is included in the routine infant immunisation schedule, and these immunisation data for Māori are presented in the Kahu Taurima chapter in this report.

Human papillomavirus (HPV) infection, which affects >80% of the population (Serrano, Brotons et al. 2018), causes virtually all cervical cancer, as well as causing some oropharyngeal (mouth, throat, tongue, and tonsils), vaginal, vulvar, penile, and anal cancers (Shapiro 2022). HPV vaccination has the potential

to prevent 70% to 90% of all HPV-related cancers (Serrano, Brotons et al. 2018). The HPV vaccine is part of the routine NZ National Immunisation Schedule to be given to all 12-year-olds.

By 14 years of age, only 42.0% of Māori in Te Taumata Hauora o Te Kahu o Taonui in June 2023 had been fully immunised for HPV, compared to 57.4% for non-Māori (Table 123). Māori in Te Taumata Hauora o Te Kahu o Taonui were 0.7 times as likely to be fully vaccinated for HPV compared to non-Māori. HPV vaccination rates were 32.9% (0.7 times lower than non-Māori) in Northland DHB (Table 124), 49.9% (0.9 times lower than non-Māori) in Auckland DHB (Table 125) and 48.0% (0.8 times lower than non-Māori) in Waitematā DHB (Table 126).

Table 123 – Human papillomavirus (HPV) immunisation, 2009 birth cohort, Te Taumata Hauora o Te Kahu o Taonui, June 2023

HPV immunisation	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	No. eligible	No. immunised	% immunised	No. eligible	No. immunised	% immunised		
First dose	3,562	2,055	57.7	14,876	10,753	72.3	**0.80**	**(0.77, 0.82)**
Final dose	3,562	1,495	42.0	14,876	8,537	57.4	**0.73**	**(0.70, 0.76)**

Source: National Immunisation Register, Te Whatu Ora
Notes: Percentages are crude (not age-standardised). Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 124 – Human papillomavirus (HPV) immunisation, 2009 birth cohort, Northland DHB, June 2023

HPV immunisation	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	No. eligible	No. immunised	% immunised	No. eligible	No. immunised	% immunised		
First dose	1,512	692	45.8	1,353	766	56.6	**0.81**	**(0.75, 0.87)**
Final dose	1,512	497	32.9	1,353	640	47.3	**0.70**	**(0.63, 0.76)**

Source: National Immunisation Register, Te Whatu Ora
Notes: Percentages are crude (not age-standardised). Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 125 – Human papillomavirus (HPV) immunisation, 2009 birth cohort, Auckland DHB, June 2023

HPV immunisation	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	No. eligible	No. immunised	% immunised	No. eligible	No. immunised	% immunised		
First dose	730	491	67.3	5,759	4,337	75.3	**0.89**	**(0.79, 0.94)**
Final dose	730	364	49.9	5,759	3,380	58.7	**0.85**	**(0.79, 0.92)**

Source: National Immunisation Register, Te Whatu Ora
Notes: Percentages are crude (not age-standardised). Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 126 – Human papillomavirus (HPV) immunisation, 2009 birth cohort, Waitematā DHB, June 2023

HPV immunisation	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	No. eligible	No. immunised	% immunised	No. eligible	No. immunised	% immunised		
First dose	1,320	871	66.0	7,764	5,651	72.8	**0.91**	**(0.87, 0.94)**
Final dose	1,320	634	48.0	7,764	4,517	58.2	**0.83**	**(0.78, 0.88)**

Source: National Immunisation Register, Te Whatu Ora
Notes: Percentages are crude (not age-standardised). Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

4.2. Cancer screening

Cancer screening checks people without any cancer symptoms, to look for pre-cancerous changes or cancer which can be treated if found early. NZ has three national cancer screening programmes: breast, cervical and bowel cancer.

In Te Taumata Hauora o Te Kahu o Taonui in 2023, 64.7% of eligible Māori women aged 45 to 69 years had been screened for breast cancer in the previous two-year period, compared to 64.9% for non-Māori women (Table 127). Breast cancer screening rates were 68.0% for Māori women in Northland DHB (Table 128), 59.5% in Auckland DHB (Table 129) and 63.8% in Waitematā DHB (Table 130).

Table 127 – Breast cancer screening two-year coverage, aged 45 to 69 years, Te Taumata Hauora o Te Kahu o Taonui, December 2023

Breast screening by age group	Māori			non-Māori		
	No. screened	Eligible population	% screened	No. screened	Eligible population	% screened
45 to 49 years	3,064	4,765	64.3	23,712	36,995	64.1
50 to 54 years	3,175	4,990	63.6	25,051	39,885	62.8
55 to 59 years	2,981	4,570	65.2	24,709	37,615	65.7
60 to 64 years	2,861	4,395	65.1	22,921	35,155	65.2
65 to 69 years	2,019	3,065	65.9	20,186	29,945	67.4
Total	14,100	21,785	64.7	116,579	179,595	64.9

Source: National Screening Unit, Te Whatu Ora
Notes: Two-year coverage is defined as the proportion of women eligible for screening who have been screened in the previous two-year period. Percentages are crude (not age-standardised).

Table 128 – Breast cancer screening two-year coverage, aged 45 to 69 years, Northland DHB, December 2023

Breast screening by age group	Māori			non-Māori		
	No. screened	Eligible population	% screened	No. screened	Eligible population	% screened
45 to 49 years	1,304	1,960	66.5	2,492	3,845	64.8
50 to 54 years	1,390	2,115	65.7	3,087	4,630	66.7
55 to 59 years	1,414	2,080	68.0	3,583	5,280	67.9
60 to 64 years	1,437	2,060	69.8	3,848	5,785	66.5
65 to 69 years	1,067	1,515	70.4	3,821	5,440	70.2
Total	6,612	9,730	68.0	16,831	24,980	67.4

Source: National Screening Unit, Te Whatu Ora
Notes: Two-year coverage is defined as the proportion of women eligible for screening who have been screened in the previous two-year period. Percentages are crude (not age-standardised).

Table 129 – Breast cancer screening two-year coverage, aged 45 to 69 years, Auckland DHB, December 2023

Breast screening by age group	Māori			non-Māori		
	No. screened	Eligible population	% screened	No. screened	Eligible population	% screened
45 to 49 years	625	1,065	58.7	8,019	14,030	57.2
50 to 54 years	707	1,085	65.2	8,753	15,000	58.4
55 to 59 years	598	1,000	59.8	8,547	13,675	62.5
60 to 64 years	530	965	54.9	7,491	12,060	62.1
65 to 69 years	391	675	57.9	6,343	10,080	62.9
Total	2,851	4,790	59.5	39,153	64,845	60.4

Source: National Screening Unit, Te Whatu Ora
Notes: Two-year coverage is defined as the proportion of women eligible for screening who have been screened in the previous two-year period. Percentages are crude (not age-standardised).

Table 130 – Breast cancer screening two-year coverage, aged 45 to 69 years, Waitematā DHB, December 2023

Breast screening by age group	Māori			non-Māori		
	No. screened	Eligible population	% screened	No. screened	Eligible population	% screened
45 to 49 years	1,135	1,740	65.2	13,201	19,120	69.0
50 to 54 years	1,078	1,790	60.2	13,211	20,255	65.2
55 to 59 years	969	1,490	65.0	12,579	18,660	67.4
60 to 64 years	894	1,370	65.3	11,582	17,310	66.9
65 to 69 years	561	875	64.1	10,022	14,425	69.5
Total	4,637	7,265	63.8	60,595	89,770	67.5

Source: National Screening Unit, Te Whatu Ora
Notes: Two-year coverage is defined as the proportion of women eligible for screening who have been screened in the previous two-year period. Percentages are crude (not age-standardised).

For cervical cancer, 56.1% of eligible Māori aged 25 to 69 years in Te Taumata Hauora o Te Kahu o Taonui in 2023 were up-to-date with their cervical screening, compared to 72.1% of non-Māori (Table 131). In general, screening rates were lower for younger women, with only 47.4% of Māori aged 30 to 34 years and 42.5% of Māori aged 25 to 29 years up-to-date with cervical screening (compared to 66.2% and 55.4% for non-Māori, respectively).

52.4% of Māori aged 25 to 69 years in Northland DHB in 2023 were up-to-date with their cervical screening, compared to 64.3% of non-Māori (Table 132), 60.6% of Māori compared to 74.3% of non-Māori in Auckland DHB (Table 133) and 57.4% of Māori compared to 72.0% of non-Māori in Waitematā DHB (Table 134).

Table 131 – Cervical cancer screening coverage, aged 25 to 69 years, Te Taumata Hauora o Te Kahu o Taonui, December 2023

Up-to-date screening by age group	Māori			non-Māori		
	No. screened	Eligible population	% screened	No. screened	Eligible population	% screened
25 to 29 years	3,082	7,247	42.5	21,398	38,608	55.4
30 to 34 years	3,405	7,180	47.4	30,008	45,359	66.2
35 to 39 years	2,823	5,596	50.4	31,190	42,956	72.6
40 to 44 years	2,535	4,461	56.8	29,584	37,767	78.3
45 to 49 years	2,802	4,222	66.4	26,243	32,802	80.0
50 to 54 years	3,024	4,405	68.6	26,988	34,534	78.1
55 to 59 years	2,569	3,866	66.5	24,225	31,928	75.9
60 to 64 years	2,403	3,775	63.7	22,137	29,736	74.4
65 to 69 years	1,698	2,612	65.0	17,492	24,369	71.8
Total	24,341	43,365	56.1	229,265	318,058	72.1

Source: National Cervical Screening Programme Register, National Screening Unit, Te Whatu Ora
Notes: Percentages are crude (not age-standardised).

Table 132 – Cervical cancer screening coverage, aged 25 to 69 years, Northland DHB, December 2023

Up-to-date screening by age group	Māori			non-Māori		
	No. screened	Eligible population	% screened	No. screened	Eligible population	% screened
25 to 29 years	919	2,336	39.3	1,423	2,675	53.2
30 to 34 years	1,163	2,627	44.3	2,272	3,575	63.6
35 to 39 years	1,100	2,282	48.2	2,457	3,578	68.7
40 to 44 years	940	1,845	50.9	2,298	3,292	69.8
45 to 49 years	1,013	1,759	57.6	2,275	3,359	67.7
50 to 54 years	1,157	1,887	61.3	2,682	4,048	66.3
55 to 59 years	1,023	1,745	58.6	2,832	4,469	63.4
60 to 64 years	1,072	1,763	60.8	3,092	4,905	63.0
65 to 69 years	801	1,298	61.7	2,780	4,464	62.3
Total	9,188	17,542	52.4	22,111	34,366	64.3

Source: National Cervical Screening Programme Register, National Screening Unit, Te Whatu Ora
Notes: Percentages are crude (not age-standardised).

Table 133 – Cervical cancer screening coverage, aged 25 to 69 years, Auckland DHB, December 2023

Up-to-date screening by age group	Māori			non-Māori		
	No. screened	Eligible population	% screened	No. screened	Eligible population	% screened
25 to 29 years	949	2,016	47.1	10,737	19,092	56.2
30 to 34 years	968	1,922	50.4	13,709	20,810	65.9
35 to 39 years	678	1,295	52.4	12,707	16,798	75.6
40 to 44 years	653	1,008	64.8	11,401	13,883	82.1
45 to 49 years	698	914	76.4	10,312	12,313	83.7
50 to 54 years	750	944	79.4	10,634	12,961	82.0
55 to 59 years	633	834	75.9	9,419	11,535	81.7
60 to 64 years	549	836	65.7	8,212	10,218	80.4
65 to 69 years	377	557	67.7	6,254	8,139	76.8
Total	6,255	10,325	60.6	93,385	125,749	74.3

Source: National Cervical Screening Programme Register, National Screening Unit, Te Whatu Ora
Notes: Percentages are crude (not age-standardised).

Table 134 – Cervical cancer screening coverage, aged 25 to 69 years, Waitematā DHB, December 2023

Up-to-date screening by age group	Māori			non-Māori		
	No. screened	Eligible population	% screened	No. screened	Eligible population	% screened
25 to 29 years	1,214	2,895	41.9	9,238	16,841	54.9
30 to 34 years	1,274	2,632	48.4	14,027	20,974	66.9
35 to 39 years	1,045	2,019	51.8	16,026	22,580	71.0
40 to 44 years	942	1,608	58.6	15,885	20,591	77.1
45 to 49 years	1,091	1,550	70.4	13,656	17,130	79.7
50 to 54 years	1,117	1,574	71.0	13,672	17,525	78.0
55 to 59 years	913	1,287	70.9	11,974	15,923	75.2
60 to 64 years	782	1,176	66.5	10,833	14,613	74.1
65 to 69 years	520	757	68.7	8,458	11,767	71.9
Total	8,898	15,498	57.4	113,769	157,943	72.0

Source: National Cervical Screening Programme Register, National Screening Unit, Te Whatu Ora
Notes: Percentages are crude (not age-standardised).

For bowel cancer, 47.2% of the eligible Māori population in Te Taumata Hauora o Te Kahu o Taonui as at June 2023 had been screened, compared to 52.8% of non-Māori (Table 135). Screening coverage was lower in the youngest age group (60 to 64 years) which is also the largest age group for Māori.

Screening coverage for Māori was 46.3% in Northland DHB (Table 136), 43.1% in Auckland DHB (Table 137) and 52.4% in Waitematā DHB (Table 138).

Table 135 – Bowel cancer screening participation, aged 60 to 74 years, Te Taumata Hauora o Te Kahu o Taonui, June 2023

Participation by age group	Māori			non-Māori		
	No. screened	Eligible population	% screened	No. screened	Eligible population	% screened
60 to 64 years	3,422	7,816	43.8	35,574	72,108	49.3
65 to 69 years	2,295	4,672	49.1	30,642	57,218	53.6
70 to 74 years	1,800	3,441	52.3	28,907	50,785	56.9
Total	7,517	15,929	47.2	95,123	180,111	52.8

Source: National Screening Unit, Te Whatu Ora
Notes: Percentages are crude (not age-standardised).

Table 136 – Bowel cancer screening participation, aged 60 to 74 years, Northland DHB, June 2023

Participation by age group	Māori			non-Māori		
	No. screened	Eligible population	% screened	No. screened	Eligible population	% screened
60 to 64 years	1,626	3,778	43.0	5,267	9,962	52.9
65 to 69 years	1,127	2,379	47.4	5,143	8,526	60.3
70 to 74 years	991	1,925	51.5	6,451	10,029	64.3
Total	3,744	8,082	46.3	16,861	28,517	59.1

Source: National Screening Unit, Te Whatu Ora
Notes: Percentages are crude (not age-standardised).

Table 137 – Bowel cancer screening participation, aged 60 to 74 years, Auckland DHB, June 2023

Participation by age group	Māori			non-Māori		
	No. screened	Eligible population	% screened	No. screened	Eligible population	% screened
60 to 64 years	771	1,906	40.5	13,119	28,000	46.9
65 to 69 years	472	1,042	45.3	10,194	20,708	49.2
70 to 74 years	343	729	47.1	9,395	18,530	50.7
Total	1,586	3,677	43.1	32,708	67,238	48.6

Source: National Screening Unit, Te Whatu Ora
Notes: Percentages are crude (not age-standardised).

Table 138 – Bowel cancer screening participation, aged 60 to 74 years, Waitematā DHB, June 2023

Participation by age group	Māori			non-Māori		
	No. screened	Eligible population	% screened	No. screened	Eligible population	% screened
60 to 64 years	1,025	2,132	48.1	17,188	34,146	50.3
65 to 69 years	696	1,251	55.6	15,305	27,984	54.7
70 to 74 years	466	787	59.2	13,061	22,226	58.8
Total	2,187	4,170	52.4	45,554	84,356	54.0

Source: National Screening Unit, Te Whatu Ora
Notes: Percentages are crude (not age-standardised).

4.3. Cancer diagnoses

Table 139 shows the most common types of cancer diagnosed in Te Taumata Hauora o Te Kahu o Taonui between 2016 and 2020. For Māori in Te Taumata Hauora o Te Kahu o Taonui, the most common types of cancer diagnosed were lung, breast, prostate and colorectal (bowel). Because of the small population size of a single DHB, just one to two cancers from a particular cause can have a large impact on the ranking of leading causes. For this reason, local cancer data should be interpreted together with the leading types of cancer for Māori nationally. Nationally, the most common types of cancer diagnosed in Māori were lung, breast, prostate and colorectal (the same as in Te Taumata Hauora o Te Kahu o Taonui).

An average of 624 cancers each year were diagnosed in Māori in Te Taumata Hauora o Te Kahu o Taonui. Māori were 1.3 times more likely than non-Māori in Te Taumata Hauora o Te Kahu o Taonui to be diagnosed with a cancer. Māori:non-Māori inequity was highest for lung cancer (3.4 times higher) followed by breast cancer (1.3 times) in Te Taumata Hauora o Te Kahu o Taonui.

An average of 298 cancers each year were diagnosed in Māori in Northland DHB (Table 140). Māori were 1.2 times more likely than non-Māori in Northland DHB to be diagnosed with a cancer, and 3.1 times more likely to be diagnosed with lung cancer than non-Māori.

An average of 142 cancers each year were diagnosed in Māori in Auckland DHB (Table 141). Māori were 1.3 times more likely than non-Māori in Auckland DHB to be diagnosed with a cancer, and 3.8 times more likely to be diagnosed with lung cancer than non-Māori.

An average of 183 cancers each year were diagnosed in Māori in Waitematā DHB (Table 142). Māori were 1.2 times more likely than non-Māori in Waitematā DHB to be diagnosed with a cancer, and 2.9 times more likely to be diagnosed with lung cancer than non-Māori.

Table 139 – Most common cancer registrations by site, all ages, Te Taumata Hauora o Te Kahu o Taonui, 2016 to 2020

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
Females								
All cancers	345	251.8	(224.2, 282.0)	2,627	185.2	(176.5, 194.3)	**1.36**	**(1.20, 1.54)**
Breast	101	78.2	(62.8, 96.3)	778	61.8	(56.9, 67.0)	**1.27**	**(1.01, 1.58)**
Lung	65	39.2	(30.0, 50.7)	210	10.6	(8.9, 12.6)	**3.71**	**(2.76, 5.00)**
Uterus	25	18.8	(11.8, 28.6)	141	10.2	(8.4, 12.4)	**1.84**	**(1.17, 2.92)**
Colorectal	23	17.2	(10.5, 26.8)	301	16.8	(14.5, 19.5)	1.02	(0.64, 1.62)
Males								
All cancers	279	213.5	(188.3, 241.4)	2,966	187.5	(179.5, 195.9)	1.14	(1.00, 1.30)
Prostate	72	49.6	(38.7, 63.0)	857	49.2	(45.8, 53.0)	1.01	(0.79, 1.28)
Lung	49	34.7	(25.5, 46.5)	220	11.3	(9.7, 13.2)	**3.07**	**(2.23, 4.24)**
Colorectal	23	18.0	(11.2, 27.7)	337	20.9	(18.3, 23.9)	0.86	(0.55, 1.34)
Liver	14	11.1	(6.0, 19.2)	62	4.0	(2.9, 5.5)	**2.76**	**(1.50, 5.08)**
Total								
All cancers	624	231.9	(213.1, 252.0)	5,594	185.8	(179.8, 191.9)	**1.25**	**(1.14, 1.36)**
Lung	114	37.0	(30.4, 44.8)	430	10.9	(9.7, 12.2)	**3.41**	**(2.74, 4.23)**
Breast	102	40.7	(32.8, 50.0)	784	31.9	(29.4, 34.6)	**1.28**	**(1.02, 1.59)**
Prostate	72	23.0	(18.0, 29.3)	857	23.8	(22.1, 25.6)	0.97	(0.76, 1.24)
Colorectal	46	17.4	(12.5, 23.7)	638	18.8	(17.0, 20.7)	0.93	(0.67, 1.28)

Source: New Zealand Cancer Registry, Ministry of Health.
Notes: Colorectal includes colon, rectum and rectosigmoid junction. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 140 – Most common cancer registrations by site, all ages, Northland DHB, 2016 to 2020

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
Females								
All cancers	167	267.2	(223.6, 317.4)	413	190.1	(162.6, 222.2)	**1.41**	**(1.12, 1.76)**
Breast	51	93.2	(66.7, 126.9)	118	65.0	(49.8, 85.0)	1.43	(0.96, 2.13)
Lung	32	40.0	(26.7, 59.3)	39	10.5	(7.0, 19.7)	**3.81**	**(2.26, 6.41)**
Uterus	14	23.7	(11.9, 43.0)	18	7.1	(3.6, 16.9)	**3.33**	**(1.45, 7.67)**
Colorectal	11	15.9	(7.3, 31.8)	52	18.8	(11.6, 31.3)	0.85	(0.39, 1.85)
Males								
All cancers	131	215.4	(177.7, 259.5)	539	200.8	(175.7, 229.9)	1.07	(0.86, 1.34)
Prostate	36	52.7	(36.7, 74.9)	152	50.1	(41.3, 62.9)	1.05	(0.72, 1.54)
Lung	27	39.7	(25.7, 60.1)	48	15.0	(9.9, 25.3)	**2.64**	**(1.53, 4.55)**
Colorectal	9	14.5	(6.1, 30.5)	72	25.9	(17.5, 39.3)	0.56	(0.25, 1.24)
Stomach	6	9.5	(3.2, 23.4)	8	3.1	(1.0, 12.0)	3.02	(0.90, 10.17)
Total								
All cancers	298	241.7	(212.4, 274.2)	952	195.6	(176.8, 216.5)	**1.24**	**(1.05, 1.45)**
Lung	59	39.8	(29.9, 52.6)	87	12.7	(9.5, 18.3)	**3.12**	**(2.14, 4.57)**
Breast	52	49.3	(35.5, 66.8)	119	33.2	(25.5, 43.4)	1.48	(1.00, 2.20)
Prostate	36	24.3	(16.9, 34.8)	152	24.9	(20.5, 31.3)	0.98	(0.67, 1.43)
Colorectal	20	15.3	(8.8, 25.2)	124	22.3	(16.6, 30.4)	0.68	(0.39, 1.19)

Source: New Zealand Cancer Registry, Ministry of Health.
Notes: Colorectal includes colon, rectum and rectosigmoid junction. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 141 – Most common cancer registrations by site, all ages, Auckland DHB, 2016 to 2020

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
Females								
All cancers	75	240.0	(186.2, 305.5)	947	189.0	(175.0, 204.0)	1.27	(0.99, 1.63)
Breast	19	62.0	(36.6, 99.6)	289	64.3	(56.4, 73.2)	0.96	(0.60, 1.56)
Lung	15	38.6	(21.4, 67.4)	67	9.6	(7.2, 13.1)	**4.02**	**(2.24, 7.22)**
Uterus	5	15.1	(4.3, 39.6)	56	11.8	(8.7, 16.0)	1.28	(0.47, 3.44)
Pancreas	4	10.5	(2.5, 32.1)	23	3.1	(1.8, 5.6)	**3.35**	**(1.06, 10.65)**
Males								
All cancers	67	223.8	(171.8, 288.0)	984	179.6	(167.0, 193.0)	1.25	(0.96, 1.61)
Prostate	13	40.1	(21.5, 71.1)	279	47.1	(41.5, 53.6)	0.85	(0.49, 1.48)
Lung	12	37.3	(18.9, 68.6)	68	10.2	(7.7, 13.7)	**3.65**	**(1.93, 6.90)**
Colorectal	6	21.5	(7.8, 49.1)	109	19.7	(15.8, 24.6)	1.09	(0.48, 2.51)
Liver	5	16.3	(5.1, 41.8)	24	4.4	(2.7, 7.2)	**3.73**	**(1.37, 10.16)**
Total								
All cancers	142	230.1	(192.3, 273.6)	1,931	183.5	(174.1, 193.4)	**1.25**	**(1.05, 1.50)**
Lung	27	37.8	(24.7, 56.7)	135	9.8	(8.1, 12.1)	**3.84**	**(2.50, 5.91)**
Breast	19	31.8	(18.8, 50.9)	291	33.1	(29.1, 37.6)	0.96	(0.59, 1.55)
Prostate	13	19.1	(10.2, 33.8)	279	22.7	(20.0, 25.9)	0.84	(0.48, 1.46)
Colorectal	10	15.9	(7.2, 31.1)	209	17.7	(15.0, 20.8)	0.90	(0.46, 1.77)

Source: New Zealand Cancer Registry, Ministry of Health.
Notes: Colorectal includes colon, rectum and rectosigmoid junction. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 142 – Most common cancer registrations by site, all ages, Waitematā DHB, 2016 to 2020

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
Females								
All cancers	103	240.3	(194.8, 293.6)	1,267	180.1	(168.0, 193.0)	**1.33**	**(1.08, 1.65)**
Breast	31	72.7	(48.7, 104.9)	371	59.0	(52.3, 66.4)	1.23	(0.84, 1.81)
Lung	18	38.0	(22.5, 61.2)	104	11.0	(8.6, 14.1)	**3.45**	**(2.06, 5.79)**
Colorectal	9	21.9	(9.5, 43.3)	149	16.8	(13.6, 20.9)	1.30	(0.64, 2.67)
Uterus	7	15.2	(5.7, 33.4)	67	9.5	(7.1, 12.8)	1.59	(0.69, 3.66)
Males								
All cancers	80	203.5	(160.7, 254.6)	1,444	190.3	(178.6, 202.7)	1.07	(0.85, 1.35)
Prostate	22	52.7	(33.0, 80.7)	426	50.7	(45.7, 56.3)	1.04	(0.68, 1.60)
Lung	10	24.4	(11.7, 45.8)	104	10.9	(8.7, 13.8)	**2.24**	**(1.16, 4.30)**
Colorectal	8	20.5	(8.7, 41.7)	156	20.4	(16.7, 24.8)	1.01	(0.48, 2.10)
Leukaemia	4	11.2	(2.8, 29.7)	49	8.2	(5.2, 12.4)	1.36	(0.45, 4.09)
Total								
All cancers	183	220.1	(188.7, 255.5)	2,711	184.4	(175.9, 193.2)	**1.19**	**(1.02, 1.39)**
Breast	31	37.5	(25.2, 53.9)	374	30.7	(27.2, 34.5)	1.22	(0.84, 1.79)
Lung	29	31.6	(21.0, 46.0)	208	10.9	(9.2, 12.9)	**2.90**	**(1.94, 4.33)**
Prostate	22	24.2	(15.2, 37.2)	426	24.2	(21.8, 26.9)	1.00	(0.65, 1.54)
Colorectal	17	20.8	(11.8, 34.2)	306	18.5	(16.1, 21.4)	1.13	(0.67, 1.88)

Source: New Zealand Cancer Registry, Ministry of Health.
Notes: Colorectal includes colon, rectum and rectosigmoid junction. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

4.4. Cancer deaths

Table 143 shows the most common types of cancer deaths in Te Taumata Hauora o Te Kahu o Taonui between 2016 and 2020. For Māori in Te Taumata Hauora o Te Kahu o Taonui, the most common causes of cancer deaths were lung, breast, pancreas and colorectal (bowel). Lung cancer was the most common cause of cancer death for Māori men and Māori women in Te Taumata Hauora o Te Kahu o Taonui. Because of the small population size of a single DHB, just one to two deaths from a particular cancer can have a large impact on the ranking of leading causes. For this reason, local cancer deaths should be interpreted together with the leading types of cancer death for Māori nationally. Nationally, the most common types of cancer death in Māori were lung, colorectal, breast and pancreas.

An average of 239 Māori each year died from cancer in Te Taumata Hauora o Te Kahu o Taonui. Māori were 1.8 times more likely than non-Māori in Te Taumata Hauora o Te Kahu o Taonui to die from any cancer, 3.4 times more likely to die from lung cancer, and 2.0 times more likely to die from pancreas cancer.

Māori in Northland DHB were 1.6 times more likely to die from cancer and 3.1 times more likely to die from lung cancer than non-Māori (Table 144). Māori in Auckland DHB were 1.8 times more likely to die from cancer than non-Māori, 3.4 times more likely to die from lung cancer and 2.0 times more likely to die from liver cancer (Table 145). Māori in Waitematā DHB were 1.8 times more likely to die from cancer, 3.4 times more likely to die from lung cancer and 2.0 times more likely to die from colorectal cancer than non-Māori (Table 146).

Table 143 – Most common cancer deaths by site, all ages, Te Taumata Hauora o Te Kahu o Taonui, 2016 to 2020

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
Females								
All cancers	130	83.9	(69.3, 100.9)	894	42.6	(39.1, 46.5)	**1.97**	**(1.61, 2.41)**
Lung	43	25.9	(18.6, 35.7)	149	6.8	(5.5, 8.3)	**3.84**	**(2.68, 5.50)**
Breast	18	12.5	(7.1, 20.9)	141	8.6	(6.9, 10.6)	1.46	(0.85, 2.50)
Pancreas	10	6.3	(2.9, 12.4)	53	2.2	(1.5, 3.3)	**2.85**	**(1.39, 5.81)**
Colorectal	7	4.5	(1.6, 10.4)	106	4.3	(3.2, 5.7)	1.05	(0.44, 2.48)
Males								
All cancers	109	79.2	(64.8, 96.2)	1,019	49.1	(45.5, 53)	**1.61**	**(1.31, 1.98)**
Lung	34	23.9	(16.4, 34.1)	166	8.1	(6.7, 9.7)	**2.96**	**(2.02, 4.34)**
Prostate	12	8.1	(4.2, 14.8)	137	4.8	(3.9, 6.0)	1.71	(0.94, 3.10)
Liver	10	7.4	(3.4, 14.5)	40	2.3	(1.6, 3.4)	**3.30**	**(1.59, 6.85)**
Colorectal	8	5.7	(2.4, 12.0)	117	5.7	(4.5, 7.3)	0.99	(0.47, 2.10)
Total								
All cancers	239	81.1	(70.8, 92.7)	1,913	45.5	(42.9, 48.2)	**1.78**	**(1.54, 2.06)**
Lung	77	25.0	(19.6, 31.6)	316	7.4	(6.5, 8.4)	**3.40**	**(2.62, 4.41)**
Breast	18	6.6	(3.8, 10.9	142	4.5	(3.6, 5.5)	1.48	(0.87, 2.52)
Pancreas	16	5.0	(2.8, 8.5)	111	2.6	(2.0, 3.3)	**1.95**	**(1.13, 3.39)**
Colorectal	15	5.1	(2.7, 8.8)	223	5.0	(4.2, 5.9)	1.02	(0.58, 1.79)

Source: Mortality dataset, Ministry of Health.
Notes: Colorectal includes colon, rectum and rectosigmoid junction. Of the five-year period of data examined, cause of death data for 2019 is provisional and 2020 is preliminary; data for other years is considered complete, but subject to regular updates. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 144 – Most common cancer deaths by site, all ages, Northland DHB, 2016 to 2020

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
Females								
All cancers	69	94.1	(71.3, 123.1)	169	52.4	(40.4, 68.9)	**1.80**	**(1.26, 2.57)**
Lung	24	29.3	(18.2, 46.6)	31	8.6	(5.1, 17.9)	**3.42**	**(1.84, 6.37)**
Breast	10	15.7	(6.9, 32.0)	27	11.2	(5.7, 22.7)	1.40	(0.57, 3.43)
Pancreas	6	7.4	(2.4, 19.8)	9	2.7	(0.7, 12.0)	2.80	(0.74, 10.60)
Colorectal	3	4.3	(0.8, 15.6)	20	4.3	(2.2, 13.1)	0.99	(0.27, 3.61)
Males								
All cancers	58	88.1	(65.8, 116.8)	223	60.6	(50.1, 75.1)	**1.45**	**(1.05, 2.02)**
Lung	20	29.7	(17.8, 48.3)	37	10.4	(6.9, 19.3)	**2.85**	**(1.58, 5.15)**
Prostate	6	8.2	(3.1, 20.6)	28	5.2	(3.2, 13.4)	1.58	(0.65, 3.86)
Liver	4	8.0	(2.0, 22.4)	5	1.9	(0.5, 10.5)	**4.20**	**(1.01, 17.5)**
Stomach	4	5.9	(1.6, 18.1)	5	2.0	(0.5, 10.7)	3.02	(0.71, 12.87)
Total								
All cancers	127	90.9	(74.7, 110.2)	392	56.3	(48.2, 66.3)	**1.62**	**(1.27, 2.05)**
Lung	43	29.5	(21.1, 41.0)	68	9.5	(6.9, 14.5)	**3.11**	**(2.03, 4.76)**
Breast	10	8.4	(3.7, 16.8)	27	5.8	(3.0, 11.5)	1.44	(0.60, 3.49)
Pancreas	9	5.9	(2.5, 12.7)	21	2.8	(1.4, 7.4)	2.10	(0.83, 5.28)
Colorectal	7	5.1	(1.9, 12.0)	50	6.8	(4.1, 12.1)	0.75	(0.30, 1.87)

Source: Mortality dataset, Ministry of Health.
Notes: Colorectal includes colon, rectum and rectosigmoid junction. Of the five-year period of data examined, cause of death data for 2019 is provisional and 2020 is preliminary; data for other years is considered complete, but subject to regular updates. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 145 – Most common cancer deaths by site, all ages, Auckland DHB, 2016 to 2020

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
Females								
All cancers	130	83.9	(69.3, 100.9)	894	42.6	(39.1, 46.5)	**1.97**	**(1.61, 2.41)**
Lung	43	25.9	(18.6, 35.7)	149	6.8	(5.5, 8.3)	**3.84**	**(2.68, 5.50)**
Breast	18	12.5	(7.1, 20.9)	141	8.6	(6.9, 10.6)	1.46	(0.85, 2.50)
Pancreas	10	6.3	(2.9, 12.4)	53	2.2	(1.5, 3.3)	**2.85**	**(1.39, 5.81)**
Colorectal	7	4.5	(1.6, 10.4)	106	4.3	(3.2, 5.7)	1.05	(0.44, 2.48)
Males								
All cancers	109	79.2	(64.8, 96.2)	1,019	49.1	(45.5, 53)	**1.61**	**(1.31, 1.98)**
Lung	34	23.9	(16.4, 34.1)	166	8.1	(6.7, 9.7)	**2.96**	**(2.02, 4.34)**
Prostate	12	8.1	(4.2, 14.8)	137	4.8	(3.9, 6.0)	1.71	(0.94, 3.10)
Liver	10	7.4	(3.4, 14.5)	40	2.3	(1.6, 3.4)	**3.30**	**(1.59, 6.85)**
Colorectal	8	5.7	(2.4, 12.0)	117	5.7	(4.5, 7.3)	0.99	(0.47, 2.10)
Total								
All cancers	239	81.1	(70.8, 92.7)	1,913	45.5	(42.9, 48.2)	**1.78**	**(1.54, 2.06)**
Lung	77	25.0	(19.6, 31.6)	316	7.4	(6.5, 8.4)	**3.40**	**(2.62, 4.41)**
Pancreas	18	6.6	(3.8, 10.9	142	4.5	(3.6, 5.5)	1.48	(0.87, 2.52)
Liver	16	5.0	(2.8, 8.5)	111	2.6	(2.0, 3.3)	**1.95**	**(1.13, 3.39)**
Breast	15	5.1	(2.7, 8.8)	223	5.0	(4.2, 5.9)	1.02	(0.58, 1.79)

Source: Mortality dataset, Ministry of Health.
Notes: Colorectal includes colon, rectum and rectosigmoid junction. Of the five-year period of data examined, cause of death data for 2019 is provisional and 2020 is preliminary; data for other years is considered complete, but subject to regular updates. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 146 – Most common cancer deaths by site, all ages, Waitematā DHB, 2016 to 2020

Sex	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
Females								
All cancers	130	83.9	(69.3, 100.9)	894	42.6	(39.1, 46.5)	**1.97**	**(1.61, 2.41)**
Lung	43	25.9	(18.6, 35.7)	149	6.8	(5.5, 8.3)	**3.84**	**(2.68, 5.50)**
Breast	18	12.5	(7.1, 20.9)	141	8.6	(6.9, 10.6)	1.46	(0.85, 2.50)
Colorectal	10	6.3	(2.9, 12.4)	53	2.2	(1.5, 3.3)	**2.85**	**(1.39, 5.81)**
Stomach	7	4.5	(1.6, 10.4)	106	4.3	(3.2, 5.7)	1.05	(0.44, 2.48)
Males								
All cancers	109	79.2	(64.8, 96.2)	1,019	49.1	(45.5, 53)	**1.61**	**(1.31, 1.98)**
Lung	34	23.9	(16.4, 34.1)	166	8.1	(6.7, 9.7)	**2.96**	**(2.02, 4.34)**
Liver	12	8.1	(4.2, 14.8)	137	4.8	(3.9, 6.0)	1.71	(0.94, 3.10)
Colorectal	10	7.4	(3.4, 14.5)	40	2.3	(1.6, 3.4)	**3.30**	**(1.59, 6.85)**
Prostate	8	5.7	(2.4, 12.0)	117	5.7	(4.5, 7.3)	0.99	(0.47, 2.10)
Total								
All cancers	239	81.1	(70.8, 92.7)	1,913	45.5	(42.9, 48.2)	**1.78**	**(1.54, 2.06)**
Lung	77	25.0	(19.6, 31.6)	316	7.4	(6.5, 8.4)	**3.40**	**(2.62, 4.41)**
Breast	18	6.6	(3.8, 10.9)	142	4.5	(3.6, 5.5)	1.48	(0.87, 2.52)
Colorectal	16	5.0	(2.8, 8.5)	111	2.6	(2.0, 3.3)	**1.95**	**(1.13, 3.39)**
Stomach	15	5.1	(2.7, 8.8)	223	5.0	(4.2, 5.9)	1.02	(0.58, 1.79)

Source: Mortality dataset, Ministry of Health.
Notes: Colorectal includes colon, rectum and rectosigmoid junction. Of the five-year period of data examined, cause of death data for 2019 is provisional and 2020 is preliminary; data for other years is considered complete, but subject to regular updates. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Oranga hinengaro
Mental health and addictions

5. Oranga hinengaro – Mental health and addictions

Mental health and substance use conditions, including anxiety and depression, alcohol use disorders, and schizophrenia, and related conditions such as traumatic brain injury, are all among the top ten contributors to overall health loss for Māori (Ministry of Health 2013). Māori are more likely to experience psychological distress and mental health and substance use conditions than non-Māori.

As was shown in Volume One, suicide was the fourth leading cause of potentially avoidable deaths for Māori between 2014 to 2018, and is a major contributor to the life expectancy gap between Māori and non-Māori non-Pacific (Walsh and Grey 2019). Māori experience poorer mental health care – they are less likely to receive pharmaceutical treatment in relation to need (Metcalfe, Beyene et al. 2018), and are more likely to be placed in seclusion (McLeod, King et al. 2017). Māori with mental health and substance use conditions also experience poorer physical health outcomes (Cunningham, Stanley et al. 2020), and experience higher levels of discrimination when accessing physical health services than non-Māori with mental health and substance use conditions (Cunningham, Imlach et al.).

Poor mental health is a consequence of many of the same drivers of other health inequities for Māori – racism, colonisation, intergenerational trauma, poverty, and cultural disconnection. The adverse effects of trauma may impact on mental, physical, social, emotional and spiritual wellbeing, and carry across generations (Krieger 2011). Violence and abuse are further downstream consequences of these causes, which contributes significantly to the higher rates of trauma for Māori. This includes physical and sexual violence, which over half of wāhine Māori experience during their lifetime (Fanslow, Robinson et al. 2010). A significantly higher proportion of Māori than non-Māori experience stress and difficulty in daily life, and experience social isolation (also considered as loneliness) and exclusion (Russell 2018). There is a strong positive relationship between individual mental wellbeing and whānau wellbeing for Māori.

Action to improve mental health cannot ignore the causes of distress in Māori lives, and just continue with more programmes to build “resilience” or provide treatment to cope with life stressors which could be removed by social policy changes. A whole-of-government approach to wellbeing to tackle social determinants and support prevention activities that impact on multiple outcomes for Māori is required (extending beyond mental health and addiction). Additional action is needed to address poverty, racism, and discrimination, and optimising the environment in the first 1,000 days. In the face of enormous harm to our communities from alcohol and other drug use, we need to act on international evidence for effective public health and legislative interventions. At the same time, work is needed to transform mental wellbeing services to meet the needs of Māori whānau.

5.1. Prevalence of mental health problems

The most reliable estimates of the prevalence of mental health problems come from the 2004 New Zealand Mental Health Survey Te Rau Hinengaro, which used a diagnostic interview tool to identify mental health conditions and addictions (Cunningham, Kvalsvig et al. 2018). This survey found that diagnosable mental disorders were present in half of Māori over their lifetime and nearly one third over the year prior to the survey (Baxter, Kingi et al. 2006). However, this is now 20 years old and out-of-date. The only recent estimates in NZ rely on self-report of doctor diagnosis (NZHS) or specialist health service contact (PRIMHD and NMDS) or medication dispensing. These sources will underestimate the prevalence of mental health conditions, as conditions which have not been diagnosed or for which specialist services or medication have not been received will not be identified (Cunningham, Kvalsvig et al. 2018). To understand the true burden of mental health needs for Māori, and assess whether the health care system is meeting these needs at each level, a new national population-based mental health prevalence survey is urgently required in NZ, designed and powered to answer key questions for Māori and using screening tools validated for Māori (Ellison-Loschmann L, Jeffreys M et al. 2024).

The NZHS uses the Kessler Psychological Distress Scale (K10) to assess survey participants' levels of psychological distress over the past month. The K10 is an internationally validated instrument for measuring psychological distress (specifically recent nervousness, restlessness, fatigue, and depression) in a population. Scores of 12 or more on the K10 are strongly correlated with having an anxiety or depressive disorder (Kessler, Barker et al. 2003), although it is increasingly recognised that it cannot be used to measure the need for mental health treatment in the population and that interpretation may vary by age group and between cultures (Blake, Farugia et al. 2023, Lehmann, Pilz et al. 2023).

Using collated data from the NZHS between 2017 and 2022, 13.9% of Māori respondents (≥15 years) in Te Taumata Hauora o Te Kahu o Taonui had a K10 score of ≥12, indicating high or very high levels of psychological distress (Table 147). This was even higher for Māori women in Te Taumata Hauora o Te Kahu o Taonui, 18.3% of whom experienced high/very high psychological distress. Māori in Te Taumata Hauora o Te Kahu o Taonui were 1.9 times more likely than non-Māori to experience high/very high psychological distress.

The prevalence of psychological distress for Māori respondents was 2.3 times higher than non-Māori in Northland DHB (Table 148), 2.1 times higher than non-Māori in Auckland DHB (Table 149) and 1.6 times higher than non-Māori in Waitematā DHB (Table 150).

Table 147 – Prevalence of high/very high psychological distress, aged 15 years and older, Te Taumata Hauora o Te Kahu o Taonui, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	18.3	(14.5, 22.6)	9.9	(8.3, 11.6)	**1.88**	**(1.47, 2.41)**
Male	9.7	(6.8, 13.3)	5.4	(4.5, 6.4)	**1.88**	**(1.29, 2.74)**
Total	13.9	(11.4, 16.6)	7.6	(6.7, 8.5)	**1.88**	**(1.54, 2.30)**

Source: New Zealand Health Survey, Ministry of Health
Notes: Psychological distress means having high or very high levels of psychological distress on the K10 scale, that is, a score of 12 or more. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 148 – Prevalence of high/very high psychological distress, aged 15 years and older, Northland DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	24.0	(16.6, 32.7)	9.0	(5.2, 14.2)	**2.64**	**(1.80, 3.87)**
Male	6.9	(3.5, 12.1)	4.1	(2.4, 6.6)	1.67	(0.95, 2.94)
Total	15.2	(10.4, 21.0)	7.0	(4.4, 10.6)	**2.29**	**(1.64, 3.19)**

Source: New Zealand Health Survey, Ministry of Health
Notes: Psychological distress means having high or very high levels of psychological distress on the K10 scale, that is, a score of 12 or more. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 149 – Prevalence of high/very high psychological distress, aged 15 years and older, Auckland DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	21.5	(14.7, 29.7)	9.5	(6.8, 12.7)	**2.01**	**(1.24, 3.24)**
Male	9.8*	(3.7, 20.0)	4.9	(3.6, 6.4)	**2.26***	**(1.03, 4.94)**
Total	14.7	(8.5, 23.2)	7.1	(5.5, 8.9)	**2.06**	**(1.39, 3.07)**

Source: New Zealand Health Survey, Ministry of Health
Notes: Psychological distress means having high or very high levels of psychological distress on the K10 scale, that is, a score of 12 or more. An asterisk (*) shows a relative standard error between 30% to 100%. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 150 – Prevalence of high/very high psychological distress, aged 15 years and older, Waitematā DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	13.8	(9.1, 19.8)	10.1	(7.7, 12.9)	1.32	(0.86, 2.04)
Male	10.6	(6.3, 16.2)	5.8	(4.5, 7.4)	**1.94***	**(1.02, 3.69)**
Total	12.2	(8.9, 16.2)	7.9	(6.6, 9.4)	**1.56**	**(1.09, 2.24)**

Source: New Zealand Health Survey, Ministry of Health
Notes: Psychological distress means having high or very high levels of psychological distress on the K10 scale, that is, a score of 12 or more. An asterisk (*) shows a relative standard error between 30% to 100%. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

The NZHS also asks participants whether they have ever been told by a doctor that they have depression or an anxiety disorder. Using collated data from the NZHS between 2017 and 2022, 16.9% of Māori respondents (≥15 years) in Te Taumata Hauora o Te Kahu o Taonui reported they had been diagnosed with depression, and 13.8% with an anxiety disorder (Table 151). This was even higher for Māori women, with 21.8% reporting a diagnosis of depression and 20.5% of an anxiety disorder. Māori were 1.2 times more likely than non-Māori to report a diagnosis of depression and 1.3 times more likely than non-Māori to report a diagnosis of anxiety disorder in Te Taumata Hauora o Te Kahu o Taonui.

The proportion of Māori diagnosed with depression and anxiety disorder was similar across all three DHBs. Māori in Waitematā DHB were 1.4 times more likely than non-Māori to have a diagnosed anxiety disorder than non-Māori (Table 154).

Table 151 – Prevalence of diagnosed mental health conditions (self-reported), aged 15 years and older, Te Taumata Hauora o Te Kahu o Taonui, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Diagnosed depression						
Female	21.8	(18.3, 25.6)	17.5	(15.6, 19.4)	**1.26**	**(1.06, 1.49)**
Male	11.9	(8.6, 16.1)	9.7	(8.1, 11.6)	1.15	(0.84, 1.56)
Total	16.9	(14.6, 19.4)	13.6	(12.4, 14.9)	**1.22**	**(1.06, 1.40)**
Diagnosed anxiety disorder						
Female	20.5	(16.0, 25.6)	14.8	(12.8, 17.1)	**1.40**	**(1.14, 1.72)**
Male	7.0	(4.2, 10.9)	7.0	(5.6, 8.6)	1.05	(0.67, 1.63)
Total	13.8	(11.3, 16.6)	10.9	(9.6, 12.3)	**1.28**	**(1.07, 1.54)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 152 – Prevalence of diagnosed mental health conditions (self-reported), aged 15 years and older, Northland DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Diagnosed depression						
Female	21.5	(16.4, 27.3)	18.5	(13.8, 24.0)	1.18	(0.90, 1.55)
Male	13.3	(6.5, 23.2)	10.3	(6.8, 14.8)	1.02	(0.57, 1.83)
Total	17.3	(13.9, 21.2)	15.6	(12.2, 19.4)	1.12	(0.84, 1.48)
Diagnosed anxiety disorder						
Female	17.1	(10.7, 25.3)	14.5	(10.6, 19.1)	1.30	(0.97, 1.75)
Male	6.0*	(2.8, 10.9)	6.7	(4.1, 10.3)	0.87*	(0.48, 1.58)
Total	11.3	(8.8, 14.3)	11.5	(8.7, 14.8)	1.14	(0.85, 1.52)

Source: New Zealand Health Survey, Ministry of Health.
Notes: An asterisk (*) shows a relative standard error between 30% to 100%. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 153 – Prevalence of diagnosed mental health conditions (self-reported), aged 15 years and older, Auckland DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Diagnosed depression						
Female	19.9	(13.4, 27.8)	16.2	(13.6, 19.0)	1.29	(0.88, 1.88)
Male	12.3*	(4.6, 24.9)	8.4	(6.2, 11.1)	1.23*	(0.56, 2.70)
Total	15.8	(10.4, 22.5)	12.1	(10.4, 14.0)	1.27	(0.93, 1.74)
Diagnosed anxiety disorder						
Female	17.7	(10.6, 27.0)	13.9	(11.1, 17.0)	1.43	(0.86, 2.38)
Male	5.7*	(2.1, 11.8)	6.2	(4.3, 8.6)	0.88*	(0.36, 2.15)
Total	11.5	(7.3, 17.1)	9.9	(8.1, 11.9)	1.24	(0.82, 1.88)

Source: New Zealand Health Survey, Ministry of Health.
Notes: An asterisk (*) shows a relative standard error between 30% to 100%. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 154 – Prevalence of diagnosed mental health conditions (self-reported), aged 15 years and older, Waitematā DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Diagnosed depression						
Female	22.9	(16.3, 30.6)	18.1	(15.2, 21.2)	1.21	(0.90, 1.64)
Male	11.7	(6.9, 18.2)	10.3	(7.9, 13.1)	1.11	(0.68, 1.83)
Total	17.1	(12.9, 21.9)	14.2	(12.3, 16.3)	1.18	(0.90, 1.53)
Diagnosed anxiety disorder						
Female	24.1	(16.2, 33.5)	15.3	(12.4, 18.7)	**1.48**	**(1.08, 2.03)**
Male	8.5*	(3.4, 17.0)	7.4	(5.4, 9.9)	1.19*	(0.55, 2.56)
Total	16.0	(11.4, 21.6)	11.3	(9.4, 13.5)	**1.39**	**(1.01, 1.92)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: An asterisk (*) shows a relative standard error between 30% to 100%. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

5.2. Use of alcohol and drugs

Hazardous drinking is a pattern of alcohol consumption that increases the risk of harmful consequences for the user or others, and it is assessed using a standard international questionnaire (Babor, Higgins-Biddle et al. 2001). Using collated data from the NZHS between 2017 to 2022, 33.9% of Māori respondents (≥15 years) in Te Taumata Hauora o Te Kahu o Taonui (40.9% of Māori men, 27.4% of Māori women) were found to have a hazardous drinking pattern during the last year (Table 155). This was 2.0 times higher than the rate of hazardous drinking among non-Māori respondents in Te Taumata Hauora o Te Kahu o Taonui (2.5 times and 1.8 times higher for Māori women and men, respectively).

The rate of hazardous drinking during the last year was 1.6 times higher for Māori compared to non-Māori in Northland DHB (Table 156), 2.1 times higher for Māori compared to non-Māori in Auckland DHB (Table 157) and Waitematā DHB (Table 158).

Table 155 – Prevalence of hazardous drinking in past 12 months, aged 15 years and older, Te Taumata Hauora o Te Kahu o Taonui, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	27.4	(23.2, 32.0)	11.2	(9.4, 13.2)	**2.45**	**(2.01, 2.99)**
Male	40.9	(35.7, 46.3)	21.8	(19.5, 24.3)	**1.77**	**(1.53, 2.04)**
Total	33.9	(30.8, 37.1)	16.5	(14.9, 18.1)	**1.99**	**(1.76, 2.26)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Hazardous drinking is a score of eight or more from the Alcohol Use Disorders Test (AUDIT) questionnaire. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 156 – Prevalence of hazardous drinking in past 12 months, aged 15 years and older, Northland DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	26.2	(20.7, 32.4)	9.7	(6.2, 14.3)	**2.47**	**(1.63, 3.75)**
Male	38.3	(29.9, 47.2)	31.3	(25.2, 37.8)	**1.27**	**(1.05, 1.53)**
Total	31.4	(27.3, 35.7)	18.3	(14.8, 22.2)	**1.60**	**(1.31, 1.95)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Hazardous drinking is a score of eight or more from the Alcohol Use Disorders Test (AUDIT) questionnaire. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 157 – Prevalence of hazardous drinking in past 12 months, aged 15 years and older, Auckland DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	31.3	(22.7, 40.9)	13.0	(10.3, 16.0)	**2.50**	**(1.76, 3.55)**
Male	42.3	(32.3, 52.7)	22.5	(18.6, 26.7)	**1.95**	**(1.44, 2.63)**
Total	36.8	(30.5, 43.6)	18.0	(15.3, 20.8)	**2.12**	**(1.65, 2.72)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Hazardous drinking is a score of eight or more from the Alcohol Use Disorders Test (AUDIT) questionnaire. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 158 – Prevalence of hazardous drinking in past 12 months, aged 15 years and older, Waitematā DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	26.7	(19.5, 35.1)	10.2	(7.7, 13.1)	**2.61**	**(1.85, 3.67)**
Male	39.3	(29.8, 49.4)	20.0	(16.7, 23.6)	**1.87**	**(1.43, 2.44)**
Total	33.0	(27.3, 39.0)	15.1	(12.8, 17.7)	**2.11**	**(1.69, 2.64)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Hazardous drinking is a score of eight or more from the Alcohol Use Disorders Test (AUDIT) questionnaire. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Heavy episodic drinking, or “binge drinking” is associated with a higher risk of experiencing alcohol-related acute harm but also developing chronic health complications. Using collated data from the NZHS between 2017 to 2022, 32.9% of Māori respondents (≥15 years) in Te Taumata Hauora o Te Kahu o Taonui were binge drinking at least monthly, and 18.0% at least weekly (Table 159). These rates were 1.6 times and 1.9 times higher than for non-Māori respondents in Te Taumata Hauora o Te Kahu o Taonui respectively.

Māori in Northland DHB were 1.6 times as likely as non-Māori to binge drink at least monthly and 1.5 times likely to binge drink at least weekly (Table 160). Māori in Auckland DHB were 1.6 times as likely as non-Māori to binge drink at least monthly and 2.3 times likely to binge drink at least weekly (Table 161). Māori in Waitematā DHB were 1.7 times as likely as non-Māori to binge drink at least monthly and at least weekly (Table 162).

Table 159 – Prevalence of heavy episodic drinking in past 12 months, aged 15 years and older, Te Taumata Hauora o Te Kahu o Taonui, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
At least weekly						
Female	12.5	(9.7, 15.7)	5.8	(4.8, 7.0)	**2.18**	**(1.63, 2.90)**
Male	23.8	(19.5, 28.5)	13.1	(11.1, 15.3)	**1.76**	**(1.39, 2.23)**
Total	18.0	(15.7, 20.5)	9.4	(8.2, 10.7)	**1.89**	**(1.57, 2.28)**
At least monthly						
Female	28.1	(23.7, 32.9)	13.6	(11.8, 15.6)	**2.05**	**(1.67, 2.52)**
Male	38.1	(31.4, 45.3)	26.3	(23.7, 29.1)	**1.41**	**(1.19, 1.68)**
Total	32.9	(29.0, 37.0)	20.0	(18.0, 22.0)	**1.62**	**(1.40, 1.88)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Heavy episodic drinking ‘at least weekly’ is defined as having six or more drinks on one occasion weekly. Heavy episodic drinking ‘at least monthly’ is defined as having six or more drinks on one occasion monthly. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 160 – Prevalence of heavy episodic drinking in past 12 months, aged 15 years and older, Northland DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
At least weekly						
Female	12.0	(8.2, 16.8)	6.7	(4.1, 10.2)	**1.76**	**(1.10, 2.84)**
Male	23.8	(17.9, 30.6)	17.8	(13.1, 23.3)	**1.41**	**(1.10, 1.80)**
Total	17.2	(13.7, 21.2)	11.1	(8.7, 13.9)	**1.51**	**(1.17, 1.93)**
At least monthly						
Female	30.1	(21.9, 39.4)	11.0	(6.5, 17.1)	**2.45**	**(1.62, 3.69)**
Male	34.0	(22.8, 46.7)	30.3	(19.8, 42.6)	**1.18**	(0.85, 1.64)
Total	31.7	(24.3, 39.9)	18.4	(14.2, 23.3)	**1.57**	**(1.20, 2.05)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Heavy episodic drinking 'at least weekly' is defined as having six or more drinks on one occasion weekly. Heavy episodic drinking 'at least monthly' is defined as having six or more drinks on one occasion monthly. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 161 – Prevalence of heavy episodic drinking in past 12 months, aged 15 years and older, Auckland DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
At least weekly						
Female	16.2	(9.0, 25.8)	6.8	(4.9, 9.2)	**2.64**	**(1.51, 4.59)**
Male	23.6	(12.2, 38.7)	11.3	(8.5, 14.6)	**2.16**	**(1.29, 3.61)**
Total	20.1	(13.9, 27.6)	9.2	(7.5, 11.1)	**2.33**	**(1.61, 3.38)**
At least monthly						
Female	28.4	(18.0, 40.7)	15.8	(12.9, 19.2)	**1.84**	**(1.24, 2.74)**
Male	40.3	(20.0, 63.4)	27.6	(23.5, 32.0)	1.45	(0.97, 2.18)
Total	34.4	(24.5, 45.4)	22.0	(19.0, 25.2)	**1.57**	**(1.15, 2.15)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Heavy episodic drinking 'at least weekly' is defined as having six or more drinks on one occasion weekly. Heavy episodic drinking 'at least monthly' is defined as having six or more drinks on one occasion monthly. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 162 – Prevalence of heavy episodic drinking in past 12 months, aged 15 years and older, Waitematā DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
At least weekly						
Female	10.2	(6.1, 15.7)	4.7	(3.6, 6.1)	**2.05**	**(1.17, 3.59)**
Male	22.4	(16.0, 29.9)	13.6	(10.8, 16.9)	**1.62**	**(1.11, 2.35)**
Total	16.6	(13.1, 20.7)	9.2	(7.4, 11.2)	**1.73**	**(1.28, 2.34)**
At least monthly						
Female	26.5	(20.0, 33.9)	12.6	(9.9, 15.8)	**2.03**	**(1.40, 2.93)**
Male	39.5	(29.4, 50.4)	24.9	(20.9, 29.3)	**1.54**	**(1.20, 1.98)**
Total	32.6	(26.4, 39.2)	18.7	(15.8, 21.9)	**1.71**	**(1.36, 2.13)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Heavy episodic drinking 'at least weekly' is defined as having six or more drinks on one occasion weekly. Heavy episodic drinking 'at least monthly' is defined as having six or more drinks on one occasion monthly. Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Less data is available on the hazardous use of other drugs. Using collated data from the NZHS between 2017 to 2022, 32.8% of Māori respondents (≥15 years) in Te Taumata Hauora o Te Kahu o Taonui reported they had used cannabis in the past 12 months, 2.4 times the rate for non-Māori (Table 163). However, these data do not tell us about harmful use.

In Northland DHB (Table 164), 31.9% of Māori reported they had used cannabis in the past 12 months – 2.4 times higher than non-Māori. In Auckland DHB (Table 165), 35.6% of Māori in reported they had used cannabis in the past 12 months – 2.6 times higher than non-Māori. In Waitematā DHB (Table 166), 30.3% of Māori in reported they had used cannabis in the past 12 months – 2.4 times higher than non-Māori.

Table 163 – Prevalence of cannabis use in past 12 months, aged 15 years and older, Te Taumata Hauora o Te Kahu o Taonui, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	27.7	(23.5, 32.2)	10.0	(8.3, 11.8)	**2.94**	**(2.39, 3.62)**
Male	38.6	(32.4, 45.1)	18.2	(15.9, 20.7)	**2.15**	**(1.81, 2.56)**
Total	32.8	(29.2, 36.6)	14.1	(12.6, 15.8)	**2.42**	**(2.10, 2.78)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 164 – Prevalence of cannabis use in past 12 months, aged 15 years and older, Northland DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	27.5	(22.0, 33.6)	8.4	(5.2, 12.7)	**2.71**	**(1.91, 3.84)**
Male	39.4	(29.4, 50.0)	18.0	(12.1, 25.3)	**2.28**	**(1.66, 3.15)**
Total	31.9	(26.9, 37.4)	11.9	(8.8, 15.5)	**2.42**	**(1.85, 3.19)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 165 – Prevalence of cannabis use in past 12 months, aged 15 years and older, Auckland DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	29.9	(19.6, 42.0)	12.6	(10.0, 15.6)	**2.97**	**(2.02, 4.36)**
Male	41.4	(28.6, 55.2)	18.5	(15.3, 22.0)	**2.37**	**(1.75, 3.21)**
Total	35.6	(27.9, 43.9)	15.8	(13.4, 18.4)	**2.55**	**(1.98, 3.29)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 166 – Prevalence of cannabis use in past 12 months, aged 15 years and older, Waitematā DHB, 2017 to 2022

	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	%	(95% CI)	%	(95% CI)		
Female	26.7	(19.6, 34.7)	8.3	(6.0, 11.0)	**3.34**	**(2.29, 4.88)**
Male	34.0	(24.4, 44.7)	17.6	(14.3, 21.2)	**1.94**	**(1.44, 2.62)**
Total	30.3	(24.5, 36.6)	13.0	(10.8, 15.5)	**2.38**	**(1.86, 3.04)**

Source: New Zealand Health Survey, Ministry of Health.
Notes: Percentages are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

5.3. Mental health and substance use-related hospitalisations

In addition to better measuring population mental health need through a prevalence survey, the health system needs to monitor and report measures which assess the full pathway of access to mental health care in NZ. This includes measuring access to diagnosis, referral and receipt of appropriate treatment and outcomes. Hospitalisations are one aspect of mental health care – most mental health care is provided in the community, as discussed later in this chapter.

Table 167 shows the hospitalisations for various mental health and substance use conditions in Te Taumata Hauora o Te Kahu o Taonui between 2020 to 2023. These data show significantly higher rates of hospitalisations for most mental health conditions for Māori in Te Taumata Hauora o Te Kahu o Taonui compared to non-Māori. Overall, Māori were 2.1 times more likely than non-Māori to be hospitalised for any type of mental or substance use disorder, 4.4 times more likely for schizophrenia, 2.0 times more likely for mood disorders, 1.9 times more likely for substance/alcohol use and 1.5 times more likely for stress-related and anxiety in Te Taumata Hauora o Te Kahu o Taonui.

Māori in Northland DHB (Table 168) were 1.7 times more likely than non-Māori to be hospitalised for any type of mental or substance use disorder, 3.0 times more likely for schizophrenia, 1.5 times more likely for mood disorders and 1.3 times more likely for substance/alcohol use.

Māori in Auckland DHB (Table 169) were 2.9 times more likely than non-Māori to be hospitalised for any type of mental or substance use disorder, 5.5 times more likely for schizophrenia, 2.7 times more likely for mood disorders, 3.0 times more likely for substance/alcohol use and 1.8 times more likely for stress-related and anxiety.

Māori in Waitematā DHB (Table 170) were 1.8 times more likely than non-Māori to be hospitalised for any type of mental or substance use disorder, 3.6 times more likely for schizophrenia, 1.5 times more likely for mood disorders, 1.7 times more likely for substance/alcohol use and 1.4 times more likely for stress-related and anxiety.

However, these data should be interpreted with caution. Diagnosis data in NZ tends to be more incomplete for mental health conditions than for other health conditions, and so mental health related hospitalisations may be underestimated (Cunningham, Kvalsvig et al. 2018).

Importantly, the hospitalisation data presented below do not tell us anything about appropriateness of care – for example, whether the level of hospital care received is sufficient/appropriate to meet Māori population needs, or whether ethnic differences in mental health hospitalisations reflect a failure to manage mental health and substance use conditions effectively for Māori in the community and primary care.

It is also important to bear in mind that the hospitalisations in Table 167 to Table 170 include emergency department (ED) stays of ≥3 hours (which may or may not progress to inpatient hospitalisation). ED stays of ≥3 hours may have a different profile (e.g. acute alcohol intoxication) to those people requiring an inpatient stay.

Table 167 – Hospitalisations for mental and substance use disorders, all ages, Te Taumata Hauora o Te Kahu o Taonui, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
All mental disorders [1]								
Female	866	882.3	(823.5, 941.1)	3,006	435.4	(419.8, 451.0)	**2.03**	**(1.88, 2.18)**
Male	993	1,021	(957.5, 1,085)	3,242	451.5	(436.0, 467.0)	**2.26**	**(2.11, 2.43)**
Total	1865	952.2	(909.0, 995.4)	6,265	444.3	(433.3, 455.3)	**2.14**	**(2.04, 2.26)**
Schizophrenia [2]								
Female	262	271.7	(238.8, 304.6)	488	66.3	(60.4, 72.2)	**4.10**	**(3.53, 4.76)**
Male	452	473.1	(429.5, 516.7)	653	103.2	(95.3, 111.1)	**4.59**	**(4.07, 5.17)**
Total	714	372.4	(345.1, 399.7)	1,142	84.9	(80.0, 89.8)	**4.39**	**(4.00, 4.82)**
Mood (affective) disorders including bipolar and depressive episode [3]								
Female	155	151.9	(128.0, 175.8)	518	73.0	(66.7, 79.3)	**2.08**	**(1.74, 2.49)**
Male	113	114.5	(93.4, 135.6)	448	61.2	(55.5, 66.9)	**1.87**	**(1.52, 2.30)**
Total	270	133.9	(117.9, 149.9)	971	67.7	(63.4, 72.0)	**1.98**	**(1.73, 2.26)**
Substance use and alcohol use [4]								
Female	246	257.1	(225.0, 289.2)	725	114.2	(105.9, 122.5)	**2.25**	**(1.95, 2.60)**
Male	295	305.0	(270.2, 339.8)	1255	184.2	(174.0, 194.4)	**1.66**	**(1.46, 1.88)**
Total	541	280.7	(257.1, 304.3)	1982	149.2	(142.6, 155.8)	**1.88**	**(1.71, 2.07)**
Stress-related and anxiety [5]								
Female	109	113.0	(91.8, 134.2)	456	73.2	(66.5, 79.9)	**1.54**	**(1.25, 1.90)**
Male	57	58.9	(43.6, 74.2)	279	44.2	(39.0, 49.4)	1.33	(1.00, 1.77)
Total	167	86.2	(73.1, 99.3)	736	58.6	(54.4, 62.8)	**1.47**	**(1.24, 1.74)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: [1] F00 – F99; [2] F20 – F29; [3] F30 – F39, F31, F32; [4] F10 – F19; [5] F40 – F48. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 168 – Hospitalisations for mental and substance use disorders, all ages, Northland DHB, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
All mental disorders [1]								
Female	315	816.9	(726.6, 907.2)	373	518.9	(466.2, 571.6)	**1.57**	**(1.36, 1.83)**
Male	374	1,015	(912.3, 1,118)	391	535.0	(481.9, 588.1)	**1.90**	**(1.65, 2.18)**
Total	689	914.8	(846.5, 983.1)	765	526.0	(488.7, 563.3)	**1.74**	**(1.57, 1.93)**
Schizophrenia [2]								
Female	104	285.9	(230.9, 340.9)	64	97.9	(73.8, 122.0)	**2.92**	**(2.14, 3.99)**
Male	197	551.4	(474.5, 628.3)	97	175.1	(140.2, 210.0)	**3.15**	**(2.47, 4.01)**
Total	301	417.9	(370.7, 465.1)	161	137.8	(116.5, 159.1)	**3.03**	**(2.50, 3.67)**
Mood (affective) disorders including bipolar and depressive episode [3]								
Female	77	194.0	(150.6, 237.4)	86	104.4	(82.4, 126.4)	**1.86**	**(1.37, 2.53)**
Male	45	116.2	(82.4, 150.0)	67	102.7	(78.1, 127.3)	1.13	(0.78, 1.65)
Total	122	154.7	(127.3, 182.1)	154	103.9	(87.5, 120.3)	**1.49**	**(1.17, 1.89)**
Substance use and alcohol use [4]								
Female	64	170.9	(129.0, 212.8)	92	151.1	(120.2, 182.0)	1.13	(0.82, 1.56)
Male	79	216.3	(168.7, 263.9)	110	157.2	(127.9, 186.5)	**1.38**	**(1.03, 1.84)**
Total	143	193.6	(161.9, 225.3)	202	153.8	(132.6, 175.0)	**1.26**	**(1.02, 1.56)**
Stress-related and anxiety [5]								
Female	43	110.3	(77.4, 143.2)	52	91.2	(66.5, 115.9)	1.21	(0.81, 1.81)
Male	20	52.4	(29.2, 75.6)	29	39.3	(25.1, 53.5)	1.34	(0.75, 2.36)
Total	63	81.3	(61.2, 101.4)	82	63.5	(49.7, 77.3)	1.28	(0.92, 1.78)

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: [1] F00 – F99; [2] F20 – F29; [3] F30 – F39, F31, F32; [4] F10 – F19; [5] F40 – F48. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 169 – Hospitalisations for mental and substance use disorders, all ages, Auckland DHB, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
All mental disorders [1]								
Female	284	1,237	(1,093, 1,381)	1151	435.7	(410.5, 460.9)	**2.84**	**(2.50, 3.23)**
Male	326	1,411	(1,258, 1,565)	1349	469.4	(444.4, 494.4)	**3.01**	**(2.67, 3.39)**
Total	613	1,326	(1,221, 1,431)	2,508	453.4	(435.7, 471.1)	**2.92**	**(2.68, 3.19)**
Schizophrenia [2]								
Female	84	367.4	(288.8, 446.0)	194	64.7	(55.6, 73.8)	**5.68**	**(4.40, 7.33)**
Male	123	530.0	(436.2, 623.8)	271	99.5	(87.7, 111.3)	**5.33**	**(4.31, 6.59)**
Total	207	448.1	(387.1, 509.1)	466	82.3	(74.8, 89.8)	**5.45**	**(4.63, 6.41)**
Mood (affective) disorders including bipolar and depressive episode [3]								
Female	35	146.6	(97.8, 195.4)	145	56.0	(46.9, 65.1)	**2.62**	**(1.81, 3.79)**
Male	32	136.1	(89.2, 183.0)	144	49.8	(41.7, 57.9)	**2.73**	**(1.87, 4.00)**
Total	69	144.5	(110.3, 178.7)	292	53.8	(47.6, 60.0)	**2.69**	**(2.07, 3.49)**
Substance use and alcohol use [4]								
Female	99	427.9	(343.5, 512.3)	304	122.3	(108.5, 136.1)	**3.50**	**(2.79, 4.39)**
Male	132	574.1	(476.3, 671.9)	607	215.2	(198.1, 232.3)	**2.67**	**(2.21, 3.22)**
Total	232	500.6	(436.1, 565.1)	912	168.7	(157.8, 179.6)	**2.97**	**(2.57, 3.43)**
Stress-related and anxiety [5]								
Female	29	137.9	(88.0, 187.8)	179	73.1	(62.4, 83.8)	**1.89**	**(1.28, 2.79)**
Male	19	86.9	(48.1, 125.7)	116	48.9	(40.0, 57.8)	**1.78**	**(1.10, 2.88)**
Total	49	112.1	(80.6, 143.6)	295	60.9	(53.9, 67.9)	**1.84**	**(1.36, 2.49)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: [1] F00 – F99; [2] F20 – F29; [3] F30 – F39, F31, F32; [4] F10 – F19; [5] F40 – F48. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 170 – Hospitalisations for mental and substance use disorders, all ages, Waitematā DHB, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Av. no. per year	Age-standardised rate per 100,000 (95% CI)		Av. no. per year	Age-standardised rate per 100,000 (95% CI)			
All mental disorders [1]								
Female	268	743.3	(654.3, 832.3)	1482	429.0	(407.2, 450.8)	**1.73**	**(1.52, 1.97)**
Male	326	1,411	(1,258, 1,565)	1349	469.4	(444.4, 494.4)	**3.01**	**(2.67, 3.39)**
Total	563	775.4	(711.3, 839.5)	2,992	431.9	(416.4, 447.4)	**1.80**	**(1.64, 1.96)**
Schizophrenia [2]								
Female	74	205.4	(158.6, 252.2)	230	64.9	(56.5, 73.3)	**3.17**	**(2.44, 4.11)**
Male	132	365.3	(303.0, 427.6)	285	95.6	(84.5, 106.7)	**3.82**	**(3.11, 4.69)**
Total	206	286.0	(246.9, 325.1)	516	80.4	(73.5, 87.3)	**3.56**	**(3.03, 4.18)**
Mood (affective) disorders including bipolar and depressive episode [3]								
Female	44	113.8	(80.1, 147.5)	286	81.4	(72.0, 90.8)	**1.40**	**(1.02, 1.92)**
Male	36	99.7	(67.0, 132.4)	237	65.1	(56.8, 73.4)	**1.53**	**(1.08, 2.18)**
Total	79	106.6	(83.1, 130.1)	525	73.6	(67.3, 79.9)	**1.45**	**(1.14, 1.83)**
Substance use and alcohol use [4]								
Female	83	237.0	(186.1, 287.9)	329	102.3	(91.2, 113.4)	**2.32**	**(1.82, 2.95)**
Male	83	232.4	(182.4, 282.4)	538	169.0	(154.7, 183.3)	**1.38**	**(1.09, 1.73)**
Total	166	234.3	(198.7, 269.9)	867	135.4	(126.4, 144.4)	**1.73**	**(1.47, 2.04)**
Stress-related and anxiety [5]								
Female	36	106.3	(71.7, 140.9)	225	71.6	(62.3, 80.9)	**1.48**	**(1.05, 2.11)**
Male	18	50.8	(27.3, 74.3)	133	42.0	(34.9, 49.1)	1.21	(0.74, 1.98)
Total	55	79.2	(58.3, 100.1)	359	56.7	(50.8, 62.6)	**1.40**	**(1.05, 1.85)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: [1] F00 – F99; [2] F20 – F29; [3] F30 – F39, F31, F32; [4] F10 – F19; [5] F40 – F48. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Between 2020 and 2023, Māori in Te Taumata Hauora o Te Kahu o Taonui were 1.7 times more likely than non-Māori to be hospitalised for a traumatic brain injury (Table 171). An average of 463 Māori per year were hospitalised for traumatic brain injury in Te Taumata Hauora o Te Kahu o Taonui.

Māori in Auckland DHB were 2.1 times more likely than non-Māori to be hospitalised for a traumatic brain injury (Table 173).

Table 171 – Hospitalisations for traumatic brain injury, all ages, Te Taumata Hauora o Te Kahu o Taonui, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	203	209.9	(181.0, 238.8)	778	109.4	(101.7, 117.1)	**1.92**	**(1.42, 2.42)**
Male	259	267.3	(234.7, 299.9)	1,079	165.8	(155.9, 175.7)	**1.61**	**(1.11, 2.11)**
Total	463	239.5	(217.7, 261.3)	1,860	137.9	(131.6, 144.2)	**1.74**	**(1.34, 2.14)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 code: S06. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 172 – Hospitalisations for traumatic brain injury, all ages, Northland DHB, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	88	228.8	(180.9, 276.7)	95	126.5	(101.1, 151.9)	**1.81**	**(1.01, 2.61)**
Male	103	279.9	(225.9, 333.9)	128	189.9	(157.0, 222.8)	1.47	(0.77, 2.17)
Total	191	254.9	(218.7, 291.1)	224	159.2	(138.3, 180.1)	1.60	(1.00, 2.20)

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 code: S06. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 173 – Hospitalisations for traumatic brain injury, all ages, Auckland DHB, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	53	251.1	(183.5, 318.7)	328	122.1	(108.9, 135.3)	**2.06**	**(1.26, 2.86)**
Male	90	409.7	(325.0, 494.4)	490	199.9	(182.2, 217.6)	**2.05**	**(1.35, 2.75)**
Total	144	332.6	(278.3, 386.9)	819	161.6	(150.5, 172.7)	**2.06**	**(1.46, 2.66)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 code: S06. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 174 – Hospitalisations for traumatic brain injury, all ages, Waitematā DHB, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	62	173.1	(130.1, 216.1)	355	99.1	(88.8, 109.4)	**1.75**	**(1.05, 2.45)**
Male	66	181.2	(137.4, 225.0)	461	138.9	(126.2, 151.6)	1.30	(0.60, 2.00)
Total	128	177.8	(147.0, 208.6)	817	119.1	(110.9, 127.3)	1.49	(0.89, 2.09)

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 code: S06. These data include ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Between 2020 and 2023, Māori in Te Taumata Hauora o Te Kahu o Taonui (aged 15 to 44 years) were 1.5 times more likely than non-Māori to be hospitalised for intentional self-harm (Table 175). An average of 454 Māori per year were hospitalised for intentional self-harm in Te Taumata Hauora o Te Kahu o Taonui (296 women and 159 men).

Māori in Auckland DHB (Table 177) were 2.2 times more likely than non-Māori to be hospitalised for intentional self-harm and Māori in Waitematā DHB (Table 178) were 1.4 times more likely than non-Māori to be hospitalised for intentional self-harm.

Table 175 – Hospitalisations for intentional self-harm, aged 15 to 44 years, Te Taumata Hauora o Te Kahu o Taonui, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	296	726.9	(644.0, 809.8)	967	528.5	(495.2, 561.8)	**1.38**	**(1.21, 1.57)**
Male	159	383.3	(323.7, 442.9)	427	205.5	(186.0, 225.0)	**1.86**	**(1.55, 2.24)**
Total	454	551.0	(500.3, 601.7)	1,393	363.9	(344.8, 383.0)	**1.51**	**(1.36, 1.68)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: S00-T98 and X60-X84, Y870. These data include readmissions within two days and ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 176 – Hospitalisations for intentional self-harm, aged 15 to 44 years, Northland DHB, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	84	570.2	(448.5, 691.9)	69	496.5	(379.1, 613.9)	1.15	(0.84, 1.58)
Male	43	283.4	(199.0, 367.8)	32	189.2	(123.6, 254.8)	1.50	(0.95, 2.36)
Total	128	423.7	(350.2, 497.2)	101	332.9	(267.9, 397.9)	1.27	(0.98, 1.65)

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: S00-T98 and X60-X84, Y870. These data include readmissions within two days and ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 177 – Hospitalisations for intentional self-harm, aged 15 to 44 years, Auckland DHB, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	112	1,121	(913.7, 1,329)	426	555.5	(502.8, 608.2)	**2.02**	**(1.64, 2.48)**
Male	54	546.2	(401.0, 691.4)	193	222.8	(191.4, 254.2)	**2.45**	**(1.81, 3.31)**
Total	166	830.0	(703.9, 956.1)	619	386.3	(355.9, 416.7)	**2.15**	**(1.81, 2.55)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: S00-T98 and X60-X84, Y870. These data include readmissions within two days and ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 178 – Hospitalisations for intentional self-harm, aged 15 to 44 years, Waitematā DHB, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	99	632.7	(508.3, 757.1)	472	515.0	(468.5, 561.5)	1.23	(0.99, 1.52)
Male	61	382.0	(286.1, 477.9)	201	196.8	(169.6, 224.0)	**1.94**	**(1.46, 2.58)**
Total	160	503.8	(425.8, 581.8)	673	353.0	(326.3, 379.7)	**1.43**	**(1.20, 1.70)**

Source: NMDS, Te Whatu Ora.
Notes: ICD-10 codes: S00-T98 and X60-X84, Y870. These data include readmissions within two days and ED stays ≥3 hours. Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

5.4. Access to mental health care

The majority of care for mental health and substance use conditions is provided in primary and community care, through specialist services for more severe conditions (provided by health sector and non-government providers), and through primary care services for mild to moderate conditions. Ideally, data analysis is needed that allows us to understand what is happening for Māori in terms of mental health care across the continuum of care. Further analysis of data provided by specialist services into the PRIMHD data collection and of data provided by newly funded services for mild to moderate mental health conditions under the Access and Choice initiative (which included funding for community based Kaupapa Māori providers) will provide a fuller picture of service provision.

In terms of access to specialist outpatient services for mental health, Table 179 shows the number of young people (<25 years) referred to specialist mental health services who are seen within three weeks of referral. In 2022, this data shows that 74.3% of Māori in Te Taumata Hauora o Te Kahu o Taonui who were referred to mental health services were seen within three weeks, and Māori were slightly more likely (1.1 times) than non-Māori referrals to be seen within three weeks. This was similar in Waitematā DHB (Table 182) with Māori young people being 1.1 times as likely as non-Māori to be seen within three weeks of referral.

However, these data do not tell us anything about whether Māori who needed a referral actually received one. It is also not possible to assess from the data below whether Māori were more likely to be referred (and seen) for mental health care than non-Māori in Te Taumata Hauora o Te Kahu o Taonui – which would be appropriate given all other evidence of higher Māori mental health need.

Table 179 – People under 25 years old seen by mental health services within three weeks of referral, Te Taumata Hauora o Te Kahu o Taonui, 2018 to 2022

Year	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	Number	%	Number	%		
2018	1,212	80.9	3,502	74.2	**1.09**	**(1.06, 1.12)**
2019	1,048	73.0	3,304	72.3	1.01	(0.97, 1.05)
2020	973	76.3	3,047	72.5	**1.05**	**(1.01, 1.09)**
2021	1,148	74.8	3,150	66.2	**1.13**	**(1.09, 1.17)**
2022	920	74.3	2,760	70.8	**1.05**	**(1.01, 1.09)**

Source: Health Quality & Safety Commission: Health System Indicators Framework sourced from PRIMHD.
Notes: Numerator: number of new clients aged under 25 seen within 3 weeks. Denominator: total new clients aged under 25.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 180 – People under 25 years old seen by mental health services within three weeks of referral, Northland DHB, 2018 to 2022

Year	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	Number	%	Number	%		
2018	331	79.2	316	75.6	1.05	(0.97, 1.13)
2019	284	71.5	290	73.8	0.97	(0.89, 1.06)
2020	259	79.2	249	71.6	**1.11**	**(1.02, 1.21)**
2021	325	78.7	249	67.8	**1.16**	**(1.06, 1.26)**
2022	207	71.9	234	71.1	1.01	(0.91, 1.12)

Source: Health Quality & Safety Commission: Health System Indicators Framework sourced from PRIMHD.
Notes: Numerator: number of new clients aged under 25 seen within 3 weeks. Denominator: total new clients aged under 25.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 181 – People under 25 years old seen by mental health services within three weeks of referral, Auckland DHB, 2018 to 2022

Year	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	Number	%	Number	%		
2018	393	78.6	1,463	70.4	**1.12**	**(1.06, 1.18)**
2019	339	71.7	1,344	70.8	1.01	(0.95, 1.08)
2020	340	73.1	1,392	73.8	0.99	(0.93, 1.05)
2021	421	84.7	1,500	78.8	**1.08**	**(1.03, 1.12)**
2022	424	85.8	1,489	83.7	1.02	(0.98, 1.07)

Source: Health Quality & Safety Commission: Health System Indicators Framework sourced from PRIMHD.
Notes: Numerator: number of new clients aged under 25 seen within 3 weeks. Denominator: total new clients aged under 25.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 182 – People under 25 years old seen by mental health services within three weeks of referral, Waitematā DHB, 2018 to 2022

Year	Māori		non-Māori		Māori/non-Māori rate ratio (95% CI)	
	Number	%	Number	%		
2018	488	84.1	1,723	77.4	**1.09**	**(1.04, 1.13)**
2019	425	75.2	1,670	73.3	1.03	(0.97, 1.08)
2020	374	77.3	1,406	71.5	**1.08**	**(1.02, 1.14)**
2021	402	64.4	1,401	56.3	**1.14**	**(1.07, 1.22)**
2022	289	63.4	1,037	57.9	**1.09**	**(1.01, 1.19)**

Source: Health Quality & Safety Commission: Health System Indicators Framework sourced from PRIMHD.
Notes: Numerator: number of new clients aged under 25 seen within 3 weeks. Denominator: total new clients aged under 25.
Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

One measure of provision of mental health care which includes primary care is the prescription of medications. Selective serotonin reuptake inhibitors (SSRIs) are the most commonly prescribed antidepressant medication. Table 183 shows the number of people (≥15 years) in Te Taumata Hauora o Te Kahu o Taonui who regularly received an SSRI or other reuptake inhibitor. In 2022, 5,398 Māori in Te Taumata Hauora o Te Kahu o Taonui (1,823 men and 3,575 women) were regularly receiving one of these antidepressant medications – which equated to 4.2% of the Māori population aged 15 years and over. Despite all the other evidence suggesting a higher prevalence of depression among Māori in Te Taumata Hauora o Te Kahu o Taonui than non-Māori, Māori were only 0.7 times as likely as non-Māori to receive regular medication.

Receipt of regular anti-depressant medication was lower for Māori across all DHBs – 0.5 times in Northland DHB (Table 184), 0.9 times in Auckland DHB (Table 185) and 0.8 times in Waitematā DHB (Table 186).

Medication is not the only treatment for depression, but this large ethnic difference in the rate of receiving antidepressant medication raises questions about access to and receipt of appropriate depression treatment for Māori in Te Taumata Hauora o Te Kahu o Taonui. As noted above, further information about need-for and receipt-of the range of services for mental health care is needed to provide a more complete picture of the way in which need-for-care is being met for Māori in Te Taumata Hauora o Te Kahu o Taonui.

Table 183 – People regularly dispensed an SSRI or other reuptake inhibitor, aged 15 years and older, Te Taumata Hauora o Te Kahu o Taonui, 2022

	Māori				non-Māori		Māori/non-Māori rate ratio (95% CI)	
	Number	%	Age-standardised rate per 100,000 (95% CI)		Age-standardised rate per 100,000 (95% CI)			
Female	3,575	5.4	5,108	(4,932, 5,289)	7,376	(7,289, 7,464)	**0.69**	**(0.67, 0.72)**
Male	1,823	2.9	2,728	(2,598, 2,863)	3,653	(3,593, 3,712)	**0.75**	**(0.71, 0.79)**
Total	5,398	4.2	3,930	(3,820, 4,042)	5,518	(5,466, 5,571)	**0.71**	**(0.69, 0.73)**

Source: Pharmaceutical Collection, PHO enrolments.
Notes: SSRIs and other reuptake inhibiters are typically used as anti-depressant medications. Percentages are crude. Rates are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 184 – People regularly dispensed an SSRI or other reuptake inhibitor, aged 15 years and older, Northland DHB, 2022

	Māori				non-Māori		Māori/non-Māori rate ratio (95% CI)	
	Number	%	Age-standardised rate per 100,000 (95% CI)		Age-standardised rate per 100,000 (95% CI)			
Female	1,143	4.3	3,802	(3,562, 4,054)	9,110	(8,760, 9,466)	**0.42**	**(0.39, 0.45)**
Male	591	2.4	2,116	(1,934, 2,310)	4,280	(4,062, 4,505)	**0.49**	**(0.45, 0.55)**
Total	1,734	3.4	2,980	(2,828, 3,138)	6,626	(6,424, 6,831)	**0.45**	**(0.42, 0.48)**

Source: Pharmaceutical Collection, PHO enrolments.
Notes: SSRIs and other reuptake inhibiters are typically used as anti-depressant medications. Percentages are crude. Rates are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 185 – People regularly dispensed an SSRI or other reuptake inhibitor, aged 15 years and older, Auckland DHB, 2022

	Māori				non-Māori		Māori/non-Māori rate ratio (95% CI)	
	Number	%	Age-standardised rate per 100,000 (95% CI)		Age-standardised rate per 100,000 (95% CI)			
Female	968	6.2	5,864	(5,482, 6,266)	6,614	(6,485, 6,744)	**0.89**	**(0.83, 0.95)**
Male	505	3.3	3,211	(2,924, 3,517)	3,473	(3,384, 3,564)	0.92	(0.84, 1.02)
Total	1,473	4.7	4,547	(4,306, 4,797)	5,043	(4,965, 5,122)	**0.90**	**(0.85, 0.95)**

Source: Pharmaceutical Collection, PHO enrolments.
Notes: SSRIs and other reuptake inhibiters are typically used as anti-depressant medications. Percentages are crude. Rates are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 186 – People regularly dispensed an SSRI or other reuptake inhibitor, aged 15 years and older, Waitematā DHB, 2022

	Māori				non-Māori		Māori/non-Māori rate ratio (95% CI)	
	Number	%	Age-standardised rate per 100,000 (95% CI)		Age-standardised rate per 100,000 (95% CI)			
Female	1,464	6.2	5,974	(5,661, 6,301)	7,699	(7,572, 7,827)	**0.78**	**(0.73, 0.82)**
Male	727	3.1	3,064	(2,838, 3,302)	3,682	(3,597, 3,769)	**0.83**	**(0.77, 0.90)**
Total	2,191	4.7	4,520	(4,326, 4,720)	5,708	(5,631, 5,785)	**0.79**	**(0.76, 0.83)**

Source: Pharmaceutical Collection, PHO enrolments.
Notes: SSRIs and other reuptake inhibiters are typically used as anti-depressant medications. Percentages are crude. Rates are age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Ko ētahi atu tohu pūnaha
Other system indicators

6. Ko ētahi atu tohu pūnaha – Other system indicators

6.1. Access to outpatient care

In terms of access to specialist outpatient appointments, Māori in Te Taumata Hauora o Te Kahu o Taonui are much more likely to have a missed first specialist appointment than non-Māori (Table 187). In 2023, 13.5% of first specialist medical appointments and 16.9% of first surgical appointments for Māori were missed. This contrasts to only 5.4% of medical and 6.6% of surgical first specialist appointments missed for non-Māori in Te Taumata Hauora o Te Kahu o Taonui. This adds further delays for Māori in accessing the operations and medical treatment they require and contributes to poorer health outcomes.

Table 187 – Missed First Specialist Appointments by service type, Te Taumata Hauora o Te Kahu o Taonui, 2018 to 2023

Service Type and Year	Māori			non-Māori			Māori/non-Māori rate ratio (CI)	
	Number	%	(CI)	Number	%	(CI)		
Medical								
2018	1359	16.7	(15.9, 17.5)	4269	7.0	(6.8, 7.1)	**2.39**	**(2.19, 2.59)**
2019	1475	17.7	(16.9, 18.6)	4285	6.9	(6.7, 6.5)	**2.57**	**(2.36, 2.79)**
2020	1400	15.7	(14.9, 16.5)	3956	6.3	(6.2, 5.9)	**2.49**	**(2.28, 2.72)**
2021	1313	13.9	(13.2, 14.6)	3903	5.8	(5.6, 6.0)	**2.40**	**(2.18, 2.63)**
2022	1266	13.5	(12.8, 14.2)	3605	5.8	(5.6, 5.6)	**2.33**	**(2.12, 2.56)**
2023	1392	13.5	(12.8, 14.1)	3575	5.4	(5.3, 8.6)	**2.50**	**(2.27, 2.75)**
Surgical								
2018	2067	19.7	(19.0, 20.5)	5982	8.4	(8.2, 8.6)	**2.35**	**(2.17, 2.53)**
2019	2053	19.5	(18.7, 20.2)	5793	8.1	(8.0, 8.4)	**2.41**	**(2.23, 2.60)**
2020	1681	16.9	(16.1, 17.6)	4316	6.5	(6.3, 6.7)	**2.60**	**(2.39, 2.83)**
2021	1879	17.3	(16.6, 18.0)	4407	6.3	(6.1, 6.5)	**2.75**	**(2.52, 3.00)**
2022	1834	17.0	(16.3, 17.7)	4302	6.7	(6.5, 6.9)	**2.54**	**(2.33, 2.76)**
2023	2179	16.9	(16.3, 17.6)	4802	6.6	(6.4, 6.8)	**2.56**	**(2.35, 2.79)**

Source: National Non-Admitted Patient Collection (NNPAC), Whakamaua Dashboard.
Notes: Denominator: all First Specialist Appointments. First Specialist Appointments are a patient's first visit to a specialist for advice about a health condition after referral from a GP of other health professional. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Missing a first specialist appointment was significantly more common for Māori compared to non-Māori, in every age group (Table 188). Missing a first specialist appointment was highest for Māori aged 20-49 years, indicating that more needs to be done to identify and remove barriers for accessing appointments for Māori in this age group.

In Te Taumata Hauora o Te Kahu o Taonui in 2023, 19.4% of Māori aged 20 to 29 years, 21.6% of Māori aged 30 to 39 years, and 19.6% of Māori aged 40 to 49 years missed their first specialist appointment – 1.7-2.8 times higher than non-Māori.

Table 188 – Missed First Specialist Appointments by age group, Te Taumata Hauora o Te Kahu o Taonui, 2023

Age Group	Māori			non-Māori			Māori/non-Māori rate ratio (CI)	
	Number	%	(CI)	Number	%	(CI)		
0 to 9 years	571	15.0	(13.9, 16.2)	731	5.5	(5.1, 5.9)	**2.73**	**(2.48, 2.99)**
10 to 19 years	386	17.2	(15.7, 18.9)	632	7.6	(7.1, 8.2)	**2.26**	**(2.09, 2.45)**
20 to 29 years	486	19.4	(17.9, 21.0)	1,181	11.2	(10.7, 11.9)	**1.73**	**(1.62, 1.85)**
30 to 39 years	635	21.6	(20.1, 23.1)	1,358	7.8	(7.4, 8.2)	**2.77**	**(2.56, 2.99)**
40 to 49 years	525	19.6	(18.1, 21.1)	1,131	7.7	(7.3, 8.2)	**2.55**	**(2.35, 2.75)**
50 to 59 years	472	13.4	(12.4, 14.6)	1,117	6.0	(5.7, 6.4)	**2.23**	**(2.04, 2.45)**
60 to 69 years	349	10.1	(9.1, 11.1)	1,055	4.6	(4.4, 4.9)	**2.20**	**(1.97, 2.44)**
70 to 79 years	154	8.1	(7.0, 9.5)	749	3.4	(3.2, 3.6)	**2.38**	**(2.11, 2.70)**
80 years and older	32	6.1	(4.4, 8.5)	519	3.7	(3.4, 4.0)	**1.65**	**(1.45, 1.87)**

Source: National Non-Admitted Patient Collection (NNPAC), Whakamaua Dashboard.
Notes: Denominator: all First Specialist Appointments. First Specialist Appointments are a patient's first visit to a specialist for advice about a health condition after referral from a GP of other health professional. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

6.2. Hospitalisations: all-cause and potentially avoidable

In terms of hospitalisations for any cause, Māori in Te Taumata Hauora o Te Kahu o Taonui have higher rates of hospitalisation than non-Māori. Between 2020 and 2023, there were an average of 46,180 Māori hospital admissions each year, 1.3 times the rate of non-Māori in Te Taumata Hauora o Te Kahu o Taonui (1.3 times for Māori women and 1.2 times for Māori men compared to non-Māori women and men, respectively) (Table 189).

A similar pattern is seen across all the DHBs, with Māori in Northland DHB (Table 190) and Waitematā DHB (Table 192) being 1.2 times and Māori in Auckland DHB (Table 191) being 1.5 times more likely to be hospitalised for any cause compared to non-Māori.

Table 189 – Hospitalisations for all-causes, all ages, Te Taumata Hauora o Te Kahu o Taonui, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	26,016	26,118	(25,800, 26,435)	139,022	20,140	(20,035, 20,246)	**1.30**	**(1.28, 1.31)**
Male	20,109	20,465	(20,182, 20,748)	117,237	16,515	(16,420, 16,609)	**1.24**	**(1.22, 1.26)**
Total	46,180	23,294	(23,082, 23,507)	256,478	18,344	(18,273, 18,415)	**1.27**	**(1.26, 1.28)**

Source: NMDS, Te Whatu Ora.
Notes: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 190 – Hospitalisations for all-causes, all ages, Northland DHB, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	11,074	27,097	(26,593, 27,602)	17,981	22,274	(21,949, 22,600)	**1.22**	**(1.19, 1.24)**
Male	8,620	20,894	(20,453, 21,335)	17,708	16,966	(16,716, 17,216)	**1.23**	**(1.20, 1.26)**
Total	19,722	23,956	(23,621, 24,290)	35,756	19,482	(19,280, 19,684)	**1.23**	**(1.21, 1.25)**

Source: NMDS, Te Whatu Ora.
Notes: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 191 – Hospitalisations for all-causes, all ages, Auckland DHB, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	6,197	29,147	(28,421, 29,872)	48,456	19,788	(19,612, 19,964)	**1.47**	**(1.44, 1.51)**
Male	4,848	23,707	(23,039, 24,374)	39,462	16,702	(16,537, 16,867)	**1.42**	**(1.38, 1.46)**
Total	11,059	26,445	(25,953, 26,938)	88,003	18,250	(18,130, 18,371)	**1.45**	**(1.42, 1.47)**

Source: NMDS, Te Whatu Ora.
Notes: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 192 – Hospitalisations for all-causes, all ages, Waitematā DHB, July 2020 to June 2023

	Māori			Non-Māori			Māori/non-Māori rate ratio (95% CI)	
	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	8,745	23,929	(23,427, 24,430)	72,586	20,369	(20,221, 20,517)	**1.17**	**(1.15, 1.20)**
Male	6,640	18,406	(17,963, 18,848)	60,066	16,396	(16,265, 16,527)	**1.12**	**(1.10, 1.15)**
Total	15,399	21,166	(20,832, 21,501)	132,718	18,426	(18,327, 18,525)	**1.15**	**(1.13, 1.17)**

Source: NMDS, Te Whatu Ora.
Notes: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Potentially avoidable hospitalisations are those admissions which could have been prevented by primary care, public health, or social policy interventions. Among 15 to 24 year olds, Māori were more likely than non-Māori to be hospitalised for a potentially avoidable cause (see Appendix for the list of conditions considered potentially avoidable). Between July 2022 to June 2023, 1,656 Māori aged 15 to 24 years in Te Taumata Hauora o Te Kahu o Taonui had a potentially avoidable hospital admission – 1.4 times that of non-Māori (Table 193).

Māori aged 15 to 24 years living in Northland DHB (Table 194) were 1.2 times, Auckland DHB (Table 195) were 1.6 times and Waitematā DHB (Table 196) were 1.3 times as likely to have a potentially avoidable hospitalisation than non-Māori.

Table 193 – Potentially avoidable hospitalisations, aged 15 to 24 years, Te Taumata Hauora o Te Kahu o Taonui, July 2022 to June 2023

	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
Total	1,656	5,115	(4,869, 5,362)	4,519	3,637	(3,531, 3,744)	**1.41**	**(1.33, 1.49)**

Source: NMDS, Ministry of Health.
Note: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 194 – Potentially avoidable hospitalisations, aged 15 to 24 years, Northland DHB, July 2022 to June 2023

	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
Total	601	5,187	(4,772, 5,601)	413	4,380	(3,958, 4,803)	**1.18**	**(1.05, 1.34)**

Source: NMDS, Ministry of Health.
Note: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 195 – Potentially avoidable hospitalisations, aged 15 to 24 years, Auckland DHB, July 2022 to June 2023

	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
Total	454	5,824	(5,288, 6,360)	1,922	3,674	(3,510, 3,838)	**1.59**	**(1.44, 1.75)**

Source: NMDS, Ministry of Health.
Note: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 196 – Potentially avoidable hospitalisations, aged 15 to 24 years, Waitematā DHB, July 2022 to June 2023

	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
Total	601	4,662	(4,289, 5,035)	2,184	3,500	(3,353, 3,646)	**1.33**	**(1.22, 1.46)**

Source: NMDS, Ministry of Health.
Note: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Ambulatory sensitive hospitalisations are those admissions which could have been potentially avoided through interventions in primary care. In adults aged 45 to 64 years, between July 2022 to June 2023 in Te Taumata Hauora o Te Kahu o Taonui, 3,091 Māori had an ambulatory sensitive admission, 2.4 times higher than the rate for non-Māori in Te Taumata Hauora o Te Kahu o Taonui (Table 197).

Māori in Northland DHB (Table 198) were 2.4 times, Auckland DHB (Table 199) were 2.7 times and Waitematā DHB (Table 200) were 2.2 times as likely to have an ambulatory sensitive admission as non-Māori.

Table 197 – Ambulatory sensitive hospitalisations, aged 45 to 64 years, Te Taumata Hauora o Te Kahu o Taonui, July 2022 to June 2023

	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
Total	3,091	8,071	(7,786, 8,355)	10,447	3,364	(3,300, 3,429)	**2.40**	**(2.31, 2.49)**

Source: NMDS, Ministry of Health.
Note: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 198 – Ambulatory sensitive hospitalisations, aged 45 to 64 years, Northland DHB, July 2022 to June 2023

	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
Total	1,361	8,078	(7,648, 8,507)	1,473	3,369	(3,197, 3,541)	**2.40**	**(2.23, 2.58)**

Source: NMDS, Ministry of Health.
Note: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 199 – Ambulatory sensitive hospitalisations, aged 45 to 64 years, Auckland DHB, July 2022 to June 2023

	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
Total	754	8,851	(8,219, 9,483)	3,626	3,236	(3,130, 3,341)	**2.74**	**(2.54, 2.95)**

Source: NMDS, Ministry of Health.
Note: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Table 200 – Ambulatory sensitive hospitalisations, 45 to 64 years, Waitematā DHB, July 2022 to June 2023

	Māori			non-Māori			Māori/non-Māori rate ratio (95% CI)	
	Number	Age-standardised rate per 100,000 (95% CI)		Number	Age-standardised rate per 100,000 (95% CI)			
Total	976	7,522	(7,051, 7,994)	5,348	3,441	(3,349, 3,533)	**2.19**	**(2.05, 2.33)**

Source: NMDS, Ministry of Health.
Note: Age-standardised to the 2001 Māori Census Population. Ratios in **bold** show a statistically significant difference between Māori and non-Māori.

Ngā āpitihanga
Appendices

Appendix 1 – 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[10] (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)

[10] The example tables in this technical appendix are all taken from the Te Moana a Toi IMPB profile Volume One 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)	
	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)**

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 ischemic 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)	
	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)**

2. Key methods and quality limitations of key data sources

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

Methods

Numerators

Data in this second 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 year range with complete, verified data has been chosen. Different data sources go through different processes of verification and for some data (e.g. deaths) there is a longer delay to make sure that all deaths have been accurately recorded with the correct cause. For events that are not common (such as deaths or hospitalisations for specific causes), three to five-years' worth of data have been analysed together, to provide a better chance of detecting statistically significant differences between groups. Census data were taken from the 2018 Census, which is the most recent Census with data released for use.

Denominators

StatsNZ mid-year (at 30 June) estimated resident population was used as denominator data in the calculation of population rates for deaths, hospitalisations, immunisation, screening, and most health service utilisation. For smoking, the denominator is the people for whom there is a response from the census dataset for the question asked ('people stated'). In the NZHS data, the denominator is the number of respondents from whom data is available for the particular question.

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 wherever possible, prioritised ethnicity classification was used when people identified with more than one ethnic group.

Comparison group

Indicators compare Māori with non-Māori. Non-Māori includes all people who do not identify as Māori and represent a comparative or reference group. This is a common approach to measuring Māori health equity. Paine et al. (Paine, Cormack et al. 2020) note that, “the use of Māori/non-Māori analyses acknowledged the fundamental nature of our relationship with the Crown affirmed in Te Tiriti o Waitangi“ (p193). Additionally, a Māori/non-Māori analysis is often the more straightforward practically in the context of data quality and statistical power limitations and provides a non-overlapping comparison group. The limitations of this approach relate to difficulty in conceptualising non-Māori as a group which includes a number of different ethnic groups. Also, Māori/non-Māori comparisons will often underestimate inequities between Māori and NZ European in part because of the inclusion of Pacific in the non-Māori group (who more often have similar health and socioeconomic experiences to Māori).

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.

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.

Geographical alignment between IMPB and DHB areas

This report has endeavoured 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.

Since Volume One of the IMPB profiles was published in late 2023, we have refined the method for estimating IMPB population estimates. Volume Two of the IMPB profiles uses more recent population estimates for IMPB health areas (undertaken by Manatū Hauora in February 2024). There will be some differences in the new IMPB population estimates from those presented in Volume One of the profiles, related to the different allocation of SA2 geographies (including how "emerging" IMPB health areas are assigned), different population download dates, and more recent year of source data for SA2 identification.

For most measures, 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.

For data on missed First Specialist Appointments and diabetes complications, 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)[11]. In some cases, for example at the Nelson-Marlborough/Te Tauraki border, the IMPB health planning area did not align completely with SA2 areas.

[11] 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&10 – the most socio-economically challenged areas.

Additionally, births data for Te Taura Ora o Waiariki and Tūwharetoa IMPBs is presented using both approaches – the DHB level data (from the Ministry of Health source which is more accurate for Māori, but unable to be reported by smaller areas) and Territorial Authority level data for Rotorua and Taupo separately (using the births registration database, which undercounts Māori babies more than the Ministry of Health data).

Data sources

Births, maternity care, breastfeeding and newborn primary care enrolment

Data on births, maternity care, breastfeeding and newborn primary care enrolment come from the National Maternity Collection. This is collated by the Ministry of Health from data supplied by districts, Lead Maternity Carers and other claimants from the Primary Maternity Services Notice. In addition, the Well Child Tamariki Ora (WCTO) programme collects data on the delivery of universal health services to children under five years old and their whānau in New Zealand, including from WCTO service providers, who enter data into their information systems. The quality of these data were poor and inconsistent, and not considered safe or reliable to present for these IMPB profiles.

Additionally, for Te Taura Ora o Waiariki and Tūwharetoa IMPBs the number of births is also presented from the birth registration data collected by the Department of Internal Affairs, under the provisions of the Births, Deaths, Marriages, and Relationships Registration Act 1995. These data were not presented for other IMPBs as it has been found to undercount Māori births more than the National Maternity Collection (Te Whatu Ora - Health New Zealand 2024). It was however the only database which could be disaggregated to geographical areas smaller than a DHB, so it is presented alongside DHB level data for Te Taura Ora o Waiariki and Tūwharetoa.

Immunisation

Immunisation data comes from the National Immunisation Register (NIR), which collected immunisation details of New Zealand children born since 2005. It was replaced by the Aotearoa Immunisation Register in December 2023. The NIR was updated weekly, but the reliability of the data depended on timely and accurate data entry from providers. The NIR might have undercounted immunisation coverage for Māori children due to factors like lower primary care enrolment rates or higher use of outreach, meaning Māori children's immunisations were less likely to be captured consistently, with potential gaps in data linking between different immunisation providers. Despite these limitations, a 2021 study found that the sensitivity of the NIR was 92% and its specificity was 81% when compared with parent-held health-record books (Howe, Chisholm et al. 2021).

Oral health service data

As part of their contract with Te Whatu Ora, community oral health services are required to report information on patient demographics, oral health status, and treatments provided, using ethnicity as recorded in the NHI.

Hospitalisations

Hospitalisations come from the National Minimum Dataset (NMDS), a national collection that stores information on hospital discharges from public and some private hospitals in New Zealand. It includes data on inpatients and day patients, and some data on publicly funded events from private hospitals. For most hospitalisations data presented in this report, emergency department stays of longer than 3 hours are included as a hospitalisation. This needs to be taken into account when comparing rates with sources that exclude these types of admissions. In this report, data were suppressed when there were fewer than an average of one event per year during the time period analysed.

The accuracy of ethnicity data in the NMDS has improved over time, however multiple analyses have found that hospitalisations for Māori continue to be undercounted in the NMDS, with the magnitude of the undercount in the range of 5-15%, varying by age (Cormack 2010, Scott, Clark et al. 2018). The undercounting of Māori hospital discharges has implications for accurately monitoring Māori health status, service utilisation, and health inequities. Undercounting events in the Māori population leads to underestimation of the actual frequency of events in this group while overestimating their frequency in other populations.

Smoking

Smoking data comes from the 2018 Census of Population and Dwellings. 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. 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.

In terms of the data presented in Volume Two of the IMPB profiles, cigarette smoking self-response data from the 2018 Census was used in a statistical model combined with data from the 2013 Census to predict what the missing data would have been (called imputation). StatsNZ has provided quality ratings for the 2018 Census data to help users determine how to interpret the data for each variable. 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 cigarette smoking status results for Māori were particularly impacted by the 2018 Census. Further details on the adjustment methods used in the 2018 Census can be found online via StatsNZ[12]. The External Data Quality Panel noted that smoking among Māori may be overestimated by 1.0% in the 2018 Census. In addition, small geographic area results may be unreliable. Kawerau and Wairoa Districts were highlighted as examples of biased results in regions and territorial authorities due to high non-response rates in 2018. The overall message from the ratings is that the data can provide insights into the situation for Māori whānau, but it should be seen as indicative rather than precise.

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

[12] 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

always sum to stated totals[13].

New Zealand Health Survey

Data on vaping, body size, mental health problems and alcohol and cannabis use come from the New Zealand Health Survey (NZHS). The NZHS is a nationally representative survey conducted and reported annually by the Ministry of Health. It provides valuable information on the health and well-being of the population and collects data on a wide range of health topics, such as health status, health behaviours, healthcare utilisation, and sociodemographic factors. Using a representative sample of approximately 14,000 adults (15 and older) and 5,000 children (14 and younger), the survey involves face-to-face interviews with participants from all regions of the country, with oversampling of Māori, Pacific, and Asian populations to ensure adequate representation (Ministry of Health 2023).

The NZHS sample is sufficiently large to provide national estimates for the Māori population. To provide Māori estimates for smaller geographic areas, multiple years of NZHS survey data have been combined. The NZHS relies mostly (except for body size which is measured) on self-reported data; this can be subject to recall bias or social desirability bias.

Mortality data

Information on deaths come from the National Mortality Collection. This classifies the underlying cause of death for all deaths registered in NZ. NZ 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 ethnicities was Māori. The year range of 2016 to 2020 was used for cancer deaths, and 2014 to 2018 for deaths from other causes, as verified mortality data records were not available for later years at the time of writing. Deaths referred to the coroner for example can take more than two years to be fully investigated. In this report, data were suppressed when there were fewer than an average of one event per year during the time period analysed.

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.

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

Virtual Diabetes Register

Diabetes data comes from the Virtual Diabetes Register (VDR), a national database that estimates the prevalence of diabetes in NZ. It uses data from various sources, including:

1. National Health Index (NHI) numbers
2. Hospital admissions data for diabetes-related conditions, based on ICD-10-AM diagnosis codes
3. Outpatient attendance data for diabetes education, management, and retinal screening
4. Pharmaceutical claims data for specific diabetes medications
5. Laboratory test claims data for HbA1c and albumin/creatinine ratio tests

The VDR algorithm identifies individuals as having diabetes if they meet specified criteria within a calendar year and were enrolled in a PHO at 31 December of the reported year (Te Whatu Ora - Health New Zealand 2023).

The VDR may underestimate the true prevalence of diabetes, especially for Māori, as it only captures individuals who have been diagnosed and have interacted with the healthcare system. People with undiagnosed diabetes or those who do not regularly access healthcare services may not be included in the VDR. In the quarter ending December 2023, the PHO enrolment rate for the Māori population was only 85%, significantly lower than the total population enrolment rate of 97% (Te Whatu Ora - Health New Zealand 2023). This lower PHO enrolment rate for Māori is likely to lead the VDR to underestimate the prevalence of diabetes in the Māori population. Furthermore, even when enrolled in a PHO, Māori are less likely to access services due to barriers such as cost and transport, adding another likely cause of underestimating the true prevalence of diabetes among Māori. PHO enrolment data has also been noted to undercount Māori enrolled due to inaccuracies in ethnicity data.

National Non-Admitted Patient Collection (NNPAC)

Data on outpatient care comes from the National Non-Admitted Patient Collection (NNPAC), a national dataset that collects information on outpatient and emergency department events in New Zealand. The ethnicity data in NNPAC is sourced from the NHI database, rather than being collected directly during healthcare events. As stated previously, misclassification of those with Māori ethnicity has been noted in the NHI database. This has led to undercounting of the actual number of health events for Māori.

New Zealand Cancer Registry Data

Cancer diagnoses come from the New Zealand Cancer Registry (NZCR), a national collection of data on all primary cancers diagnosed in New Zealand, excluding squamous and basal cell skin cancers. The NZCR primarily relies on pathology reports to identify new cancer cases. In this report, data were suppressed when there were fewer than an average of one event per year during the time period analysed.

Ethnicity data in the NZCR is sourced from various datasets, including the NHI, NMDS and National Mortality Collection. The reliability of ethnicity data in the NZCR has improved over time, but some limitations persist. Some cancer registrations have missing ethnicity data or staging data (Seneviratne, Campbell et al. 2014), Māori are more likely to be misclassified as non-Māori in the NZCR compared to other ethnic groups. Analyses using data linkage have demonstrated that Māori cancer registrations have been undercounted in the NZCR, with the extent of undercounting varying over time and by age group. The NZCR has implemented a new ethnicity data protocol to address these issues since 2009. The protocol uses an algorithm that assigns ethnicity based on information from multiple data sources, including the NHI, NMDS, and Mortality Collection. This approach aims to improve the accuracy of

ethnicity data for Māori and other ethnic groups, although some limitations may still exist.

Cancer Screening Data

Cancer screening data comes from data collected directly by the screening programmes, managed by the National Screening Unit in Te Whatu Ora. Ethnicity comes from the NHI. Population denominator data is sourced from Statistics New Zealand 2018 Census Population Projections 2023 update. The denominator is the projected population for the mid-point of the monitoring period. For example, this means that for the two-year period ending Dec 2023, the denominator is the projected population for Dec 2022.

PRIMHD

Data on wait times for specialist mental health appointments is drawn from the Programme for the Integration of Mental Health Data (PRIMHD) system, a national database that integrates mental health and addiction service activity and outcome data from multiple sources, including the former DHBs and Non-Governmental Organisations (NGOs) that provide publicly funded services. It does not collect mental health data from the private sector. PRIMHD collects ethnicity data from DHBs, gathered during interactions between service users and healthcare providers. The reliability of PRIMHD data for Māori is affected by inconsistencies in ethnicity data collection practices across the health sector. This is likely to result in the undercounting and misclassification of Māori individuals.

Appendix 2 – ICD-10-AM Codes

The International Classification of Diseases (ICD-10-AM) codes used for calculation of ambulatory care sensitive hospitalisations are presented below.

Table 201 – Ambulatory care sensitive hospitalisation ICD-10-AM codes

Condition	ICD-10-AM Code
Angina and chest pain*	I20, R072-74
Congestive heart failure*	I50, J81
Hypertensive disease*	I10-13, I15, I674
Myocardial infarction*	I21-23, I241
Other ischaemic heart disease*	I25, I240, I248-49
Rheumatic fever/heart disease	I00-02, I05-09
Dental conditions	K02, K04-05
Cellulitis	H000, H010, J340, L01-04, L08, L980
Dermatitis and eczema	L20-30
Constipation	K590
Gastroenteritis/dehydration	A02-09, K529, R11
Gastro-oesophageal reflux disease (GORD)	K21
Nutrition deficiency and anaemia	D50-D53, E40-46, E50-56, E58-61, E63, M833*
Peptic ulcer*	K25-28
Asthma	J45-46, R062§
Bronchiectasis*	J47
Chronic obstructive pulmonary disease (COPD)*	J44
Lower respiratory infections§	J22
Pneumonia	J13-16, J18
Upper and ENT respiratory infections	H65-67, J00-04, J06
Vaccine preventable MMR†	B05-06, B26, P350
Other vaccine preventable disease‡	A33-37, A80, A403, B16, B18
Cervical cancer*	C53
Diabetes*	E10-11, E13-14, E162
Epilepsy*	G40-41, O15, R560, R568
Kidney/urinary infection¶	N10, N12, N136, N309, N390
Sexually transmitted infections*	A50-60, A63, A64, M023, N341
Stroke*	I61, I63-66

Source: Ministry of Health
Notes: An inpatient hospital event is identified as an ASH event if the hospital admission is acute, the patient is aged 0 to 4 or 45 to 64 years, and the event primary diagnosis is included in the list of ASH conditions (ICD-10-AM Eighth Edition and DRG version 7). Elective events for dental conditions are included.
§ Aged 0 to 4 years. ‡ Aged 6 months to 14 years. †Aged 15 months to 14 years. * Aged 15 years and over.

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

Table 202 – Potentially avoidable hospitalisation ICD-10-AM codes

Group	Condition	ICD-10-AM Code
Cardiovascular diseases	Acute rheumatic fever	I00, I02
	Chronic rheumatic heart diseases	I05-09
Dental conditions	Dental caries	K02
	Diseases of pulp and periapical tissues	K04
Dermatological conditions	Dermatitis and eczema	L20-21, L22‡, L23-30
	Skin infections	H000, H010, J340, L00-05, L08, L980
Diabetes complications	Diabetes complications	E10-11, E13-14, E162
Epilepsy	Epilepsy	G40-41, O15, R568
Gastrointestinal diseases	Constipation	K590
	Gastroenteritis/dehydration	A00-09, R11, K529
	Gastro-oesophageal reflux disease	K21
	Peptic ulcer*	K25-28*
Kidney, urinary tract infection	Kidney, urinary tract infection†	N10, N12, N136, N300, N309, N390
Meningococcal infection	Meningococcal infection	A390-95, A398-99
Nutrition deficiency and anaemia	Anaemia	D50-53
	Nutritional deficiency	E40-46, E50-56, E58-61, E63-64, M833‡
Other non-injury conditions	Other non-injury conditions	A87, A403, B34 G01-03, M86
Otitis media	Otitis media	H65-67
Respiratory conditions	Asthma, Wheezing	J45-46, R062
	Bronchitis, Bronchiolitis and Bronchiectasis	J20, J21‡, J47
	Lower respiratory tract infection (LRTI)	J22
	Pneumonia	J12, J15-16, J18, J69, J851
	Upper respiratory and ENT infections	J00-04, J06, J050
Sexually transmitted infections (STIs)	Sexually transmitted infections (STIs)	A50-60, A63-64, M023, N341
Vaccine-preventable diseases	Chronic viral hepatitis	B180-82
	Diphtheria	A36
	Hepatitis A	B150, B159
	Hepatitis B	B160-62, B169
	Hepatitis C	B171

	Influenza and related pneumonia, meningitis	G000, J09-11, J13-14
	Measles	B050-54, B058-59
	Mumps	B260-63, B268-69
	Poliomyelitis	A80
	Rubella	B06, M014, P350
	Tetanus	A33‡, A34-35
	Tuberculosis	A15-19
	Varicella	B010-12, B018-19
	Whooping cough	A370-71, A378-79

Source: Ministry of Health.
Notes: ICD-10-AM Eighth Edition.
† 5 years old and over.
‡ 0 to 14 years.
* 0 to 15 years.

Appendix 3 – 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 203 – 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

Te rārangi tohutoro
References

7. References

Action for Smokefree 2025 (ASH) (2022). ASH Year 10 Snapshot Survey 2021: Youth vaping in Aotearoa New Zealand. Available from: http://ash.org.nz. Auckland, ASH

Babor, T. F., J. C. Higgins-Biddle, J. B. Saunders, M. G. Monteiro and W. H. Organization (2001). AUDIT: the alcohol use disorders identification test: guidelines for use in primary health care, World Health Organization.

Baxter, J., T. Kingi, R. Tapsell and M. Durie (2006). Māori. Te Rau Hinengaro: The New Zealand Mental Health Survey. MA Oakley Browne, JE Wells and K. Scott. Wellington, Ministry of Health.

Becker, T. D. and T. R. Rice (2022). "Youth vaping: a review and update on global epidemiology, physical and behavioral health risks, and clinical considerations." Eur J Pediatr **181**(2): 453-462.

Binns, C., M. Lee and W. Y. Low (2016). "The long-term public health benefits of breastfeeding." Asia Pacific Journal of Public Health **28**(1): 7-14.

Blake, J. A., T. L. Farugia, B. Andrew, E. Malacova, D. Lawrence, H. J. Thomas and J. G. Scott (2023). "The Kessler Psychological Distress Scale in Australian adolescents: Analysis of the second Australian Child and Adolescent Survey of Mental Health and Wellbeing." Australian & New Zealand Journal of Psychiatry: 00048674231216601.

Cormack, D. (2010). The practice and politics of counting: ethnicity data in official statistics in Aotearoa New Zealand. Wellington, Te Rōpū Rangahau Hauora a Eru Pōmare**:** 1-35.

Cormack D and McLeod M (2010). Improving and maintaining quality in ethnicity data collections in the health and disability sector. Wellington, Te Rōpū Rangahau Hauora a Eru Pōmare.

Cunningham, R., F. Imlach, T. Haitana, M. T. R. Clark, S. Every-Palmer, H. Lockett and D. Peterson "Experiences of physical healthcare services in Māori and non-Māori with mental health and substance use conditions." Australian & New Zealand Journal of Psychiatry **0**(0): 00048674241238958.

Cunningham, R., A. Kvalsvig, D. Peterson, S. Kuehl, S. Gibb, S. McKenzie, L. Thornley and S. Every-Palmer (2018). "Stocktake report for the mental health and addiction inquiry." Wellington, New Zealand: University of Otago.

Cunningham, R., J. Stanley, T. Haitana, S. Pitama, M. Crowe, R. Mulder, R. Porter and C. Lacey (2020). "The physical health of Māori with bipolar disorder." Australian & New Zealand Journal of Psychiatry **54**(11): 1107-1114.

Curtis, E. (2016). "Indigenous positioning in health research: the importance of Kaupapa Māori theory-informed practice." AlterNative: An International Journal of Indigenous Peoples **12**(4): 396-410.

Curtis E, Loring B, Harris R, McLeod M, Mills C, Scott N and Reid P (2022). Māori Health Priorities. A report commissioned by the interim Māori Health Authority (iMHA) to inform development of the interim New Zealand Health Plan (iNZHP). Auckland, Te Aka Whai Ora.

Curtis, E., M. Harwood, T. Riddell, B. Robson, R. Harris, C. Mills and P. Reid (2010). "Access and society as determinants of ischaemic heart disease in indigenous populations." Heart, Lung and Circulation **19**(5-6): 316-324.

Curtis, E., R. Jones, E. Willing, A. Anderson, S.-J. Paine, S. Herbert, B. Loring, G. Dalgic and P. Reid (2023). "Indigenous adaptation of a model for understanding the determinants of ethnic health inequities." Discover Social Science and Health **3**(1): 10.

Dawson, P., C. Jaye, R. Gauld and J. Hay-Smith (2019). "Barriers to equitable maternal health in Aotearoa New Zealand: an integrative review." International Journal for Equity in Health **18**(1): 168.

Ellison-Loschmann L, Jeffreys M and McKenzie F (2024). Measuring the prevalence of mental health conditions and problematic substance use to advance hauora Māori. Wellington, Flax Analytics Ltd.

Fanslow, J., E. Robinson, S. Crengle and L. Perese (2010). "Juxtaposing beliefs and reality: Prevalence rates of intimate partner violence and attitudes to violence and gender roles reported by New Zealand women." Violence Against Women **16**(7): 812-831.

Gurney, J., S. Campbell, C. Jackson and D. Sarfati (2019). "Equity by 2030: achieving equity in survival for Māori cancer patients." N Z Med J **132**(1506): 66-76.

Gurney, J. K., B. Robson, J. Koea, N. Scott, J. Stanley and D. Sarfati (2020). "The most commonly diagnosed and most common causes of cancer death for Māori New Zealanders." N Z Med J **133**(1521): 77-96.

Harris, R., S. J. Paine, J. Atkinson, B. Robson, P. T. King, J. Randle, A. Mizdrak and M. McLeod (2022). "We still don't count: the under-counting and under-representation of Māori in health and disability sector data." N Z Med J **135**(1567): 54-78.

Hassan, S., S. Jahanfar, J. Inungu and J. M. Craig (2021). "Low birth weight as a predictor of adverse health outcomes during adulthood in twins: a systematic review and meta-analysis." Syst Rev **10**(1): 186.

Health Quality and Safety Commission (2019). A window on the quality of Aotearoa New Zealand's health care 2019 – a view on Māori health equity. Wellington, Health Quality & Safety Commission.

Health Quality and Safety Commission. (2024, 10 Jan 2024). "Atlas of Healthcare Variation: Gout." Retrieved 14 March 2024, from https://www.hqsc.govt.nz/our-data/atlas-of-healthcare-variation/gout/.

Howe, A. S., H. Chisholm, J. Paynter, E. Willing and N. Turner (2021). "Does the National Immunisation Register stack up? Quantifying accuracy when compared to parent-held health record books."

Jackson, G., N. Dalbeth, L. Te Karu, D. Winnard, P. Gow, C. Gerard and N. Minko (2014). "Variation in gout care in Aotearoa New Zealand: a national analysis of quality markers."

Jackson, G., C. Wright, S. Thornley, W. J. Taylor, L. Te Karu, P. J. Gow, B. Arroll, B. Gribben, N. Dalbeth and D. Winnard (2012). "Potential unmet need for gout diagnosis and treatment: capture–recapture analysis of a national administrative dataset." Rheumatology **51**(10): 1820-1824.

Kessler, R. C., P. R. Barker, L. J. Colpe, J. F. Epstein, J. C. Gfroerer, E. Hiripi, M. J. Howes, S.-L. T. Normand, R. W. Manderscheid and E. E. Walters (2003). "Screening for serious mental illness in the general population." Archives of general psychiatry **60**(2): 184-189.

Krieger, N. (2011). Epidemiology and the people's health: theory and context. New York, Oxford University Press.

Lehmann, J., M. J. Pilz, B. Holzner, G. Kemmler and J. M. Giesinger (2023). "General population normative data from seven European countries for the K10 and K6 scales for psychological distress." Scientific Reports **13**(1): 18389.

Magnusson, Å., H. Laivuori, A. Loft, N. B. Oldereid, A. Pinborg, M. Petzold, L. B. Romundstad, V. Söderström-Anttila and C. Bergh (2021). "The Association Between High Birth Weight and Long-Term Outcomes-Implications for Assisted Reproductive Technologies: A Systematic Review and Meta-Analysis." Front Pediatr **9**: 675775.

McLeod, M., P. King, J. Stanley, C. Lacey and R. Cunningham (2017). "Ethnic disparities in the use of seclusion for adult psychiatric inpatients in New Zealand." N Z Med J **130**(1454): 30-39.

McNeill, A., L. S. Brose, R. Calder, L. Bauld and D. Robson (2018). "Evidence review of e-cigarettes and heated tobacco products 2018." A report commissioned by public health England. London: Public Health England **6**.

Metcalfe, S., K. Beyene, J. Urlich, R. Jones, C. Proffitt, J. Harrison and A. Andrews (2018). "Te Wero tonu-the challenge continues: Maori access to medicines 2006/07–2012/13 update." The New Zealand Medical Journal (Online) **131**(1485): 27-47.

Mills, C., P. Reid and R. Vaithianathan (2012). "The cost of child health inequalities in Aotearoa New Zealand: a preliminary scoping study." BMC Public Health **12**: 384.

Ministry of Health (2010). Saving Lives: Amenable mortality in New Zealand, 1996 - 2006. Wellington: Ministry of Health. Wellington, Ministry of Health.

Ministry of Health (2013). Health Loss in New Zealand: A report from the New Zealand Burden of Diseases, Injuries and Risk Factors Study, 2006–2016. Wellington: Ministry of Health. Wellington, Ministry of Health

Ministry of Health (2017). HISO 10001:2017 Ethnicity Data Protocols. Wellington, Ministry of Health.

Ministry of Health (2019). Wai 2575 Māori Health Trends Report. Wellington, Ministry of Health.

Ministry of Health (2023). Content Guide 2022/23: New Zealand Health Survey. Wellington.

Ministry of Health (2023). Methodology Report 2022/23: New Zealand Health Survey. Wellington, Ministry of Health.

Moore, T. G., Arefadib, N., Deery, A., & West, S. (2017). The First Thousand Days: An Evidence Paper. Parkville, Victoria., Centre for Community Child Health, Murdoch Children's Research Institute.

Paine, S.-J., D. Cormack, P. Reid, R. Harris and B. Robson (2020). Kaupapa Māori-informed approaches to support data rights and self-determination 1. Indigenous data sovereignty and policy, Routledge**:** 187-203.

Perinatal and Maternal Mortality Review Committee (2022). Fifteenth Annual Report of the Perinatal and Maternal Mortality Review Committee | Te Pūrongo ā-Tau Tekau mā Rima o te Komiti Arotake Mate Pēpi, Mate Whaea Hoki: Reporting Mortality and Morbidity 2020. Te Tuku Pūrongo mō te Mate me te Whakamate 2020. Wellington, Health Quality & Safety Commission.

Russell, L. (2018). Te Oranga Hinengaro: Report on Māori Mental Wellbeing Results from the New Zealand Mental Health Monitor & Health and Lifestyles Survey. Wellington, Health Promotion Agency/Te Hiringa Hauora.

Sandiford, P., D. M. Bramley, S. S. El-Jack and A. G. Scott (2015). "Ethnic differences in coronary artery revascularisation in New Zealand: does the inverse care law still apply?" Heart, Lung and Circulation **24**(10): 969-974.

Sandiford, P., S. S. El-Jack, A. G. Scott, S. M. Crengle and D. M. Bramley (2015). "Different needs or treated differently? Understanding ethnic inequalities in coronary revascularisation rates." Heart Lung Circ **24**(10): 960-968.

Scott, K., H. Clark, B. Kool, S. Ameratunga, G. Christey and D. Cormack (2018). "Audit of ethnicity data in the Waikato Hospital Patient Management System and Trauma Registry: pilot of the Hospital Ethnicity Data Audit Toolkit."

Seneviratne, S., I. Campbell, N. Scott, R. Shirley, T. Peni and R. Lawrenson (2014). "Accuracy and completeness of the New Zealand Cancer Registry for staging of invasive breast cancer." Cancer Epidemiol **38**(5): 638-644.

Serrano, B., M. Brotons, F. X. Bosch and L. Bruni (2018). "Epidemiology and burden of HPV-related disease." Best Practice & Research Clinical Obstetrics & Gynaecology **47**: 14-26.

Shapiro, G. K. (2022). "HPV Vaccination: An Underused Strategy for the Prevention of Cancer." Current Oncology **29**(5): 3780-3792.

Simmonds, S., B. Robson, F. Cram and G. Purdie (2008). "Kaupapa Māori Epidemiology." Australasian Epidemiologist., **15**(1): 2-6.

Statistics New Zealand. (2024, 22 Feb 2024). "Child poverty statistics show increase in material hardship for the year ended June 2023." Retrieved 27 Feb 2024, from https://www.stats.govt.nz/news/child-poverty-statistics-show-increase-in-material-hardship-for-the-year-ended-june-2023/.

Te Whatu Ora - Health New Zealand (2023). Quarterly Performance Report: Quarter ending 31 December 2023. Wellington, Te Whatu Ora.

Te Whatu Ora - Health New Zealand (2023). Virtual Diabetes Register: Technical Guide. Wellington, Te Whatu Ora.

Te Whatu Ora - Health New Zealand (2024). Newborn Primary Care Enrolment. Investigation of the newborn enrolment systems and recommendations for improvement. January 2024. Auckland, Te Whatu Ora.

Walsh, M. (2023). The Contribution of Avoidable Mortality to the Life Expectancy Gap among the Māori and Pacific population. Regional Summary, Equity team, Service Innovation and Improvement, Te Whatu Ora.

Walsh, M. and C. Grey (2019). "The contribution of avoidable mortality to the life expectancy gap in Māori and Pacific populations in New Zealand-a decomposition analysis." N Z Med J **132**(1492): 46-60.

Walsh, M. and K. Wright (2020). "Ethnic inequities in life expectancy attributable to smoking." NZ Med J **133**(1509): 28-38.

World Health Organization (2006). Global Database on Body Mass Index. Geneva, World Health Organization.

World Health Organization. (2023, 26 May 2023). "More ways, to save more lives, for less money: World Health Assembly adopts more Best Buys to tackle noncommunicable diseases." Retrieved 29 Feb 2024, 2024, from https://www.who.int/news/item/26-05-2023-more-ways--to-save-more-lives--for-less-money----world-health-assembly-adopts-more-best-buys--to-tackle-noncommunicable-diseases.

Zamor, P. J., A. S. deLemos and M. W. Russo (2017). "Viral hepatitis and hepatocellular carcinoma: etiology and management." Journal of Gastrointestinal Oncology **8**(2): 229-242.

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