

Aotearoa New Zealand

# Health Status Report 2023

February 2024







**Health New Zealand**  
Te Whatu Ora

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# Foreword

We are pleased to present this first Aotearoa New Zealand Health Status Report.

The report comprises data from a range of sources that tells a comprehensive story about who we are, how we live, and lifestyle factors influencing health and critical health outcomes.

Before Health New Zealand | Te Whatu Ora and the Te Aka Whai Ora | Māori Health Authority were established, our population health information and needs assessments were provided at a district level. This is the first time we have been able to present a national view of the health status of the population.

We prepared this report to inform development of the New Zealand Health Plan 2024-2027 (the plan itself will be published in due course). This report will also, however, have many other uses and benefits.

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Overall, Aotearoa New Zealand's population health status is good and improving.

We enjoy high life expectancy compared to many other countries. Our smoking rates have continued to decline every year. Mortality due to cancer, respiratory conditions and cardiovascular disease has also steadily dropped with falling tobacco consumption and reductions in other risk factors.

Our achievements are particularly noteworthy given the impacts of COVID-19 on both population health outcomes and healthcare provision around the world.

Aotearoa New Zealand is one of the few countries to continue to see improvements in life expectancy despite the pandemic: a testament to the outstanding public health response over this time.

But there are many things we still need to address.

Significant differences in health outcomes persist, particularly for Māori and Pacific people. Although it is reducing over time, the gap in life expectancy remains largest for Māori nationally, followed closely by Pacific people, when compared to other populations.

There are also significant socioeconomic and ethnic differences across most health and social outcome measures for children. Addressing the social determinants of health requires sound planning, investment and collaboration with other agencies.



Unhealthy weight is a continuing problem for the people of Aotearoa New Zealand, leading to an increase in preventable illnesses such as diabetes and cardiovascular disease.

Another concerning insight from the report is the significant increase in people reporting high or very high psychological distress – which has been exacerbated by the COVID-19 pandemic. Māori, Pacific, disabled people | tangata whaikaha and young people are reporting much higher rates of anxiety and depression than ever before.

Although we can learn a lot about the health of the population from this report, we acknowledge that it does not – being focused on collating and analysing data – include direct feedback from consumers and the community themselves.

How people report on and feel about their health is important, and something our wider processes will look to include.

We are proud of this report and the collaboration and mahi that has gone into it. I offer my heartfelt thanks to everyone contributing to the health of the people of Aotearoa New Zealand.

A handwritten signature in black ink, appearing to read 'Fepulea'i Margie Apa'.

**Fepulea'i Margie Apa**

Chief Executive

Health New Zealand | Te Whatu Ora

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E mihi ana ki te rangi, e mihi ana ki te whenua. E mihi ana ki ngā kaupapa whakaora hāpori e whakakotahi nei i a tātou i tēnei wahanga o te tau. Mōkōri ano ka rere a mihi ki ngā ringaringa me ngā waewae o ta tātou kaupapa e tere tonu nei i ngā ngaru nui, i ngā ngaru roa o Pae Ora.

The purpose of any health needs analysis is to gather the information required to bring about change that will benefit the wellbeing of our people. This requires accurate data, insightful analysis, appropriate investment and an honest approach to implementation.

To meet the needs of our whānau we must offer innovative solutions that are best described by our whānau, hapū and iwi ensuring they reflect the aspirations of our communities, both now and in the future.



“To meet the needs of our whānau we must offer innovative solutions that are best described by our whānau, hapū and iwi ensuring they reflect the aspirations of our communities, both now and in the future.”



Data and digital tools address the challenges and done well they increase the efficacy and efficiency of care. This will help to drive equitable health outcomes across the health and disability system.

Te Aka Whai Ora | Māori Health Authority is pleased to partner with Health New Zealand | Te Whatu Ora on publishing this report. I would like to acknowledge the work that has gone into the Health Status Report. Over time this will form the basis for co-design of care and more collaborative services that will be reflective of the needs and aspirations of our whānau, hapū, iwi and our communities.

**Riana Manuel**

Aka Matua | Chief Executive

Te Aka Whai Ora | Māori Health Authority



# Contents

This is the first time Health New Zealand | Te Whatu Ora has released a whole of Aotearoa New Zealand Health Status Report.

The information in this report comes from a range of sources. You can find out more about the key data sources in Section 8 on page 189 of this report.



<b>SECTION 1</b>		<b>SECTION 4</b>	
<b>Foreword</b>	1	<b>Pae ora   Better health in communities</b>	30
<b>SECTION 2</b>		4.1 Socio-economic status	31
<b>Introduction</b>	8	4.2 Rurality	41
2.1 About this document	9	4.3 Income, education and employment	43
2.2 Equity	11	4.3.1. Income	43
2.3 Māori health and Te Tiriti o Waitangi	12	4.3.2 Education	45
2.4 The limitations of ethnicity data and world views in this report	13	4.3.3 Employment	46
2.5 Regions	16	4.4 Housing	47
<b>SECTION 3</b>		4.5 Environmental factors	49
<b>The population</b>	17	4.5.1 Air quality	49
3.1 Age and ethnicity	18	4.5.2 Water quality	50
3.2 Projected population	22	4.6 Climate change	51
3.3 Māori health priorities and aspirations	25	4.6.1 Rapid-onset climate events	52
3.4 Pacific people	27	4.6.2 Slow-onset impacts	53
3.5 Asian; Middle Eastern, Latin American and African (MELAA); and other culturally and linguistically diverse communities (CALD)	28	4.7 Social factors	54
3.6 Migrant and refugee populations	29	4.8 Violence and crime	55
		<b>SECTION 5</b>	
		<b>Exposure to key preventable risk factors</b>	56
		5.1 Smoking	58
		5.1.1 Tobacco	58
		5.1.2 Vaping	60
		5.2 Nutrition, physical activity and body weight	61
		5.3 Alcohol use	64
		5.4 Illicit drug use	65
		5.4.1 Cannabis	65
		5.4.2 Amphetamines	66
		5.4.3 MDMA ('ecstasy')	66
		5.4.4 Opioids	66
		5.4.5 Other drugs	66

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## SECTION 6

### Health status

<b>6.1 Overall health</b>	<b>68</b>	<b>6.5 People living with mental distress, illness and addictions</b>	<b>137</b>
6.1.1 Life expectancy	69	6.5.1 The burden of mental distress, illness and addictions	137
6.1.2 Contributors to the gap in life expectancy for Māori and Pacific people compared with others	73	6.5.2 Oranga hinengaro in adults	138
6.1.3 Total mortality	77	6.5.3 Oranga hinengaro in youth	138
6.1.4 Avoidable causes of mortality	77	6.5.4 Oranga hinengaro and population risk groups	139
<b>6.2 Maternity and early years, child health and youth health</b>	<b>79</b>	6.5.5 Suicide and self-harm	139
6.2.1 Births	79	6.5.6 Mental health impacts of the COVID-19 pandemic	140
6.2.2 Infants and children	87	6.5.7 Service utilisation	141
6.2.3 Young people	105	6.5.8 Self-reported service utilisation and unmet need	143
<b>6.3 People living with chronic health conditions</b>	<b>110</b>	6.5.9 Seclusion and compulsory orders	143
6.3.1 Cardiovascular disease (CVD)	110	<b>6.6 Disabled people   tangata whaikaha</b>	<b>145</b>
6.3.2 Stroke	117	6.6.1 Services and funding	148
6.3.3 Diabetes	119	<b>6.7 Chronic pain</b>	<b>150</b>
6.3.4 Respiratory disease	123	6.7.1 Musculoskeletal disorders, arthritis, gout	150
<b>6.4 People with cancer</b>	<b>126</b>	6.7.2 Headache	151
6.4.1 Cancer mortality	126	<b>6.8 Injury</b>	<b>152</b>
6.4.2 Cancer registrations	128	<b>6.9 Pandemic infectious disease</b>	<b>154</b>
6.4.3 Cancer survival	130	6.9.1 Long COVID	154
6.4.4 Cancer screening	130	<b>6.10 Sexual health</b>	<b>155</b>
6.4.5 Cancer hospitalisations and treatment	131	<b>6.11 Older people</b>	<b>157</b>
6.4.6 Infections and cancer	132		



<b>SECTION 7</b>		<b>SECTION 9</b>	
<b>Health services</b>	<b>164</b>	<b>Technical appendices</b>	<b>201</b>
7.1 Community healthcare	165	Appendix 1: Ethnicity	202
7.1.1 Ambulatory sensitive hospitalisations (ASH)	167	Appendix 2: Life expectancy	204
7.2 Oral health	169	Appendix 3: Canadian housing standard definition	204
7.3 Public health	175	Appendix 4: Cancer five-year survival	204
7.4 Prison health services	176	Appendix 5: Rurality	205
7.5 Hospital-based care	177	Appendix 6: Self-rated health (OECD)	205
7.5.1 Emergency departments	177	Appendix 7: Disability	206
7.5.2 Outpatient services	180	Appendix 8: Disability funding	207
7.5.3 Admitted patients	182	Appendix 9: Global Burden of Disease measures	208
7.5.4 Telehealth	186	Appendix 10: Potentially avoidable mortality and life expectancy gap decomposition	208
7.5.5 Hospital quality and safety	186	Appendix 11: Infant mortality SIDS/SUDI definition	211
<b>SECTION 8</b>		Appendix 12: Age standardisation	211
<b>Data and information sources</b>	<b>188</b>	Appendix 13: Virtual Diabetes Register (VDR)	212
8.1 Major data sources	189	Appendix 14: IPCC and Paris Agreement	212
8.1.1 Ministry of Health   Manatū Hauora	189	Abbreviations	213
8.1.2 Hospital discharge data	189	Glossary	214
8.1.3 Outpatient data	189		
8.1.4 Mortality data	189		
8.1.5 Cancer registration data	189		
8.1.6 Programme for the Integration of Mental Health Data (PRIMHD)	189		
8.1.7 The New Zealand Health Survey (NZHS)	190		
8.1.8 The Quality of Life Survey	190		
8.1.9 Virtual diabetes register 2021	190		
8.1.10 Census and demographic data	190		
8.1.11 Birth registrations	191		
8.1.12 Health Quality and Safety Commission	191		
8.2 References	192		

## Section 2

# Introduction

In July 2022  
Health New Zealand |  
Te Whatu Ora was  
formally established.

It leads the day-to-day running of the publicly funded health system across Aotearoa New Zealand, with functions delivered at local, district, regional and national levels. It weaves the functions of the former District Health Boards (DHBs) into service areas within each region (see Figure 1 on page 16), ensuring continuity of services in the health system.

The term “district” is used throughout this report, and refers to the geographic boundaries covered by the former DHBs.



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## 2.1 About this document

This is the first time Health New Zealand | Te Whatu Ora has released a whole of Aotearoa New Zealand Health Status Report.

This Health Status Report is similar to a Health Needs Assessment (HNA) and has the same definition: “a systematic method for reviewing the health issues facing a population, leading to agreed priorities and resource allocation that will improve health and reduce inequities.”<sup>1</sup>

It will support the development of the Aotearoa New Zealand health sector and support Health NZ to develop its structures, plans and work programmes, and prioritise resources.



It includes some aspects that would exist in a traditional HNA, such as:


- Demographic data – both current and projected
- Prevalence and incidence data related to health status
- Exposure to data on key preventable risk factors to identify patterns and trends, and the likelihood of people requiring health and wellbeing services in the future
- Data about the people who use services, their needs and priorities.

It is the first phase in the development of a more comprehensive set of information – offering, initially, a key set of health needs information that can be viewed at a national level, but also regional and district levels. A core part of this is understanding where inequities exist between different groups, so that we are able to prioritise actions that will reduce those inequities.

This report is not a traditional HNA as service users have not been included in its preparation, nor community perspectives. In the future, Health NZ intends to develop reports which will include consumer and community perspectives. It is envisaged that the report will become a living document which becomes regularly updated as new data become available. It forms part of a suite of resources that includes needs assessments and health plans for specific population groups.

The data in this report comes from a range of sources, which are listed in full on pages 188–200. You will notice that some graphs are presented in different formats as they are from different sources.





# Weaving together Aotearoa New Zealand's health data

Building a more  
comprehensive picture  
of health across the motu

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## 2.2 Equity

Significant inequities in health outcomes exist in Aotearoa New Zealand. This includes inequities based on gender, ethnicity, disability, refugee or migrant status, or location.

These inequities are avoidable and unjust and have been well documented for decades.<sup>2,3</sup> The Pae Ora (Healthy Futures) Act 2022 aims to achieve equity in health outcomes among Aotearoa New Zealand's population groups, particularly Māori, including by striving to eliminate health disparities. The information in this report will support decision-makers to design health services that respond to this.

Drivers of inequities are frequently intersectional, intergenerational and compounding. Inequity is a complex, system-wide problem that requires systemic, multilevel solutions (that are not limited to the health sector).

This report provides population metrics that describe aspects of inequities in Aotearoa New Zealand.

Addressing inequities is complex and requires commitment and leadership at all levels. The interim New Zealand Health Plan | Te Pae Tata lays out three priority populations for equity action, namely Māori, Pacific people and disabled people | tangata whaikaha.<sup>4</sup>



“In Aotearoa New Zealand, people have differences in health that are not only avoidable but unfair and unjust. Equity recognises different people with different levels of advantage require different approaches and resources to get equitable health outcomes.”

Ministry of Health | Manatū Hauora

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## 2.3 Māori health and Te Tiriti o Waitangi

Health NZ acknowledges the enduring inequity in health outcomes experienced by Māori, and that these stem from a systemic failure of health sector policies, services and ways of operating that have not met Māori health needs.

The empowering legislation of Health NZ, the Pae Ora (Healthy Futures) Act 2022, was enacted to give effect to the principles of Te Tiriti o Waitangi | Treaty of Waitangi (Te Tiriti) identified by the Waitangi Tribunal in Wai 2575. These principles – tino rangatiratanga, equity, active protection, options and partnership – were considered by Parliament and reflected in the Act, particularly in the ‘health sector principles.’ Among other things, the health sector principles expressly include improving the health sector for Māori and improving hauora Māori outcomes.

The purpose of the Act is also significant in its focus on achieving health equity, in particular for Māori. Health NZ is required to do a number of things, including:

- **Being guided by the health sector principles** in the exercise of all of its functions, powers and duties; and
- **Maintaining systems and processes** to ensure the organisation has the capacity and capability to understand Te Tiriti, mātauranga Māori and Māori perspectives of services.

Health NZ will meet the requirements and expectations of the Act in a number of ways. For example, Health NZ will:

- strengthen relationships with whānau, hapū, and iwi, including Iwi Māori Partnership Boards;
- apply knowledge and information about Māori health status, including to robustly understand Māori health outcomes and access to services;
- prioritise and invest in initiatives that pursue health equity, in particular for Māori;
- address discrimination, bias and systemic racism throughout the public health system;
- invest in growing the reach of providers, particularly hauora Māori providers;
- improve the suitability and effectiveness of services for Māori delivered by the system;
- enable Māori to exercise authority over Māori health in accordance with Māori philosophies, values and practices;
- be informed by the voice of whānau in the design and delivery of health services that reflect the needs and aspirations of Māori; and
- work in partnership with Māori and with other health sector agencies to protect and improve Māori health and wellbeing, including through initiatives to address the wider determinants of health.



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## 2.4 The limitations of ethnicity data and world views in this report

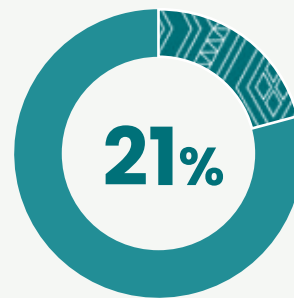
Health New Zealand | Te Whatu Ora recognises this report's limitations when considering Te Tiriti o Waitangi, Māori and Pacific world views, and data limitations for these population groups.

In this report, information on broader Māori perspectives of health and wellbeing (rather than disease) and holistic concepts that are deeply important to Māori is limited. Health NZ also recognises the need to address this in ongoing work, for example, by drawing on a wider range of data sources such as iwi-led data collections (acknowledging Māori data sovereignty), investing in mātauranga Māori and measuring metrics that matter most to whānau.

As with a traditional HNA, this report generally relies on information about factors that lead to ill-health rather than broader concepts of wellbeing, and favours western forms of data and knowledge. Māori health priorities and aspirations should be specifically addressed, rather than through the context of assessing the needs of the overall population of Aotearoa New Zealand.

The method of ethnicity data collection can impact the number of people identified as Māori and the number of people reported to have multiple ethnicities. Ethnicity data protocols have been in place for the health sector for nearly 20 years, and it is the responsibility of the entire health system to collect, record and report ethnicity data in the ways set out in those protocols. Despite this, Māori continue to be systematically undercounted.

A recent study showed that one in five Māori (21%) were not identified as Māori on the National Health Index (NHI) when compared to self-identified ethnicity recorded on the Census.<sup>7</sup>



ONE IN FIVE MĀORI (21%) WERE NOT IDENTIFIED AS MĀORI ON THE NATIONAL HEALTH INDEX

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The quality of ethnicity data is worse for Māori males than Māori females, and is particularly poor for those aged 20-24 years, where the NHI misses 30%, or almost one in three, Māori.<sup>7</sup> Poor quality ethnicity data collection means that we are currently unable to develop a full and accurate picture for Māori health priorities and aspirations. Improving ethnicity data quality is a priority for ongoing work and improvement by Health NZ.

Ethnicity data quality and the choice of denominators and comparator populations can have a material impact on measuring health and equity outcomes for Māori and Pacific populations. For example, Māori/non-Māori comparison is a long-standing approach used to monitor outcomes from a Māori perspective. However, Māori/non-Māori comparisons may underestimate Māori inequities because Pacific people are in the comparator, depending on the situation, particularly in areas of the country with large Pacific communities. It also means substantial Pacific inequities are invisible.



**30%**

THE NATIONAL HEALTH INDEX MISSES 30%, OR ALMOST ONE IN THREE, MĀORI AGED 20-24



An alternative approach is the comparison of Māori to the 'European/Other' ethnic grouping (who comprise non-Māori, non-Pacific and non-Asian), to control for any potential skewing of data because of distinct health profiles unique to Pacific people and Asian populations. For measuring Māori health inequities it is also important that the comparator group/s should not overlap with Māori. This means total population is not a comparator of choice as it includes Māori; it is also not a comparator of choice for other equity analyses and would not normally be used for equity analyses. However, in some instances limited data availability has meant this report uses comparators that are less than ideal.



These issues also highlight the importance of engaging with agencies that provide health data and promoting the need for appropriate aggregations at ethnic specific level to enable better analysis and appropriate presentation of inequities.

This report uses the data available and notes the impacts and limitations. It will be necessary to carefully consider comparator populations (and standardisation approaches) in future reports, in partnership with our Māori health and Pacific health teams.

These issues also highlight the importance of engaging with agencies that provide health data and promoting the need for appropriate aggregations at ethnic specific level to enable better analysis and appropriate presentation of inequities.

Not all datasets are complete. This is noted where known, acknowledging this will have an impact on interpretation in some cases.



## 2.5 Regions

Hospital and specialist services are planned nationally, and coordinated regionally, so they can be delivered more consistently across the country.

Primary health, wellbeing and community-based services are planned and then purchased through the four regional divisions of Health NZ.

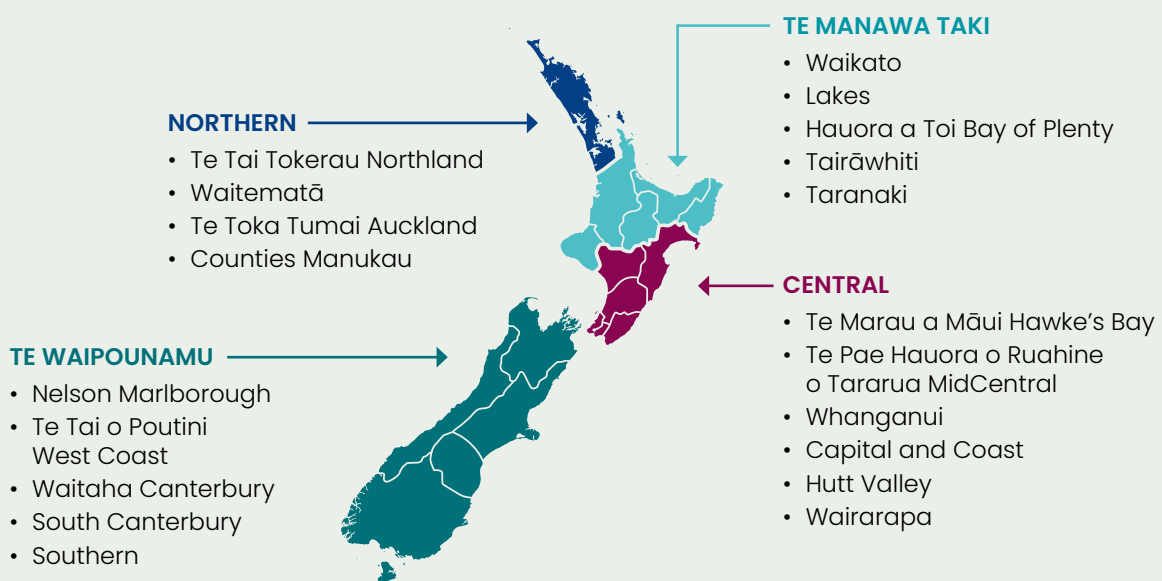
Each region works with their district offices, located closer to local communities, to develop and implement plans based on local needs to improve the health and wellbeing of communities.

Health NZ aims to provide geographic breakdowns, where possible, to enable people to compare results across the country, and we are currently working with inherited datasets that are aligned to former DHBs.

As we move ahead, Health NZ will give further consideration to the best groupings and catchments of data, within the context of a single organisation, including what terminology is best to use.

For local government purposes, Aotearoa New Zealand is split into 67 territorial authorities (TAs), which is the second tier of local government, sitting beneath regional councils.

Figure 1: Health districts in each region



## Section 3

# The population

This section looks at the age and ethnicity of people living in Aotearoa New Zealand, now and in the future.

These two characteristics of the population are strong drivers of health need.

The average annual cost of providing healthcare for an individual is high in the first year of life and then relatively low until the age of about 50, when it begins to increase rapidly, with the cost for someone aged 85–89 being almost six times that for a person aged under 50 years.<sup>8</sup>

Ethnicity is a critical component of health inequities.

Māori and Pacific people have had consistently poorer health than other ethnic groups since the 19th century. Though this is linked to socio-economic status, both populations still have poorer health when factors like income, occupation, education, neighbourhood and personal behaviour are accounted for.<sup>9</sup>



## 3.1 Age and ethnicity

There were 5.1 million people living in Aotearoa New Zealand in 2022/23. By ethnicity, Aotearoa New Zealand is 17% Māori, 7% Pacific, 16% Asian and 59% European/Other people.

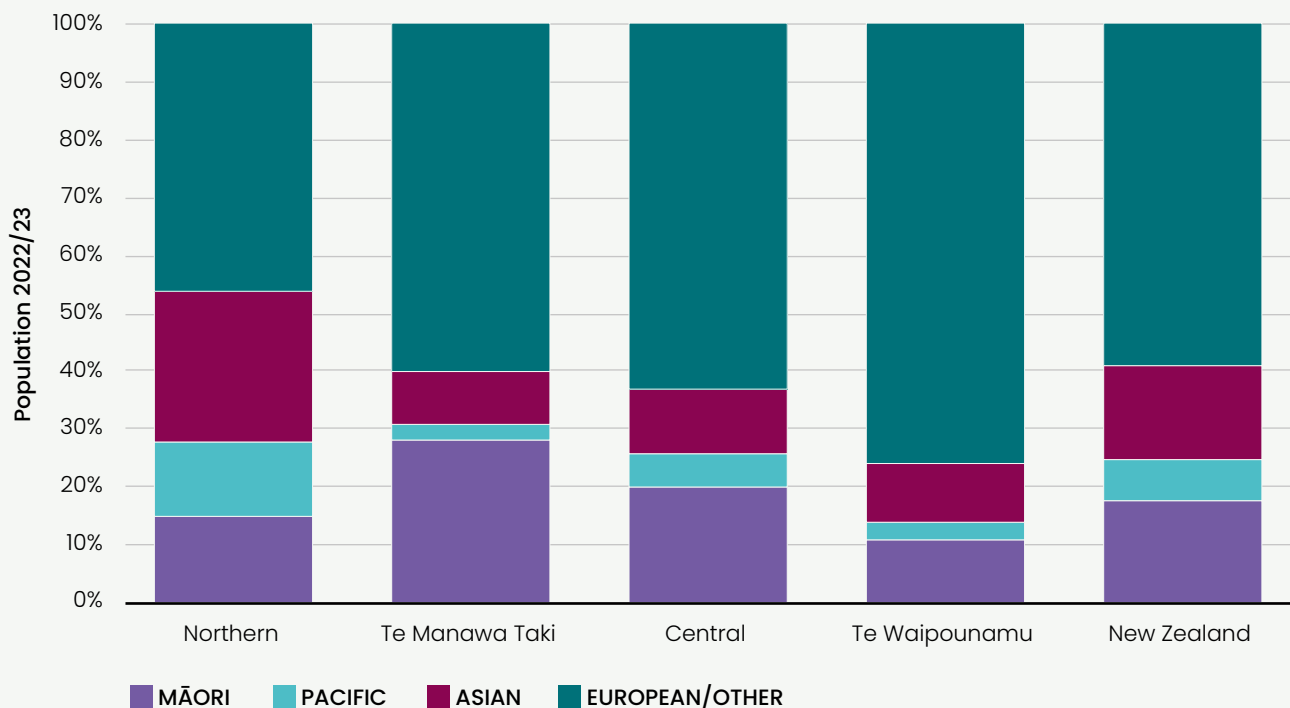
Around one in ten (11%) New Zealanders identified with more than one ethnicity in 2018, including just over half of those counted as Māori. The most common other ethnic identity mentioned by those counted as Māori was European. Ethnic makeup varies considerably around the country.

The population of the Northern region by ethnicity is 15% Māori, 13% Pacific people, 26% Asian and 46% European/Other. By contrast, Te Waipounamu is 11% Māori, 3% Pacific people, 10% Asian and 76% European/Other.

A third of Māori live in either the Northern or Te Manawa Taki region, with 22% living in Central and 15% living in Te Waipounamu. 68% of Pacific people live in the Northern region, as do 60% of Asian people (Source: Stats NZ, population projections, 2022 update).

The Pacific population is predominantly Samoan (48% of Pacific people), Tongan (22%) and Cook Island Māori (21%). One-third (36%) of the Pacific population of Aotearoa New Zealand lives in Counties Manukau district. The Asian population is also diverse and is predominantly Chinese (35%), Indian (34%) and Filipino (10%) (Census 2018).

Figure 2: Population ethnic proportions for each region and nationally, 2022/23



Source: Stats NZ population projections based on 2018 Census, 2022 update

Health districts in each region are:

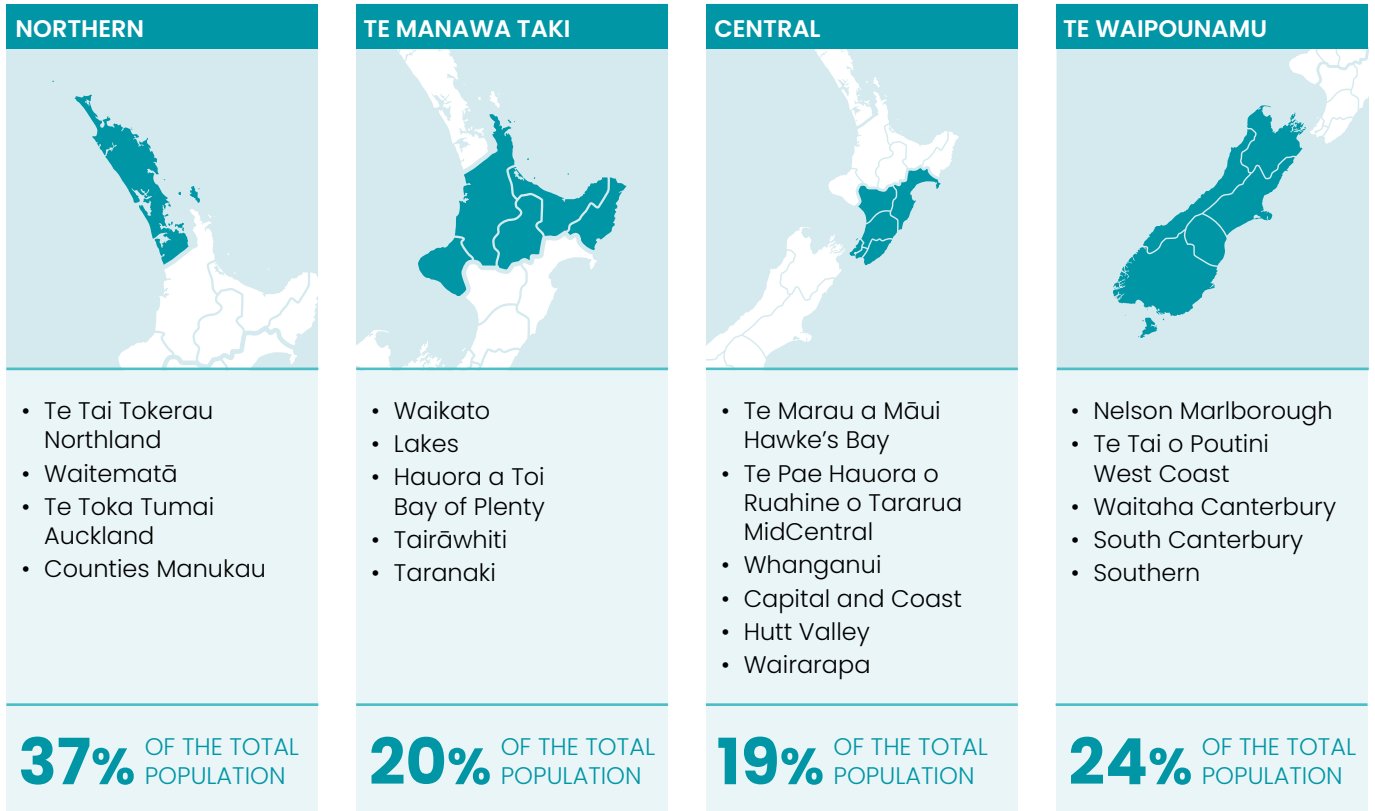
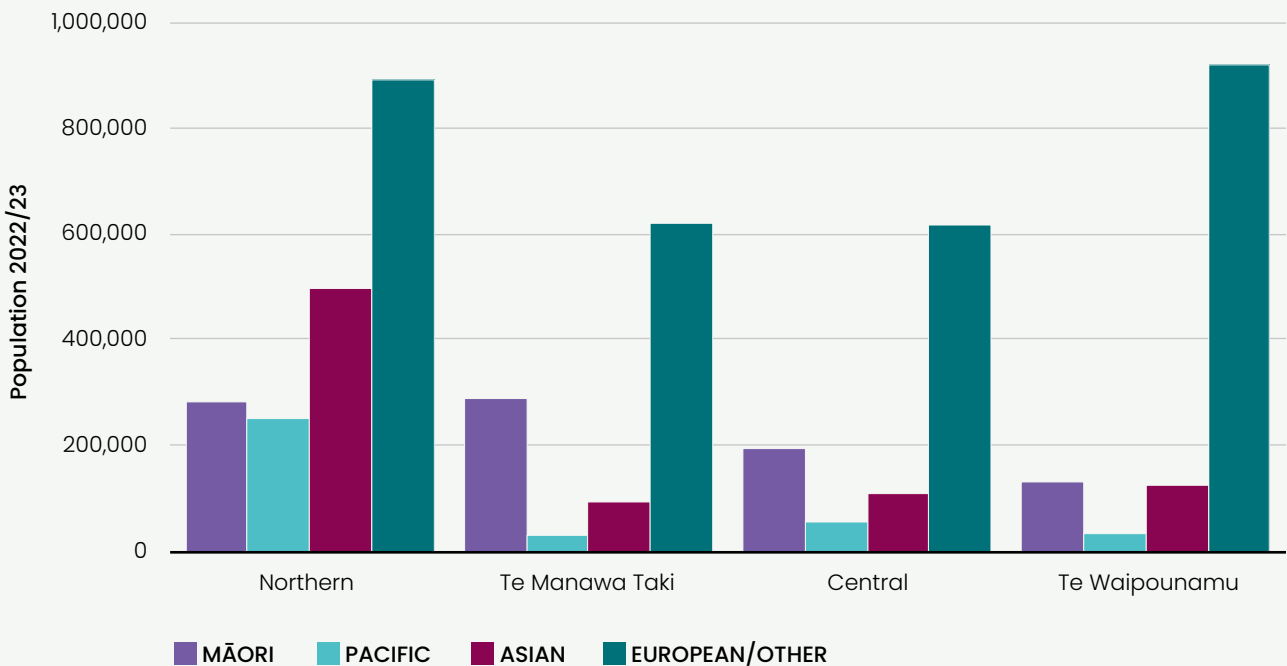


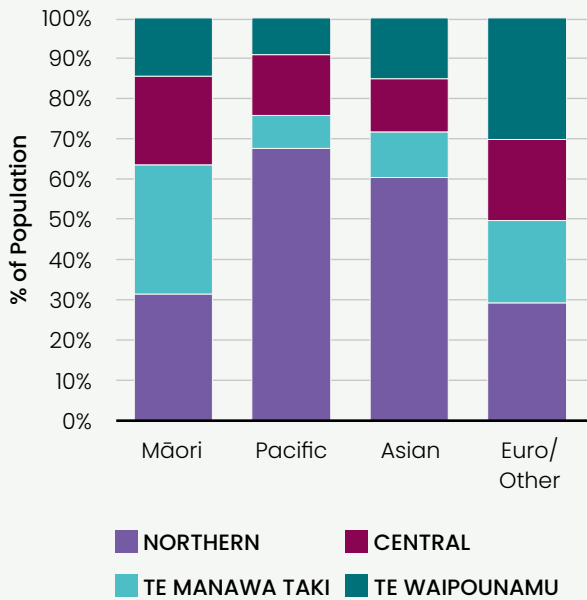
Figure 3: Population size of each region by ethnicity, 2022/23



Source: Stats NZ population projections based on 2018 Census, 2022 update

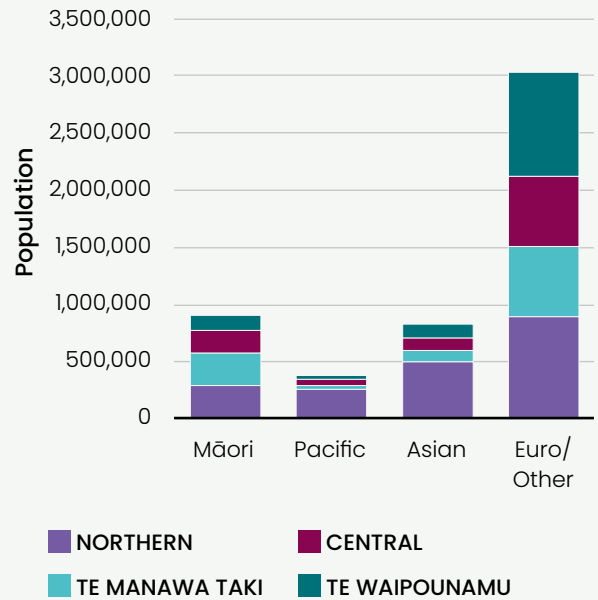


**Figure 4: Distribution of each ethnic group between regions, 2022/23**



Source: Stats NZ population projections based on 2018 Census, 2022 update

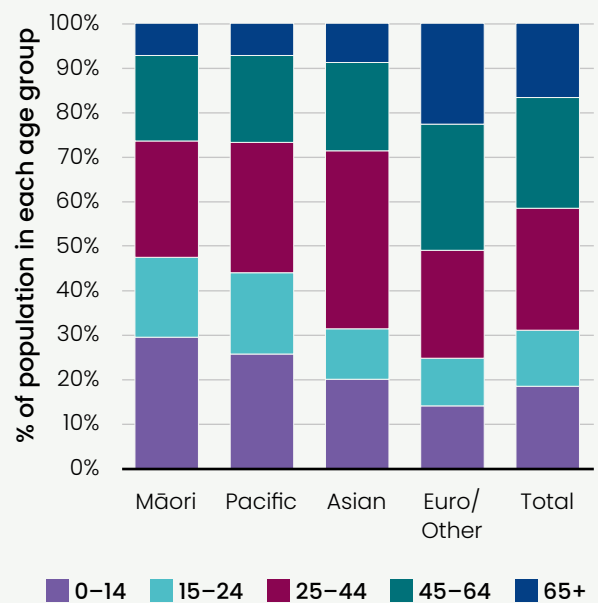
**Figure 5: Distribution of each ethnic group by region, 2022/23**



Source: Stats NZ population projections based on 2018 Census, 2022 update

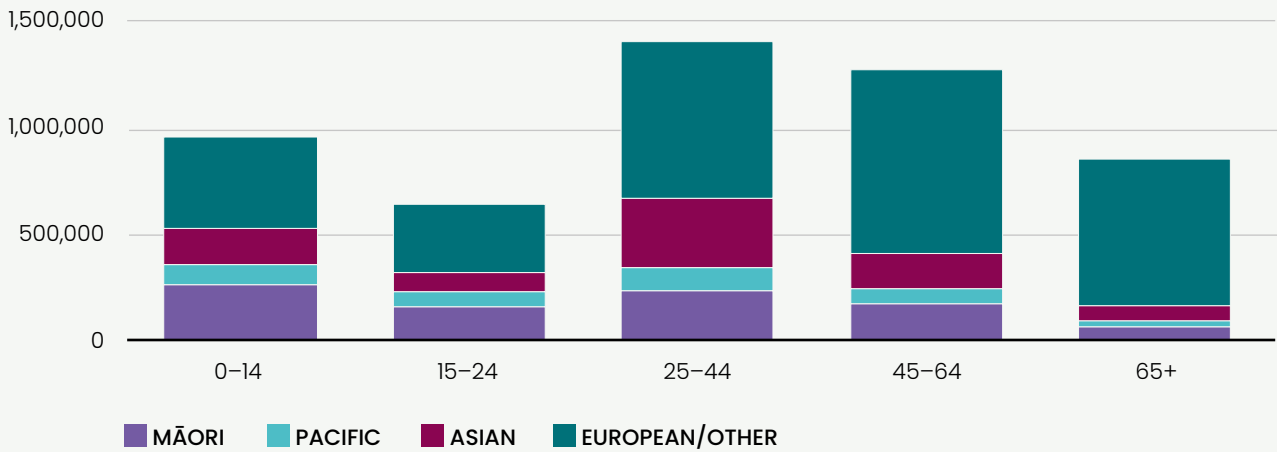
In Aotearoa New Zealand, 17% of the population are children (aged under 15 years) and 11% are young people (aged 15 to 24 years). 17% of the population are older people (65 years and older). However, Māori, Pacific and Asian populations are considerably younger, with 30% of Māori, 26% of Pacific people and 20% of Asian people under the age of 15, compared with 14% for European/Other people. Māori, Pacific and Asian populations are also notable for their small proportion of older people – 8.3% of Asian people and 6.9% of Māori and Pacific people are aged 65 years or over – compared with 20% for European/Other people.

**Figure 6: Age structure by ethnicity, national, 2022/23**

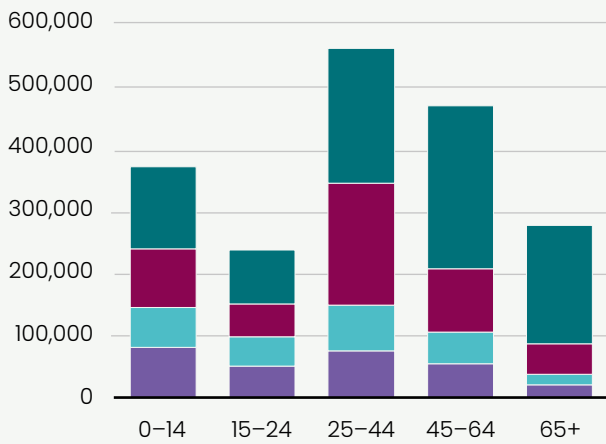


Source: Stats NZ population projections based on 2018 Census, 2022 update

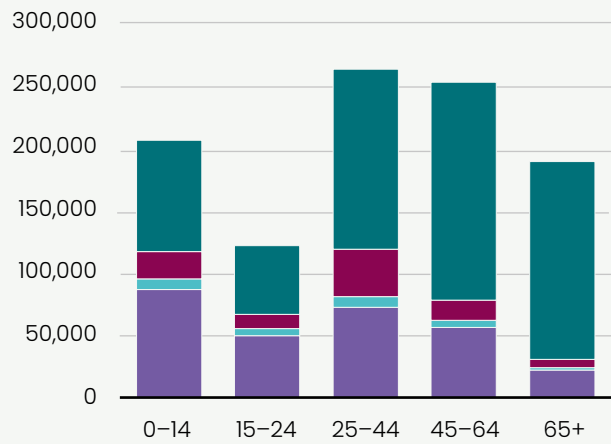
**Figure 7: Population size in each age group by ethnicity, 2022/23**



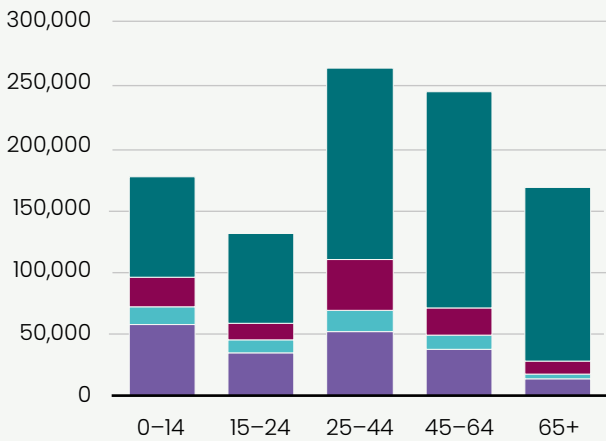
**Northern**



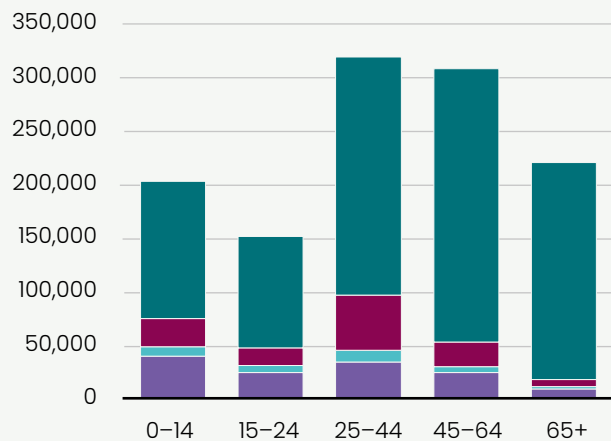
**Te Manawa Taki**



**Central**



**Te Waipounamu**



Source: Stats NZ population projections based on 2018 Census, 2022 update

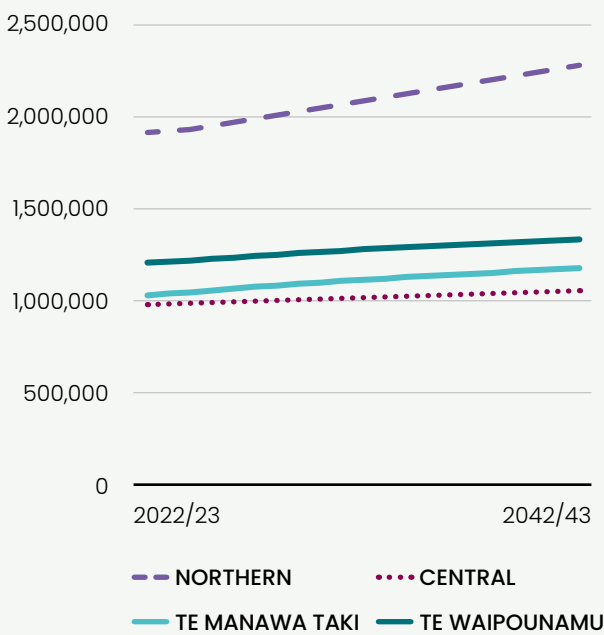
## 3.2 Projected population

By 2042/43, Aotearoa New Zealand’s population is projected to increase by 400,000 people, making it 7.8% larger than it is now.

The population will also be considerably older, with the number of people aged 65 years and over expected to increase from the current 850,000 to approximately 1.3 million by 2042/43, making up 22% of the population, compared with the current 17%.

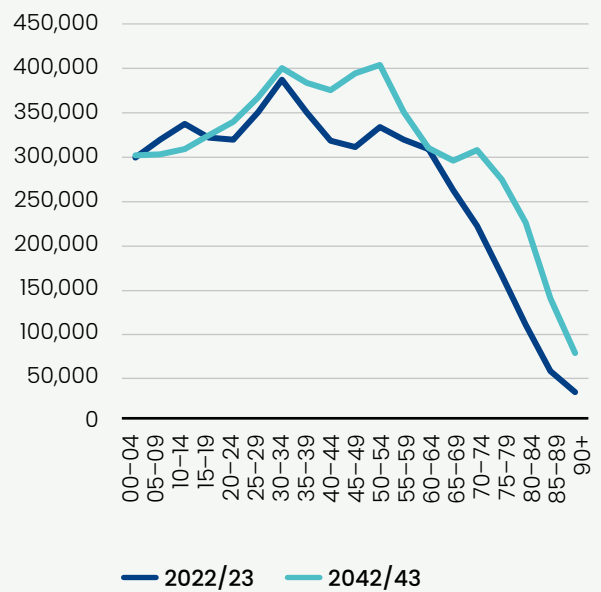
Older people in general have higher health needs than younger adults, so an increase in the number of older people will generate proportionately greater demand for health services.

**Figure 8: Population projections by region, from 2022/23 to 2042/43**



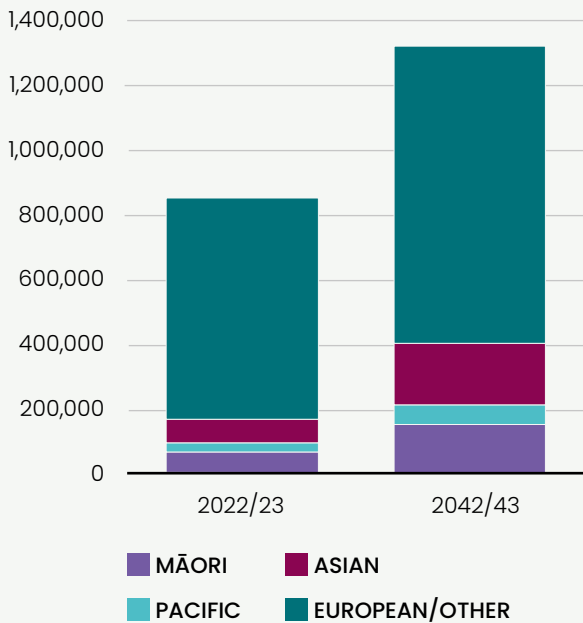
Source: Stats NZ population projections based on 2018 Census, 2022 update

**Figure 9: National population by age band, 2022/23 and projected 2042/43 population**



Source: Stats NZ population projections based on 2018 Census, 2022 update

**Figure 10: National population aged 65+ years by ethnicity, 2022/23 and projected 2042/43**



Source: Stats NZ population projections based on 2018 Census, 2022 update

The rate of growth in the population to 2042/43 will vary by ethnic group.

The Māori population is projected to grow by 37% to 1.2 million, and the number of Pacific people by 27% to 470,000. The Asian population is projected to grow by 68%, to 1.4 million. The number of European/Other people will decrease by 8%, to 2.8 million.

The growth in populations is made up of natural increase (births minus deaths), inter-ethnic mobility, and migration. For Māori, the projected increase is 81% natural increase, 26% inter-ethnic mobility, and 6% loss to migration. By contrast the projected decrease for European/Other people is due to natural causes (more deaths than births), with losses from inter-ethnic mobility and gains from migration balancing out (each equivalent to around 50% of the total change).

Over the next 20 years, the numbers of people aged 15 or younger is expected to increase for Māori, Pacific people and Asian populations, even though they are predicted to make up a lesser proportion of these population groups. This is not the case for European/Other people – both the numbers and proportion of people aged 15 or younger are expected to decrease significantly. Both numbers and proportions are expected to grow for all population groups aged over 65 years, but this is more significant for European/Other people.

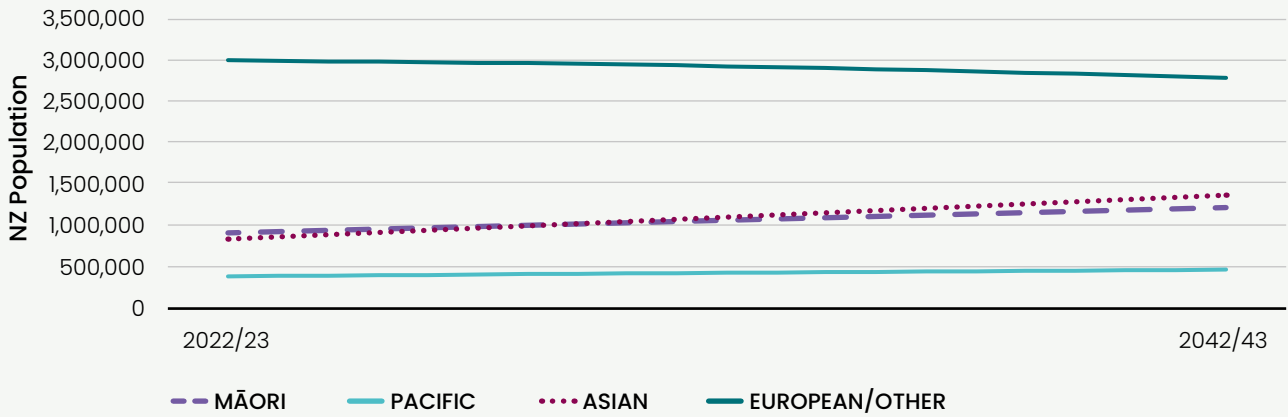
The 2042/43 projected Asian population represents a combination of the aging of the current age cohorts, together with an assumption of continued immigration in the 20-35 age groups.

These projections make assumptions about life expectancy, fertility, migration and changes of ethnic identification. Actual migration may vary considerably in future from the best-guess assumptions made at this point. COVID-19 changed migration patterns; climate change will do the same. With current knowledge and predictions of climate change, Aotearoa New Zealand is seen as a safer country than most, and therefore attractive to refugees from areas likely to become uninhabitable, although this may also change, as every prediction of climate change to date has been subsequently revised to a more severe scenario.

We need to plan and develop health services to meet the needs of the changing and expanding population. This reinforces the need for agile funding and delivery mechanisms that will respond to the contrasting health service needs of our differing population groups.



**Figure 11: Population projections by ethnicity, from 2022/23 to 2042/43**

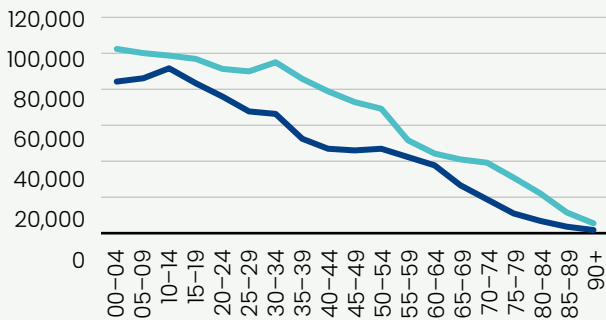


Source: Stats NZ population projections based on 2018 Census, 2022 update

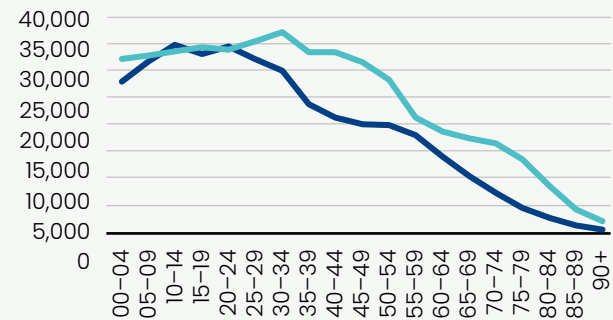
**Figure 12: Projected population growth by age band, 2022/23 to 2042/43**

— ESTIMATE 2022/23    — PROJECTED 2042/43

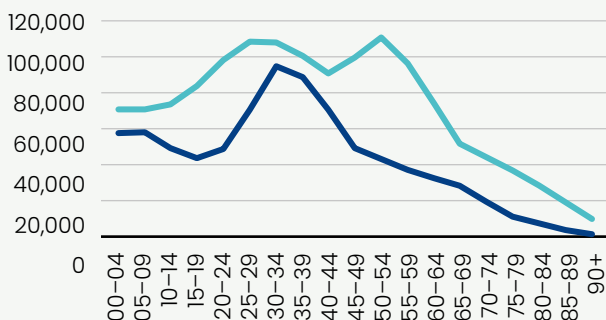
**Māori**



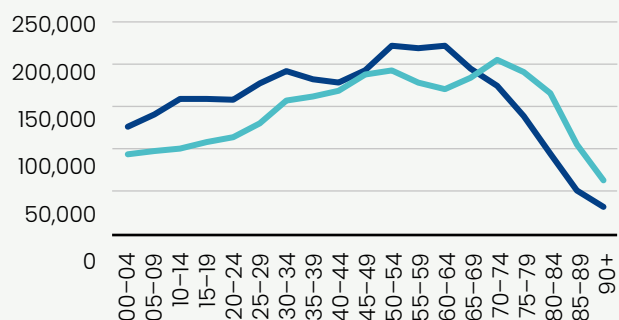
**Pacific**



**Asian**



**European/Other**



Source: Stats NZ population projections based on 2018 Census, 2022 update

## 3.3 Māori health priorities and aspirations

It is important to recognise the broader context in which Māori health status is located.

Māori health has often been framed using deficit lenses, highlighting individual responsibility, and fundamentally failing to recognise Te Tiriti o Waitangi and Māori rights to health.

In the same way, health risk factors have been predominantly framed through a non-Māori lens, which fails to recognise indigenous and Māori understandings of health which are generally broader, more holistic, embedded in collectivism and which acknowledge the importance of wairua (spirit) and te Taiao (environments). Māori have experienced consistently poorer health than other ethnic groups since the 19th century and, importantly, Māori experience poorer health even when factors such as income, occupation, education, and neighbourhood are accounted for.<sup>10</sup> Pre-existing inequities in the health system were exacerbated as a result of the coronavirus disease 2019 (COVID-19) pandemic.

A Māori Health Priorities report commissioned for Te Aka Whai Ora<sup>11</sup> outlined the priorities for Māori health gain:

### Priorities for Māori health gain

Cancer

Long-term conditions  
(cardiovascular disease, diabetes,  
stroke, chronic respiratory disease)

First 1,000 days

Mental health.

These priorities draw focus to the biggest contributors to health loss and health inequity for Māori and also represent the greatest potential for intervention.



“The health system performs worse for Māori in virtually every domain measured. Māori experience higher exposure to social, environmental and commercial determinants of poor health, most of which can be modified by Government action either through health sector or cross-sectoral actions. The health system needs to perform better for Māori in every sphere, for every condition, through every service and every interaction. This will require transformational redesign rather than incremental changes to the status quo.”

Māori Health Priorities report<sup>11</sup>

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Taking action to eliminate inequities in health outcomes is the responsibility of the entire health system, the social sector and other agencies that have impacts on the social determinants of health.

Māori views on health are framed by a holistic approach that encompasses four key elements: wairua (spiritual), hinengaro (psychological), tinana (physical) and whānau (extended family). Karakia (blessing or prayer) plays an essential part in protecting and maintaining these four key elements of health. An example of data collection on more holistic concepts of wellbeing is Te Kupenga,<sup>12</sup> a national-level survey that is designed to provide information about access to te ao Māori and cultural wellbeing. It provides key statistics on:

- wairuatanga
- tikanga
- te reo Māori
- whanaungatanga.

The results highlighted strengths for Māori:

- 86% of Māori know their iwi.
- 18% speak te reo Māori fairly well or very well; this varied by region, from 12% in Canterbury to 35% in Gisborne.
- Three out of four Māori (74%) reported that their whānau was doing well.
- 76% of Māori found it easy to access whānau support in times of need.
- Being involved in Māori culture was important (very, quite, or somewhat) to the majority of Māori (90%). Spirituality was important to 81%.
- Almost all (97%) Māori had been to a marae at some time, with half having been in the previous 12 months. Two out of three knew their marae tipuna (ancestral marae) and of these, 84% had visited it.
- One in eight Māori had participated in traditional healing or massage in the previous 12 months.<sup>12</sup>

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## 3.4 Pacific people

Pacific people in Aotearoa New Zealand experience significant inequities in health outcomes across the life course and have a lower life expectancy.<sup>14</sup>

There is a large Pacific population in New Zealand, the majority of which live in Auckland. Alongside Māori, Pacific people experience poorer health than Asian and European/Other people. The drivers of this include access to the socio-economic and cultural determinants of health and wellbeing, unmet needs for quality and culturally safe care, and unconscious bias in health and other sectors. Despite reporting experience of acutely-felt material deprivation, Pacific people retain high levels of trust in New Zealand institutions, and high self-rated health and life satisfaction.<sup>15</sup>

Alongside permanent residents, there are up to 5% (19,000) more Pacific-resident workers in Aotearoa New Zealand for some part of the year, on the Recognised Seasonal Employer (RSE) scheme, working in horticulture and viticulture. While this scheme provides welcome employment opportunities, the arrangement can place stress on whānau at home missing a parent for seven months at a time. The Equal Opportunities Commission review in 2022 found RSE workers suffered from poor living conditions, exploitative practices and inadequate access to healthcare.<sup>16</sup>

Pacific people view health and wellbeing holistically, encompassing the physical, mental, spiritual, social and economic wellbeing of the collective. One example of Pacific models of health is the Samoan Fonofale model, which includes whānau, culture, beliefs and values as the core elements, held up by the four aspects of wellbeing (spiritual, physical, mental, and socio-economic) and other factors, surrounded by the environment and time representing the non-static nature of wellbeing.<sup>17</sup> Many other models exist, which can be country-specific or pan-Pacific. There is evidence that, for Pacific people, cultural identity is a protective factor for wellbeing.

The Pacific Wellbeing Strategy and Outcomes Framework developed in 2021 has four Pacific wellbeing goals: thriving languages, cultures and identities; strong communities; resilient and healthy people; and confident and thriving Pacific young people.

The Pacific Languages Strategy found a significant decline in Pacific language speaking among most of the Pacific people living in New Zealand. Across all Pacific languages, 16% of those under the age of 15 years speak their heritage language.<sup>18</sup>

The Stats NZ General Social Survey 2021<sup>18</sup> found that whānau wellbeing is strong for Pacific people.

- 85% of Pacific people rated their whānau wellbeing highly.
- 73% of Pacific adults had face-to-face contact with whānau who did not live with them at least once a week.

Pacific people want to see a health system focused on prevention and early intervention.<sup>17</sup> Ola Manuia, the Interim Pacific Health Plan July 2022–June 2024, outlines the health priorities for Pacific people. These are mothers and babies, children and youth, older people, disabled people, mental health and wellbeing, long-term conditions including cancer, diabetes and gout, and addressing gaps and missed care over the two years of the pandemic.<sup>20</sup>

A limitation in understanding Pacific people's health outcomes is the lack of data available by Pacific sub-groups. Presenting results for the entire Pacific people group, which averages results, may mask issues that impact one sub-group more than others.



## 3.5 Asian; Middle Eastern, Latin American and African (MELAA); and other culturally and linguistically diverse communities (CALD)

The broad terms “Asian” and “Middle Eastern, Latin American and African” (MELAA) encompass culturally distinct and diverse communities.

In this report, we often refer to groups of people who sit within the MELAA and CALD communities. For clarity, when we refer to Chinese or Indian groups, we are referring to Chinese or Indian nationals as opposed to Hong Kong Chinese or Taiwanese Chinese, or Fijian Indians.

World views, traditional practices, religion, language and ways of embracing health all have an impact on the health and wellbeing of Aotearoa New Zealand’s migrant and former refugee communities.

In 2018, 54.5% of Asian people and 56.2% of MELAA people in Aotearoa New Zealand spoke two or more languages.

Diverse ethnic communities are deeply linked to their cultural beliefs and values. Among Asian people, 66% had a religious affiliation: the most common being Christianity (26.8%), Hinduism (16.8%) and Islam (5.7%). A greater proportion of MELAA people (74.1%) were affiliated with a religion, the most common being Christianity (41.3%) and Islam (22.4%).

Available evidence suggests these communities including (but not limited to) populations from Asia, the Middle East, Latin America, and Africa, those who have been refugees in the past, present and former asylum seekers, those from transgender, non-binary and gender diverse backgrounds, and international students face significant barriers to accessing primary care and mental health and addiction, pharmacy, oral health and maternity services. Challenges include resettlement stress, financial and transport stressors, language barriers, lack of knowledge of the health system, lack of trust and understanding of Western models of care, a perceived lack of confidentiality, cultural differences in assessment and

treatment, and lack of cultural competence among health professionals. For example, Asian patients of the former Te Toka Tumai Auckland District Health Board were slightly less likely to rate their overall care and treatment as “very good to excellent” (81%), compared to non-Asians (NZ European 84%, Māori 84% and Pacific people 84%).<sup>20</sup>

Culturally tailored patient support is an important enabler of culturally appropriate and responsive care for CALD patients and whānau. Health systems must be linguistically and culturally sensitive to the needs of ethnic and new immigrant communities, including (but not limited to) Asian and MELAA people, former refugees, present and former asylum seekers and international students. Cultural competence training for the health workforce, and health and wellbeing services for CALD populations at community and hospital levels would ideally be further enhanced nationwide.<sup>20</sup>

Between 2013 and 2018, the Asian population increased from 11.8% to 15.1% of Aotearoa New Zealand’s total population. In 2023, Asian people (829,000) account for 16.1% of Aotearoa New Zealand’s total population and 28.5% of Auckland’s population, based on the 2022 population projection. Other CALD communities include MELAA people, who comprised 1.5% of the total population in 2018 (compared to 1.2% in 2013).

More than 180 different ethnicities, and a significant proportion of the ethnic communities, reside in Auckland. In 2018, 62.6% of Asian people and 51% of MELAA people resided in Auckland. Almost 40% of Aucklanders were born outside New Zealand, including 77% of both the Asian and MELAA communities in 2018.

## 3.6 Migrant and refugee populations

Aotearoa New Zealand has a large and fast growing migrant population.

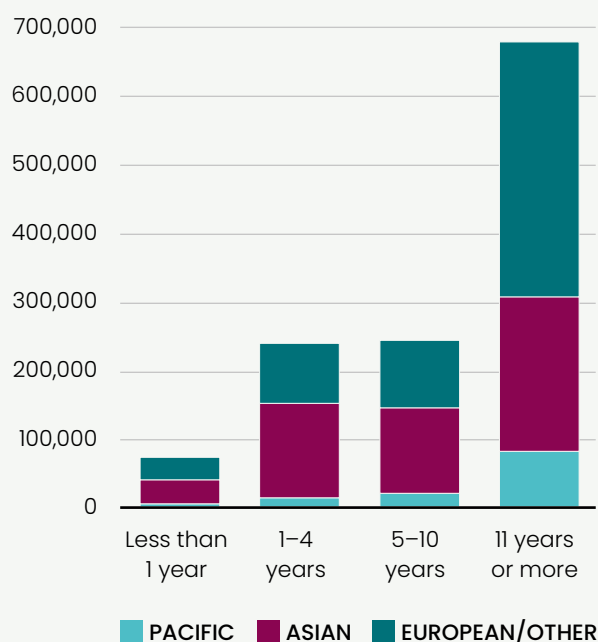
In 2018, one in three people living in New Zealand was born overseas. About half of those born overseas had been in Aotearoa New Zealand for more than 10 years. Among those who had lived in Aotearoa New Zealand for 10 years or less, the majority were Asian (300,000), followed by European/Other (187,000), Pacific people (35,000) and MELAA people (32,000).

English language ability is important for participation in Aotearoa New Zealand society.<sup>13</sup>

Overall, around 16% of people speak both English and another language (other than Māori). This varies around Aotearoa New Zealand reflecting where migrants have settled, with 27% of Aucklanders speaking another language, and 10% of people in the rest of New Zealand speaking another language in 2018.

Among adults, an estimated 2.2% (105,000 people) could not hold a conversation in English about everyday things; 69% of these people lived in Auckland.

**Figure 13: Number of migrants by duration of residence, 2018**



Source: Census 2018 Usually Resident population

## Section 4

# Pae ora | Better health in communities



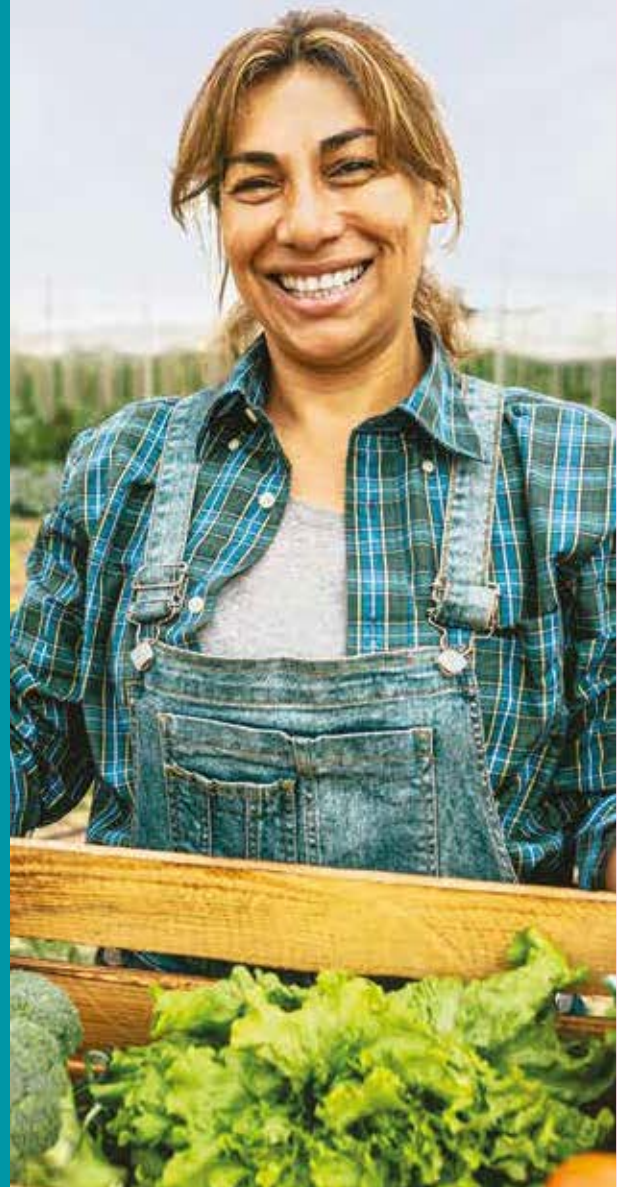
Many factors affect the health of individuals and communities.

Whether people are healthy is determined, for the most part, by the socio-economic and cultural determinants of health and wellbeing and their environment.

To a large extent, factors such as where we live, the state of the environment, genetics, income and education level, and relationships with friends and family all have considerable impact on our health and resilience in times of adversity and stress.

The more commonly considered factors, such as access and use of healthcare services, often have less impact, although many of the determinants mentioned above influence people's ability to engage with health services.

Much of the information in this section is taken from the 2018 Census and the NZ Health Survey (NZHS) pooled results for 2017–2020. Other information is drawn from the Stats NZ General Social Survey 2021.<sup>18</sup>



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## 4.1 Socio-economic status

The New Zealand Index of Deprivation (NZDep) is an area-based measure of socio-economic deprivation in Aotearoa New Zealand.

It is used to measure the relative prosperity or deprivation of the population. It is based on averaged information about the households and individuals in an area, and combines Census data on income, employment, benefit dependence, educational qualifications, internet access at home, home ownership, overcrowding, damp/mouldy housing and single-parent households.

The index ranks categories so that, as nearly as possible, one-tenth of the population of Aotearoa New Zealand falls into each. These categories are called deciles.

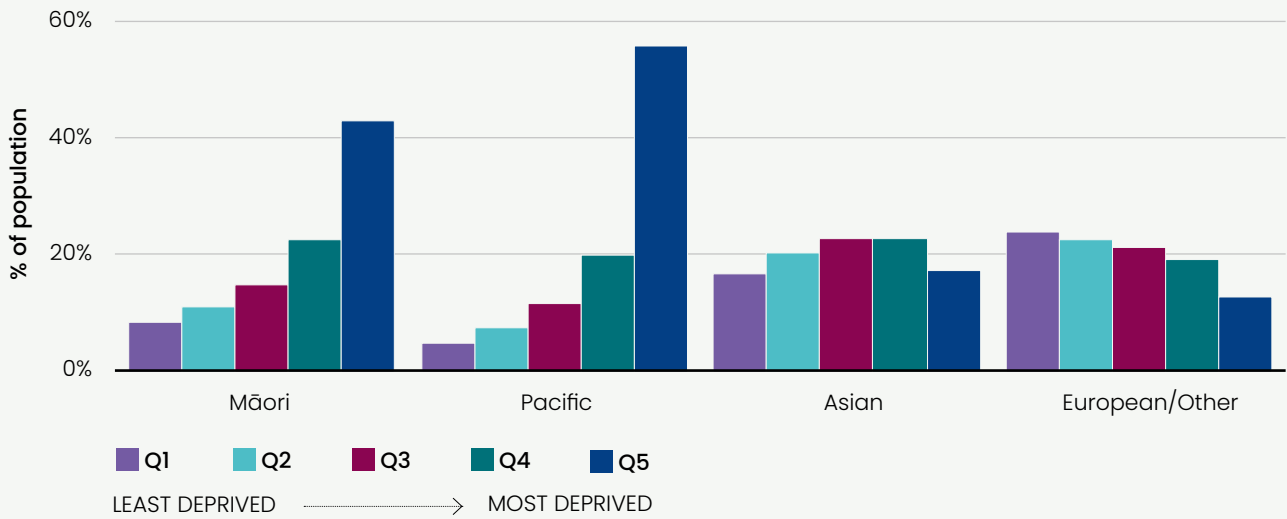
Decile 1 represents areas with the least socio-economically deprived NZDep scores and decile 10 represents areas with the most deprived NZDep scores.

Because the scale splits up the population into tenths, the difference between adjacent points on the scale is not the same across the scale.<sup>21</sup> We can illustrate this point by considering income, which is one of the factors in the deprivation index. The Household Economic Survey 2020/21 estimates that the top 20% of households hold approximately 62% of Aotearoa New Zealand's total household net wealth, while the lowest 20% of households hold 1% of household net wealth.

The index also uses the term "quintile", which splits the country into fifths. Quintile 1 represents the 20% least socio-economically deprived areas in Aotearoa New Zealand; quintile 5 represents the 20% most socio-economically deprived. (source: Environmental Health Intelligence New Zealand <https://www.ehinz.ac.nz/indicators/population-vulnerability/socioeconomic-deprivation-profile>).

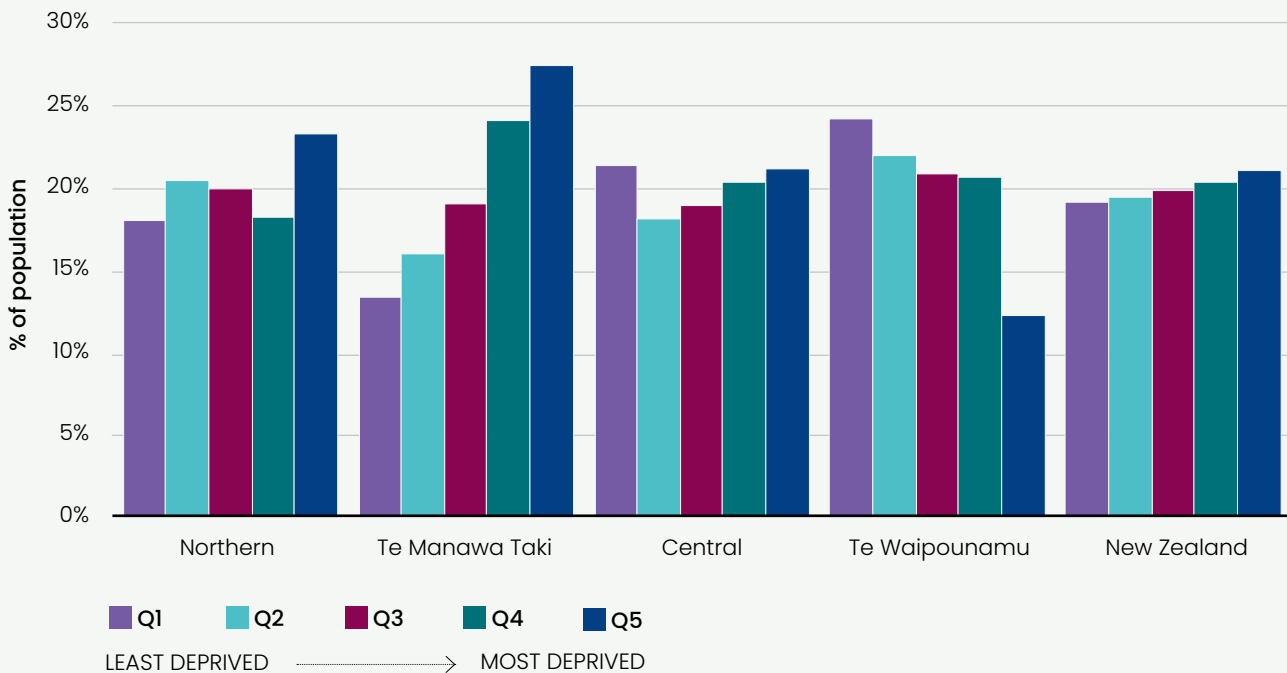
Māori and Pacific people are much more likely to live in areas with the most socio-economically deprived NZDep scores. There are more than twice as many Māori, and almost three times as many Pacific people, in areas with the most socio-economically deprived NZDep scores as would be expected if all ethnicities lived in the same mix of socio-economic areas. By contrast there are around half as many European/Other people living in areas with the most socio-economically deprived NZDep scores as would be expected. The drivers of these differences between ethnic groups are external and include many system factors.

**Figure 14: Proportion of population in each NZ deprivation quintile by ethnicity, national 2018**



Source: Otago University NZDep2018 deprivation index by SA1 based on 2018 Census

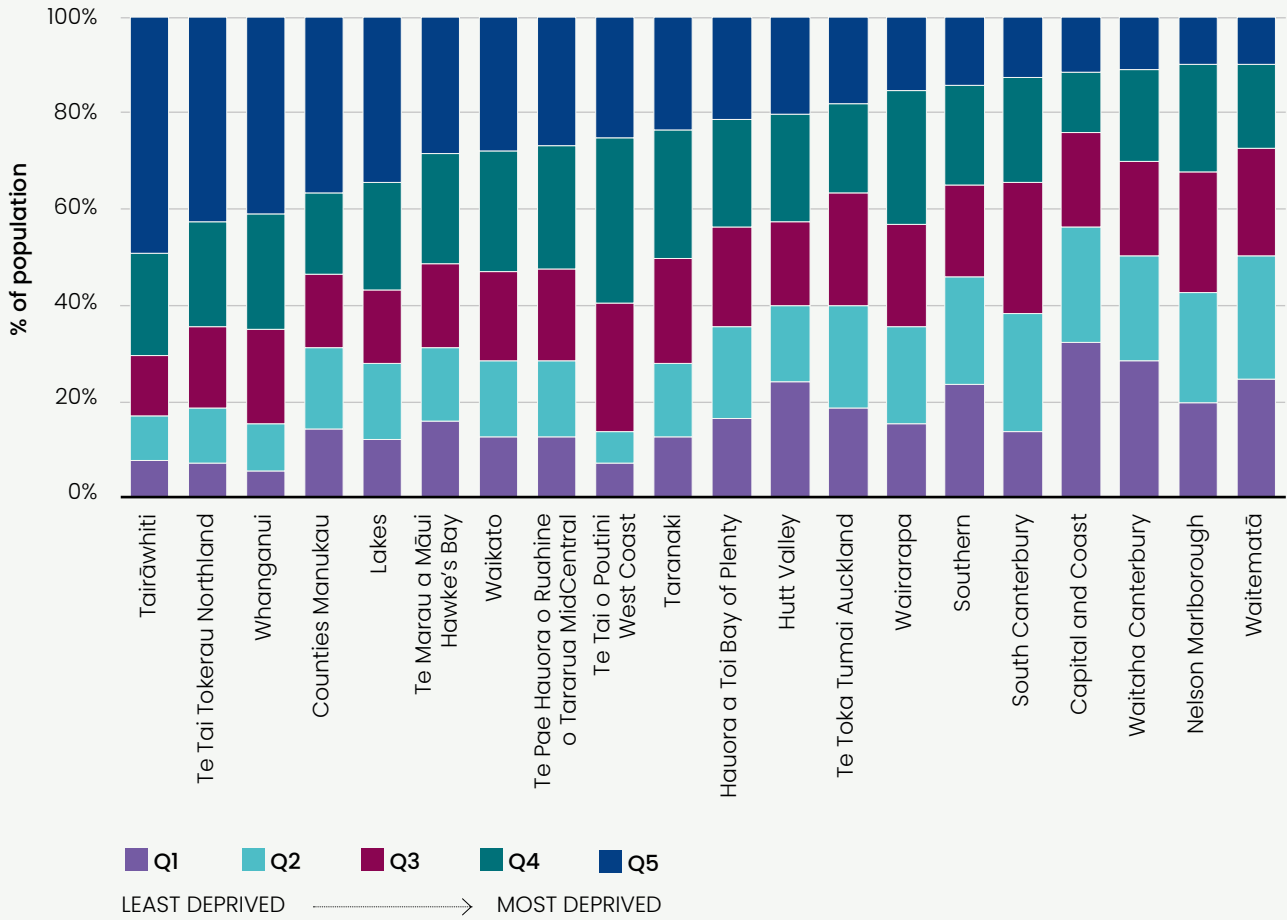
**Figure 15: Proportion of population in each NZ deprivation quintile for each region, 2018**



Source: Otago University NZDep2018 deprivation index by SA1 based on 2018 Census



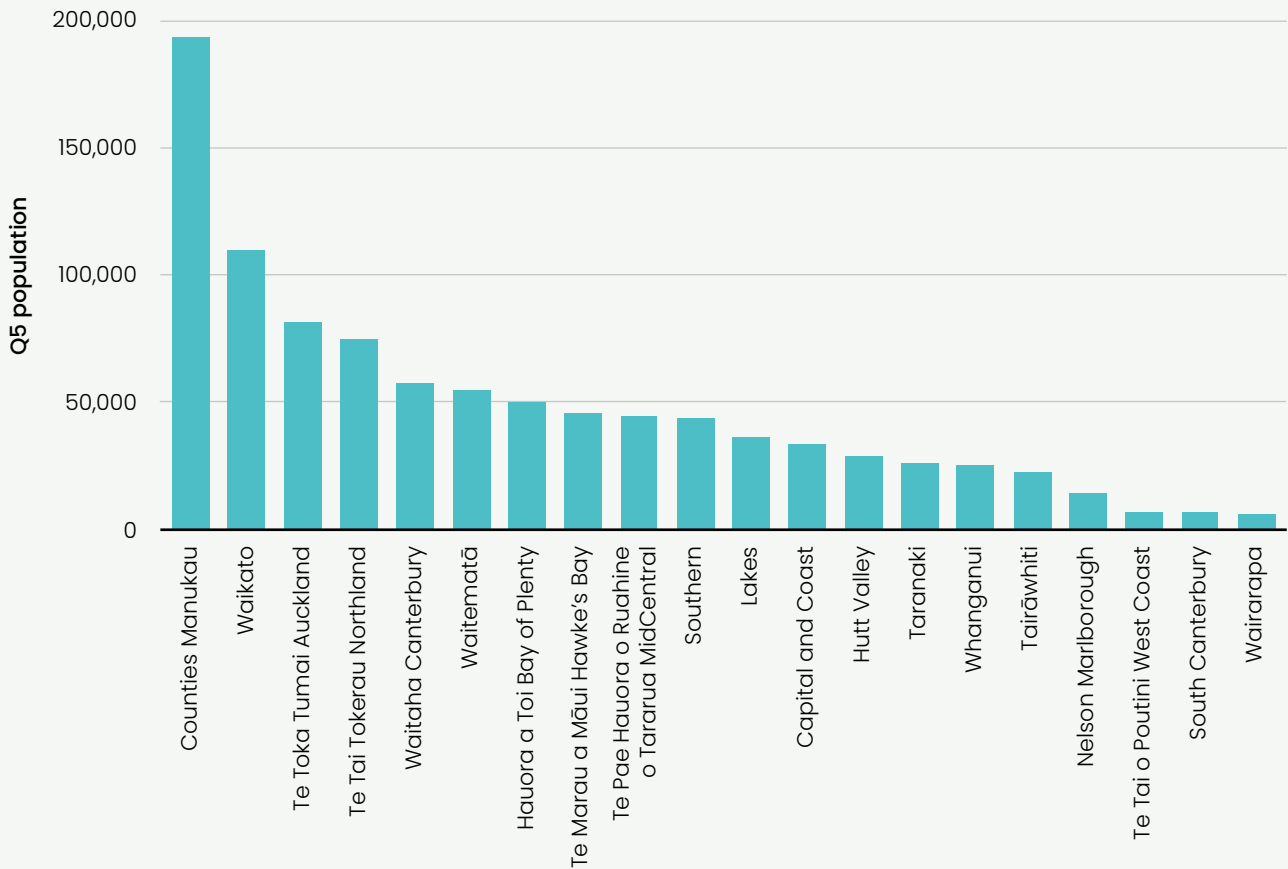
Figure 16: Proportion of population in each NZ deprivation quintile by district, 2018



Source: Otago University NZDep2018 deprivation index by SAI based on 2018 Census

The proportion in each category of deprivation is shown for each of the health districts. The variation is striking. In Tairāwhiti, Te Tai Tokerau Northland and Whanganui, over 40% of the population was classed as living in the areas with the most socio-economically deprived NZDep scores, 20% of New Zealanders in 2018, while in Waitematā, 10% were in this category.

**Figure 17: Number of people living in those areas with the most socio-economically deprived NZDep scores by district, 2018**

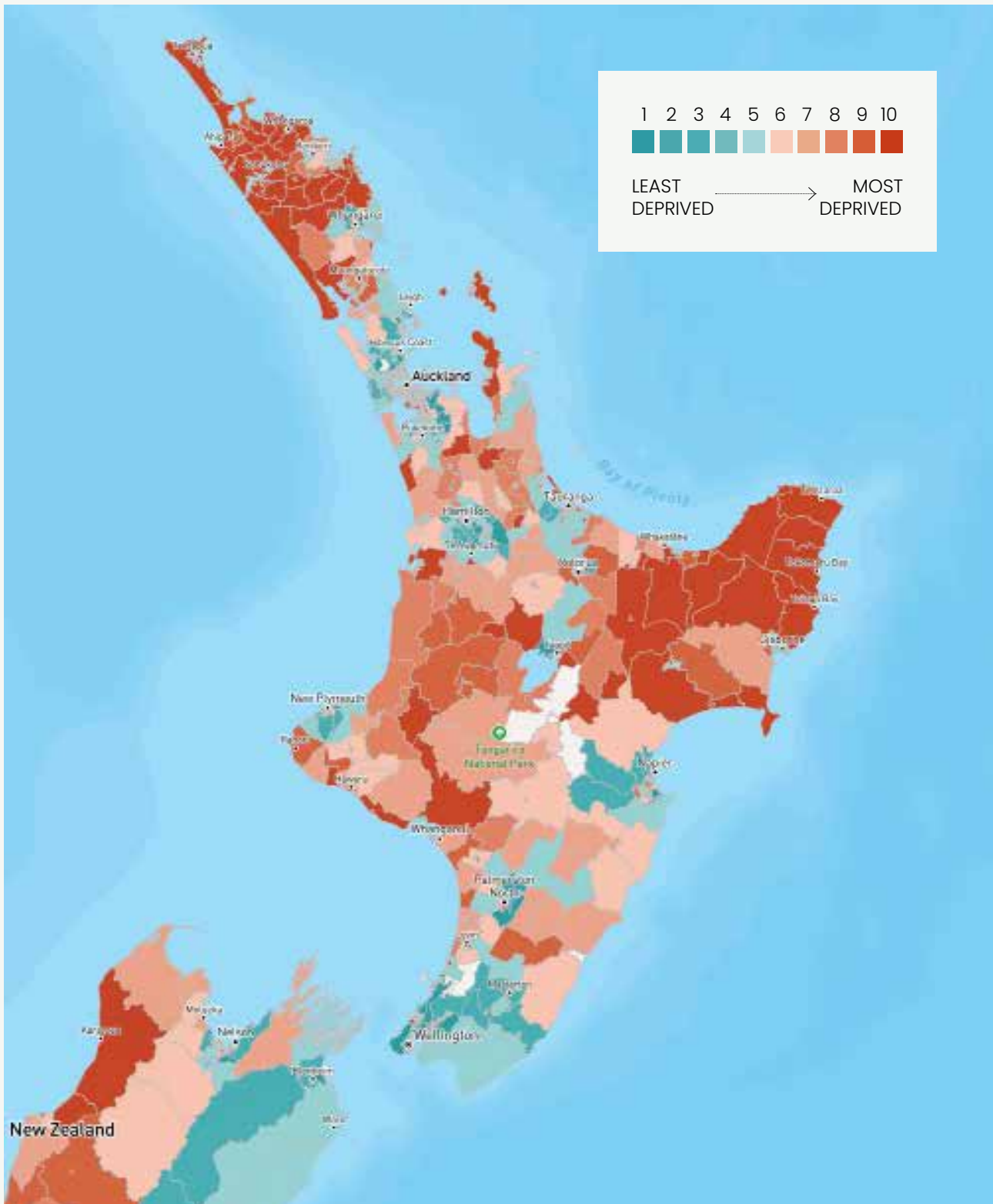


Source: Otago University NZDep2018 deprivation index by SAI based on 2018 Census

Counties Manukau had the highest number of people living in the areas with the most socio-economically deprived NZDep scores, almost double the number in Waikato which had the second highest number.<sup>21</sup>

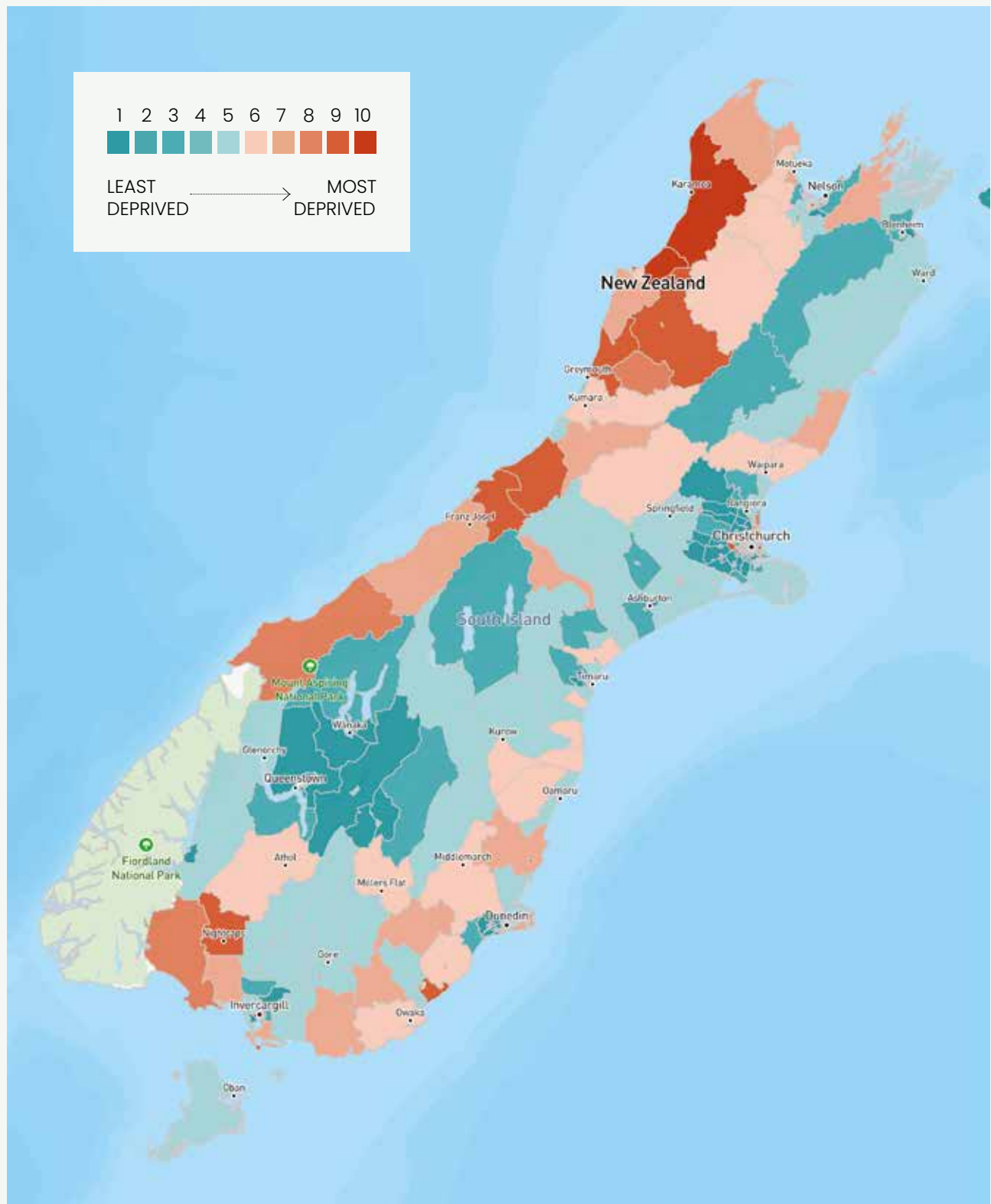
Maps of deprivation scores at SAI level are available on the Massey University website [www.ehinz.ac.nz](http://www.ehinz.ac.nz)

Figure 18: Location of areas of socio-economic deprivation, NZDep2018, North Island



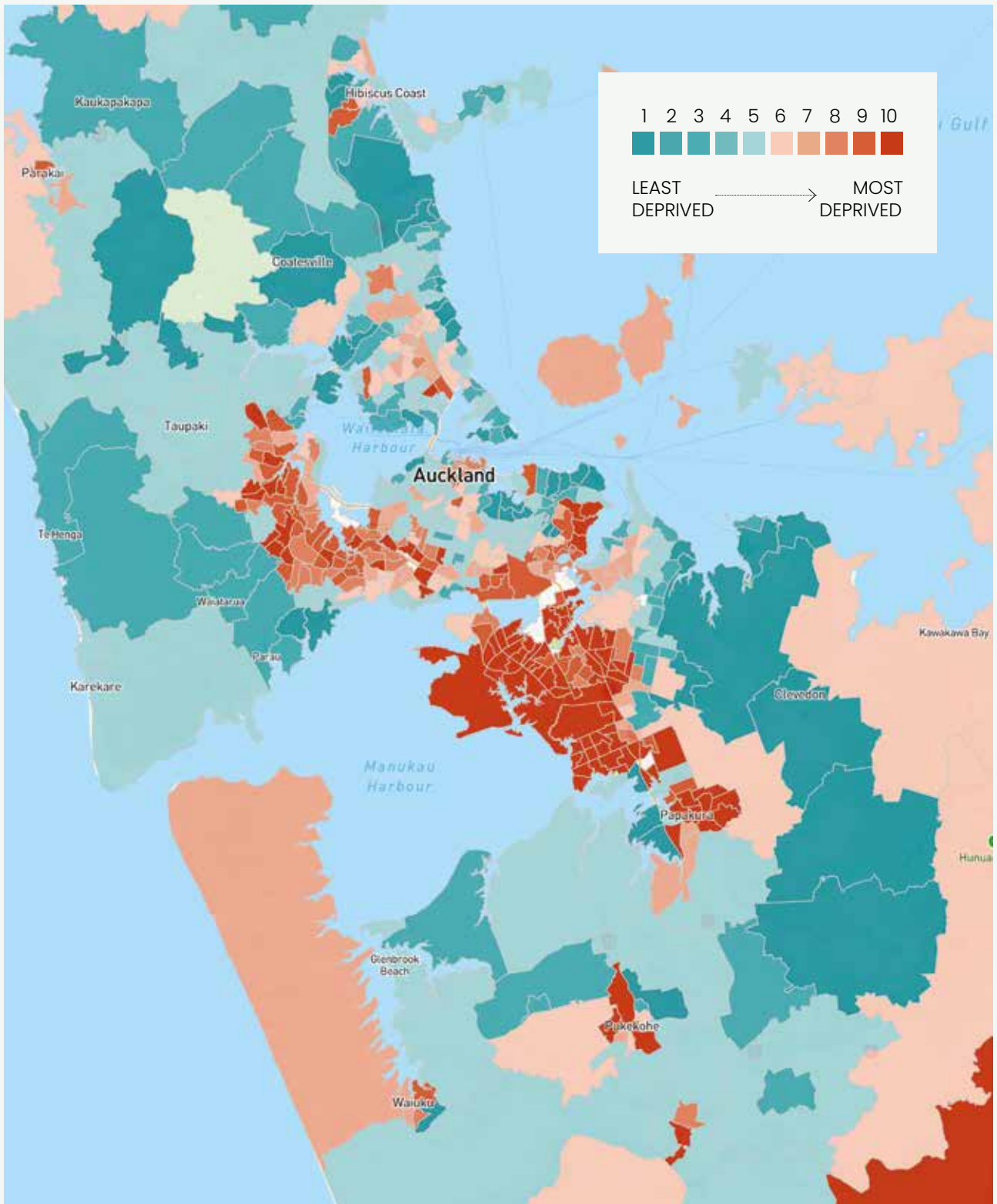
NZDep2018 Maps at SA2 level prepared by Ling Liu and Grant Hanham, Strategy, Planning and Performance

Figure 19: Location of areas of socio-economic deprivation, NZDep2018, South Island



NZDep2018 Maps at SA2 level prepared by Ling Liu and Grant Hanham, Strategy, Planning and Performance

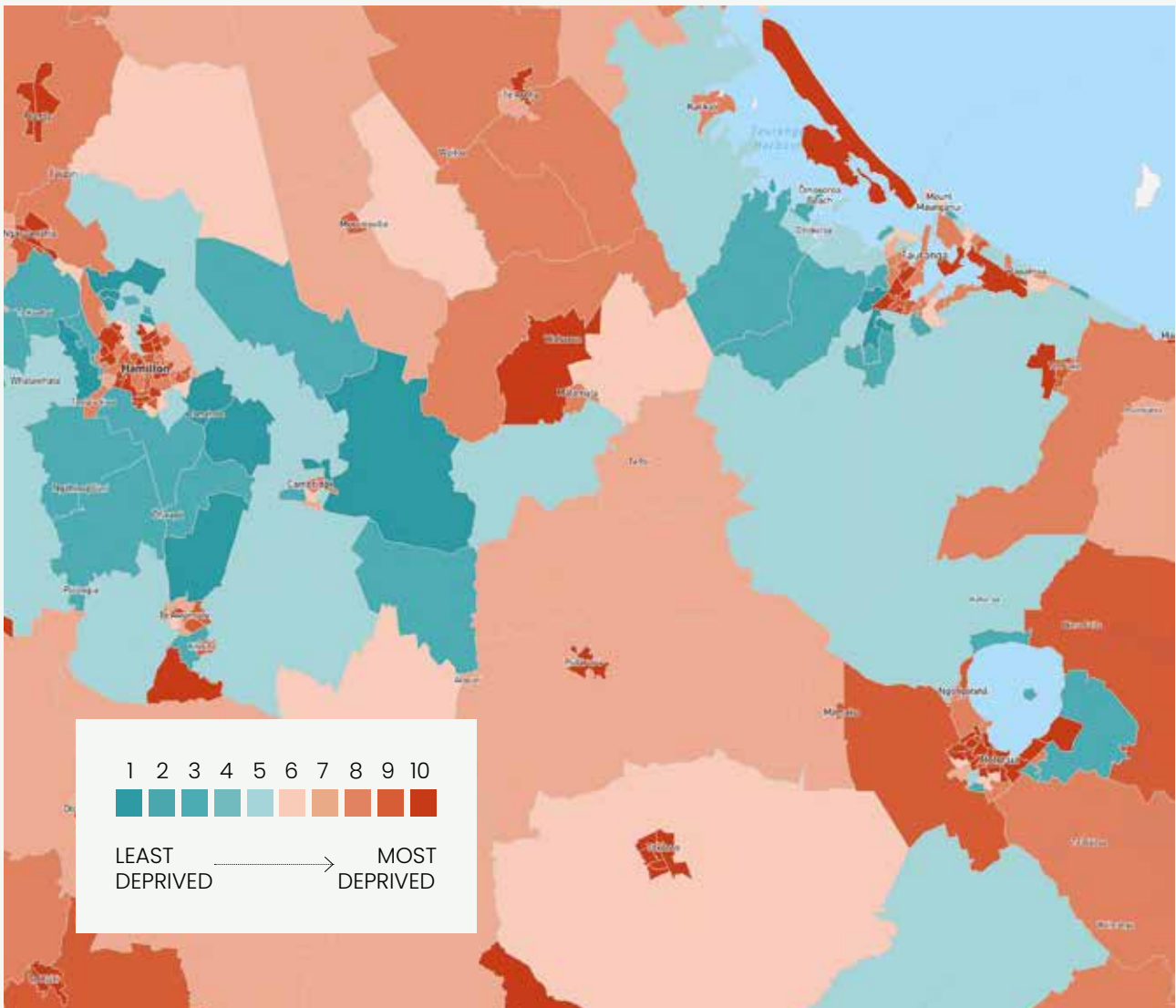
Figure 20: Location of areas of socio-economic deprivation, NZDep2018, Auckland area



NZDep2018 Maps at SA2 level prepared by Ling Liu and Grant Hanham, Strategy, Planning and Performance

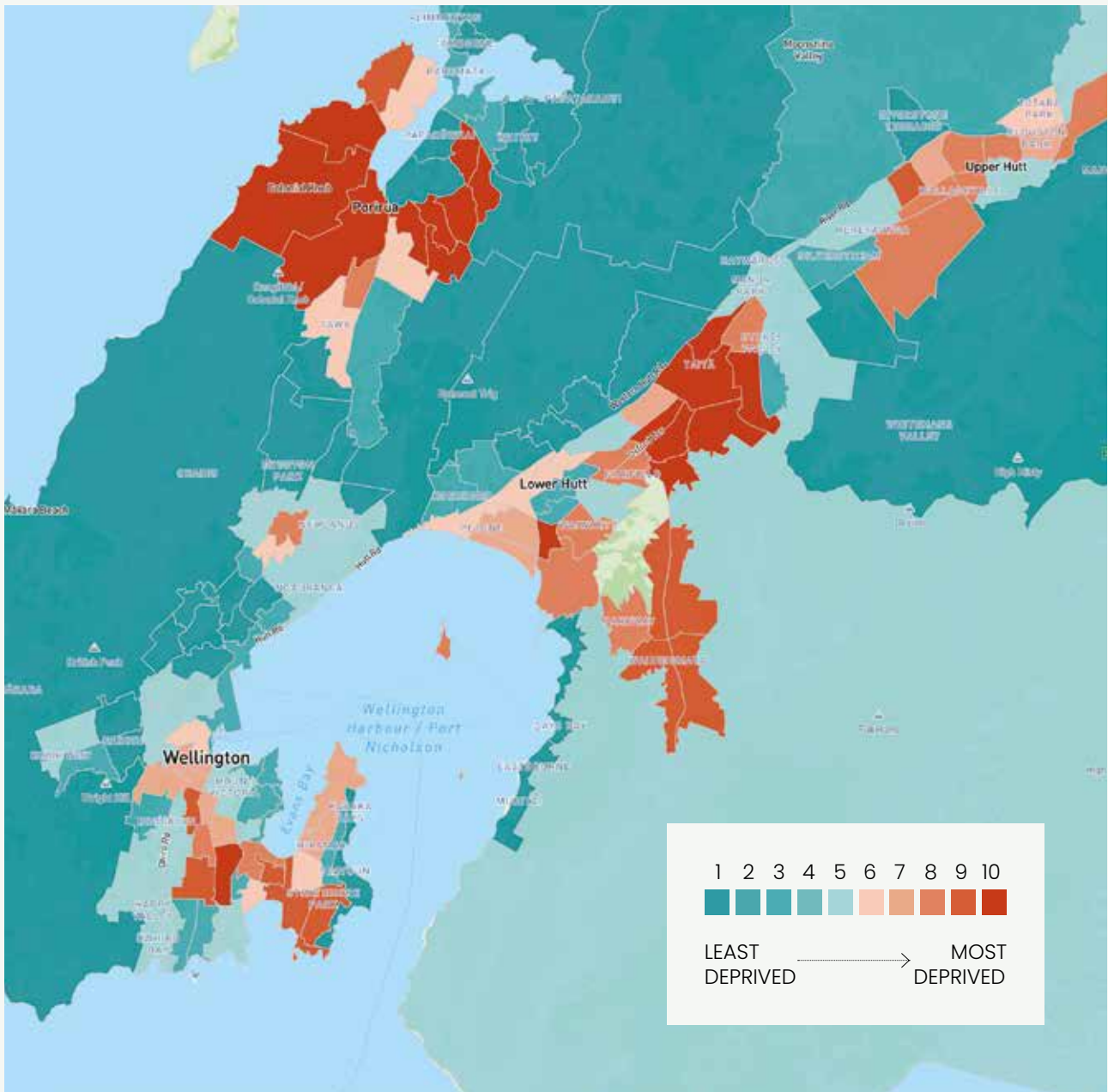


Figure 21: Location of areas of socio-economic deprivation, NZDep2018, Hamilton and Tauranga areas



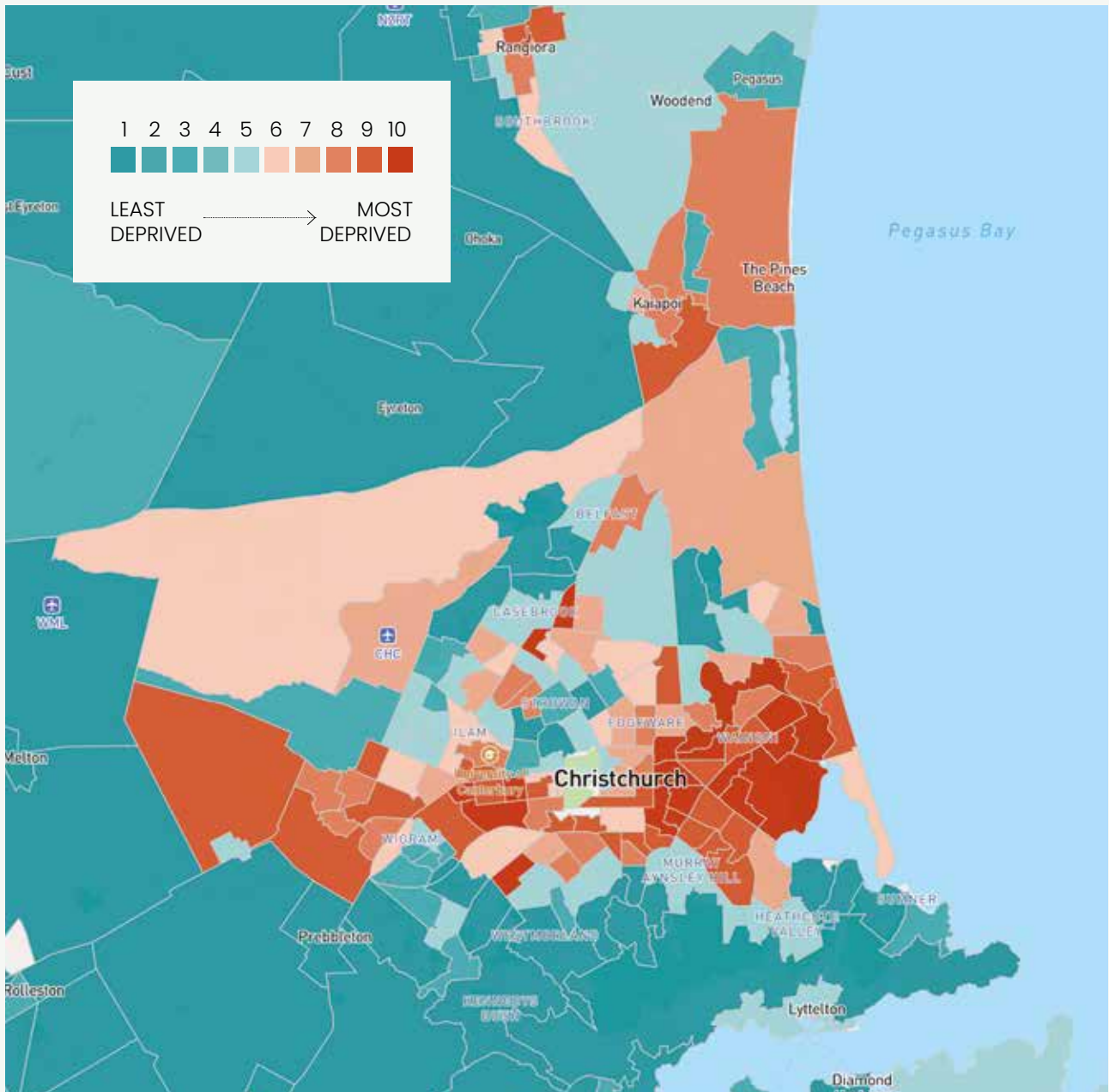
NZDep2018 Maps at SA2 level prepared by Ling Liu and Grant Hanham, Strategy, Planning and Performance

Figure 22: Location of areas of socio-economic deprivation, NZDep2018, Wellington, Porirua and Hutt Valley areas



NZDep2018 Maps at SA2 level prepared by Ling Liu and Grant Hanham, Strategy, Planning and Performance

Figure 23: Location of areas of socio-economic deprivation, NZDep2018, Christchurch area



NZDep2018 Maps at SA2 level prepared by Ling Liu and Grant Hanham, Strategy, Planning and Performance

## 4.2 Rurality

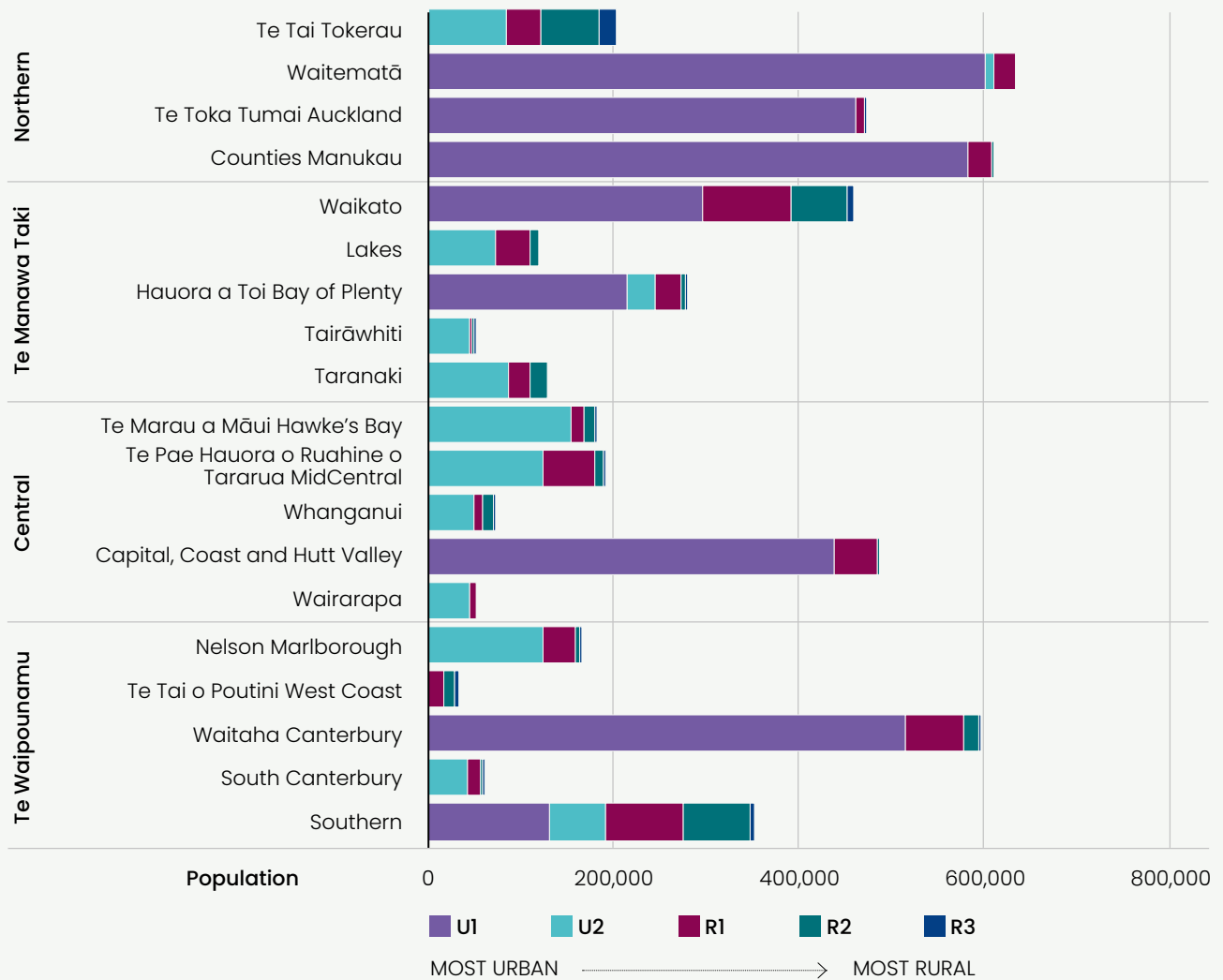
People living in rural areas often have poorer access to health services than those living in urban areas.

Data collection on how living rurally affects health outcomes can be limited depending on the tools used to measure rurality.

The Geographical Classification for Health (GCH) considers distance to health services rather than to broader services allowing urban-rural health disparities to be analysed consistently. Using the GCH, almost one in five (19%) New Zealanders, slightly fewer than one million people, live in rural areas.

Rural areas have a higher proportion of Māori (23%) than urban areas (16%), and a higher proportion of people aged 65 years and over (22% versus 16%).<sup>22</sup> Nationally, 69% of people living in rural areas are European/Other, but in Te Waipounamu, the proportion is greater (81%).

**Figure 24: Population by rural/urban location categories, national, 2023**

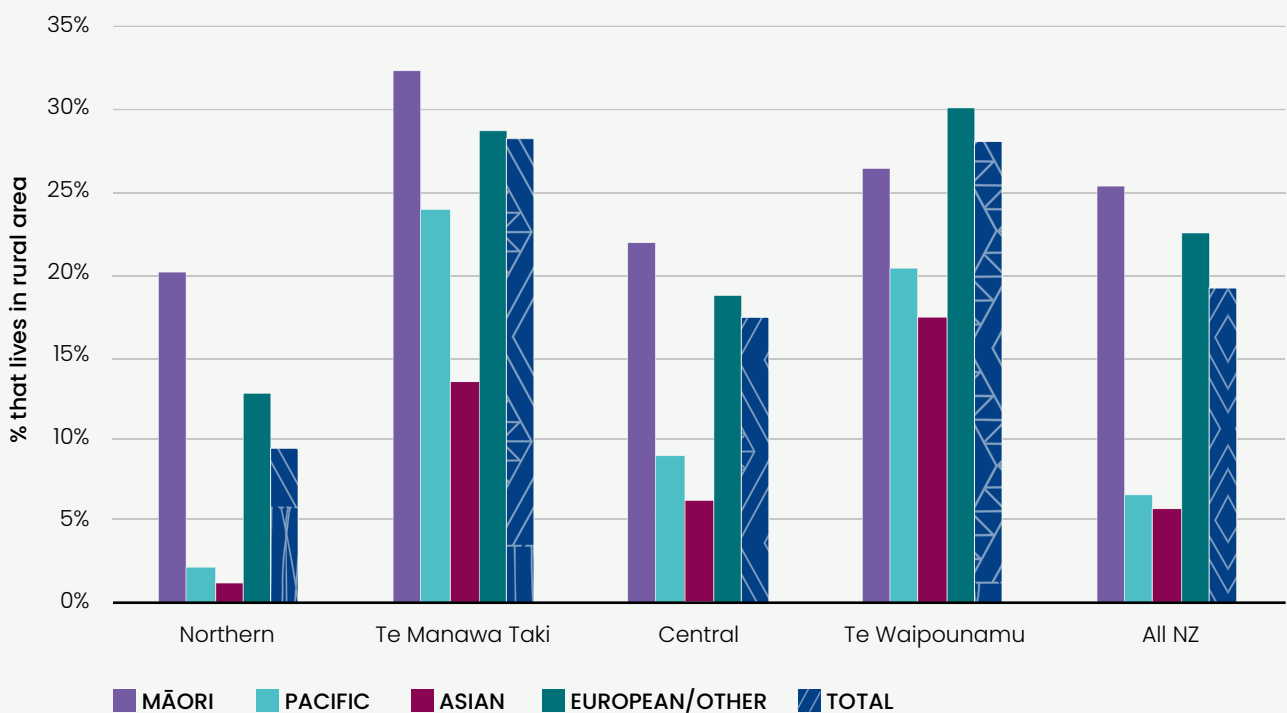


Source: PopProj\_RuralProfile.xlsx prepared by Ling Liu and Grant Hanham, Strategy, Planning & Performance

Of the most rural group (Rural 3), 37% live in Te Tai Tokerau Northland, 31% in Te Waipounamu and 22% in Te Manawa Taki. Although this is not a large amount of people (0.9% of the population in 2018), it is the most challenging in terms of distance to health facilities.

The chart below looks at each ethnicity in each region and shows the percentage of that group that lives in rural areas. The Northern region has the smallest proportions living in rural areas.

**Figure 25: Proportion of the population that lives in rural areas by ethnicity and region, 2023**



Source: PopProj\_RuralProfile.xlsx prepared by Ling Liu and Grant Hanham, Strategy, Planning & Performance



## 4.3 Income, education and employment

Socio-economic factors such as income, occupation and education are powerful determinants of health – impacting health literacy and ability to access healthcare.

### 4.3.1. Income

In 2018, the median annual income for individuals aged 15 years and older in Aotearoa New Zealand was \$31,800. Median income ranged from \$44,300 for European/Other men to \$20,300 for Pacific women (ethnicity was based on total responses). The median income for disabled people | tangata whaikaha was \$20,200. For people aged 15–64 years, “disabled” people had half the median income of non-disabled people. (“Disabled” here means that the person reported “a lot of difficulty” or “cannot do at all” on any of the Washington Group Short Set (see Appendix 7, p206) questions in the Census. Note: the quality of this data in the 2018 Census was moderate with an 80% response rate.)

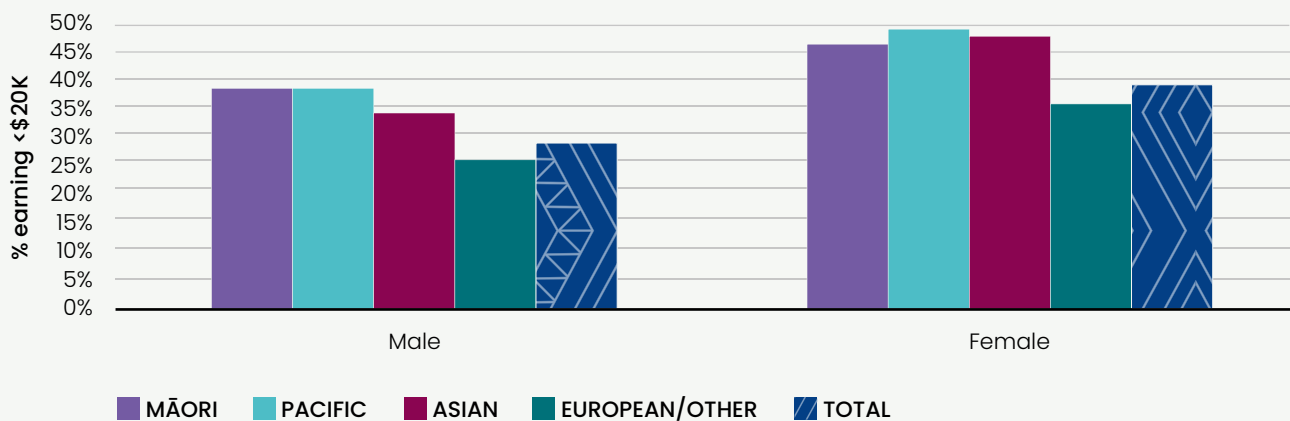
Of those who had an income of less than \$20,000 per year, European/Other men made up 26%, Māori men (39%), Pacific men (39%) and Asian men (35%). The number of women earning less than \$20,000 was much higher: Māori women (47%), Pacific women

(49%), Asian women (48%) and European/Other women (36%). 47% of disabled people | tangata whaikaha earned under \$20,000.

In 2021, 67% of households said their household income was enough or more than enough to meet their everyday needs such as accommodation, food, clothing and other necessities.<sup>18</sup> Ranking households by their income, the income of households in the top 20% was 2.6 times larger than that of households in the bottom 20%. Only half (50.5%) of those in the bottom 20% said their income was enough to meet everyday needs.

11% of children (less than 15 years of age) living in Aotearoa New Zealand were living in households that experienced material hardship – for example, households that might put off visiting a doctor, go short of fresh fruit and vegetables, or struggle to pay fuel bills on time. 20.2% of Māori children, 24% of Pacific children, 7.8% of European/Other children and 4.9% of Asian children experienced material hardship.

Figure 26: Percentage of national population aged 15 years and over with income under \$20,000 by gender and ethnicity, 2018

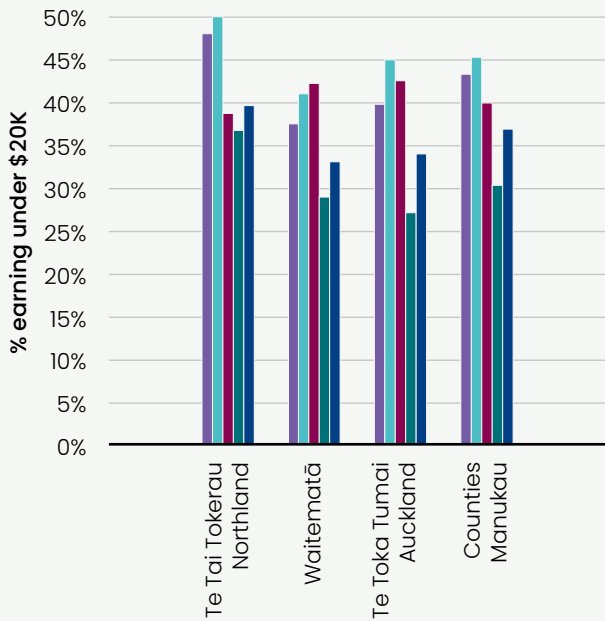


Source: Census 2018

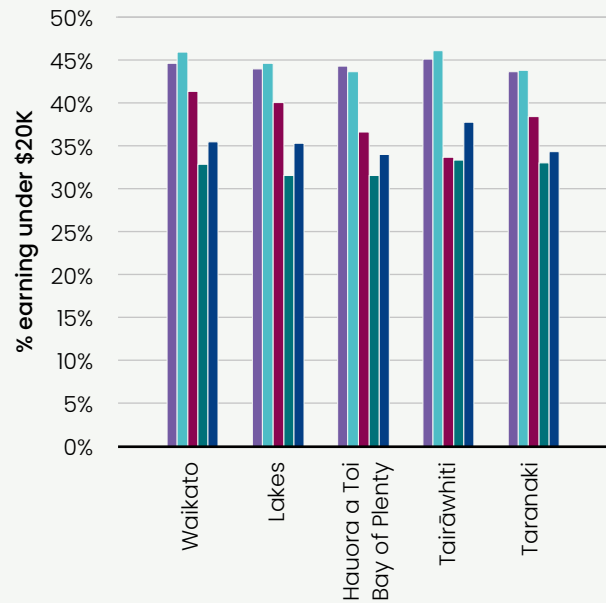
**Figure 27: Percentage of population aged 15 years and over with income under \$20,000 by ethnicity, 2018**

■ MĀORI  
 ■ PACIFIC  
 ■ ASIAN  
 ■ EUROPEAN/OTHER  
 ■ TOTAL

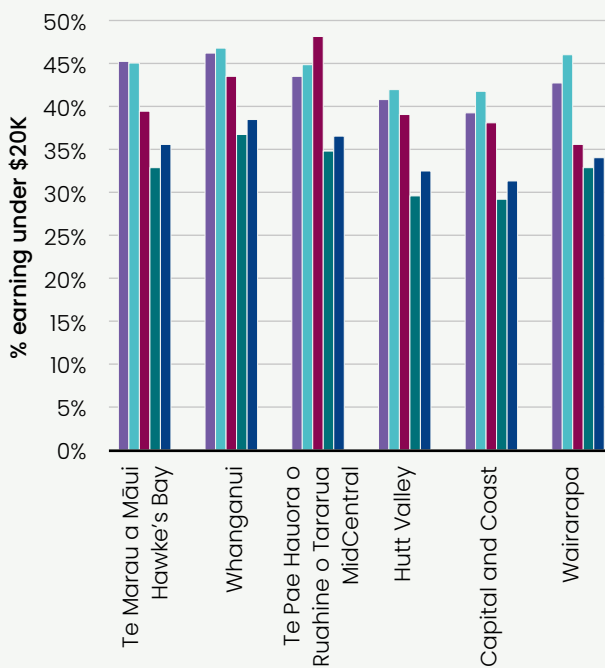
**Northern**



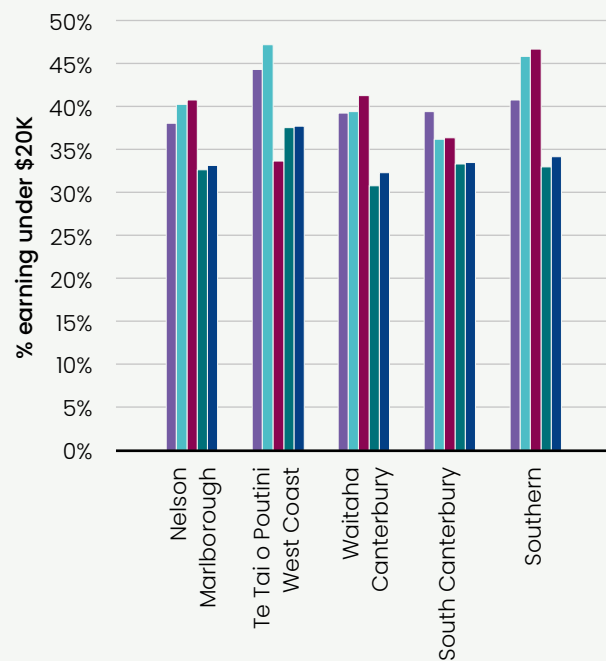
**Te Manawa Taki**



**Central**



**Te Waipounamu**



Source: Census 2018

### 4.3.2 Education

Overall, 18% of adults left school with no qualifications (although this varied across districts, from 11% to 26%). This figure was much higher for Māori and Pacific adults (25%) and lower for Asian adults (10%) (ethnicity was based on total responses).

Older adults are less likely to have any qualifications. Among those people aged 60 years and older, 33% had no qualifications, while only 12% of those aged 20-59 had no qualifications.

At the high end of educational achievement, 43% of Asian people, 25% of European/Other people, 12% of Māori and 11% of Pacific people had tertiary or higher qualifications (Census 2018: the quality of data was moderate).

Education impacts on health through creating better overall self-awareness about personal health and making healthcare more accessible.<sup>23</sup> Education levels can also impact on health literacy – the ability

to locate, read, interpret and understand information that allows people to function effectively in the healthcare environment. Low health literacy is associated with poorer health outcomes and poorer use of healthcare services.<sup>24</sup>

A growing number of ākonga (students) are missing three or more days of school each fortnight. This is known as being chronically absent.

From 2011 to 2015, chronic absence remained relatively stable at around 4-5%. In Term 2 2019, 7.3% of ākonga were recorded as chronically absent. Another 9.4% of ākonga were missing at least one day a week. Attendance is the first step in accessing learning and is essential for educational success, achieving qualifications and attaining wider social and economic outcomes. Research indicates each day of absence from school predicts a similar drop in attainment, however it also tells us that it is never too late to turn attendance around.<sup>25</sup>

**Table 1: School attendance metrics**

MEASURE	2024 TARGET	2026 TARGET	2015 RATES	CURRENT (2021) RATES
Percentage of ākonga attending school <b>regularly</b> (attending more than 90%, an average of 9 days a fortnight)	70%	75%	69.5%	59.7%
Percentage of ākonga who are <b>moderately absent</b> (attending more than 70% up to 80%, missing two to three days a fortnight)	6%	4%	6.3%	8.5%
Percentage of ākonga who are <b>chronically absent</b> (attending 70% or less, missing three or more days a fortnight)	5%	3%	4.6%	7.7%
Percentage of unexplained absences where schools have notified whānau on the day of absence and initiated intervention after 5 days of unjustified absence in a term.	95%	100%	This is a <b>draft measure</b> and is subject to further work with the sector. There is currently no mechanism for measuring this activity.	

Source: Attendance and Engagement Strategy, 2022 (Minedu)

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### 4.3.3 Employment

Apart from an increase in 2020, the unemployment rate has been falling since 2012.

In the December quarter 2022 Household Labour Force Survey,<sup>26</sup> the overall unemployment rate was 3.3%. By ethnicity, unemployment rates were lowest for European/Other at 2.6% and Asian people at 2.8%, and highest for Māori (6.9%) and Pacific people (6.1%) (ethnicity was based on total responses). The unemployment rate for disabled people I tangata whaikaha was 7.9%.

Alongside unemployment it is helpful to look at underutilisation, which adds in people who work part-time but would like to work more hours, people looking for work because they will shortly be available for work, and people who want a job but are not currently looking for a job.

The underutilisation rate was Europeans (9%), Māori (15.9%), Pacific people (14.4%) and Asian people (7.4%). Women were more likely to be underutilised than men (11.4% versus 7.5%), and disabled people I tangata whaikaha were more likely to be underutilised than non-disabled people (18.8% versus 8.7%).

## 4.4 Housing

Poor quality housing, including poor physical living conditions, overcrowding\* and lack of heating constitutes a significant health risk, particularly for the young and old.

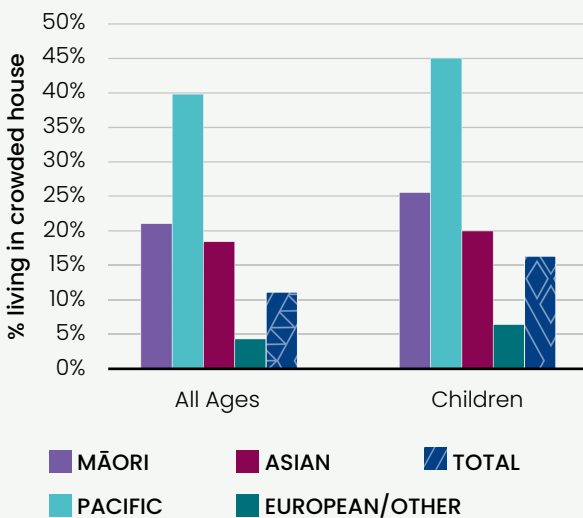
In 2018, 11.2% of people lived in crowded households. Crowding is more common among Māori (21%), Pacific people (40%) and Asian people (19%) than European/Other people (4.5%) (Census 2018 additional tables prepared by Stats NZ for Counties Manukau District Health Board).

Across the country, 16.5% of children aged under 15 years lived in crowded houses.

Keeping warm enough in winter was a major or minor issue for 20.3% of all households that responded to the 2022 NZ Household Economic Survey.<sup>27</sup>

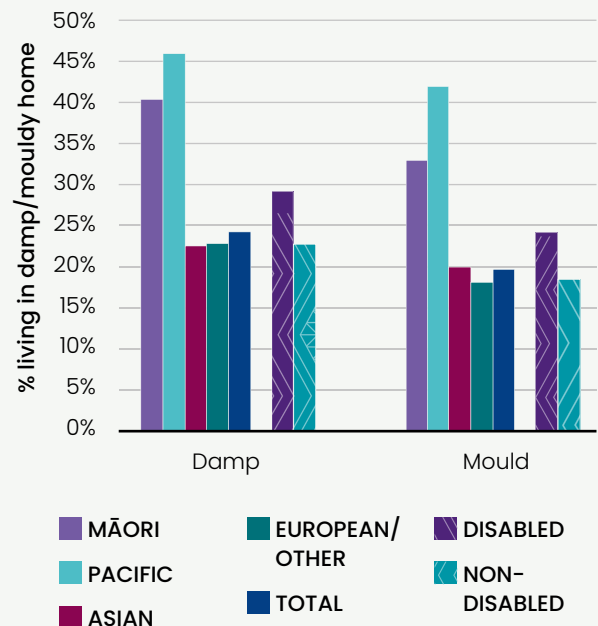
Overall, one in four people (24%) reported that their home is damp and one in five (20%) reported that it has mould, with higher proportions for Māori (40% damp and 33% with mould) and Pacific people (46% damp and 42% with mould) (ethnicity was based on total responses). Disabled people | tangata whaikaha report higher rates of dampness (29% versus 24% for non-disabled people) and mould (23% versus 19%). There are compounding impacts for Māori and Pacific people who are disabled (Census 2018: the data quality was moderate).

**Figure 28: Proportion of people living in a crowded house, all ages and children aged under 15 years by ethnicity, 2018**



Source: Stats NZ

**Figure 29: Proportion of people living in a damp or mouldy house by ethnicity and disability status, 2018**



Source: Census 2018

\*The Canadian definition of overcrowding is used. The definition is: 'a deficit of one or more bedrooms'. This has limitations in the NZ context regarding the common definition of 'crowding' and issues of housing stock which are designed for European nuclear family 'norms'.



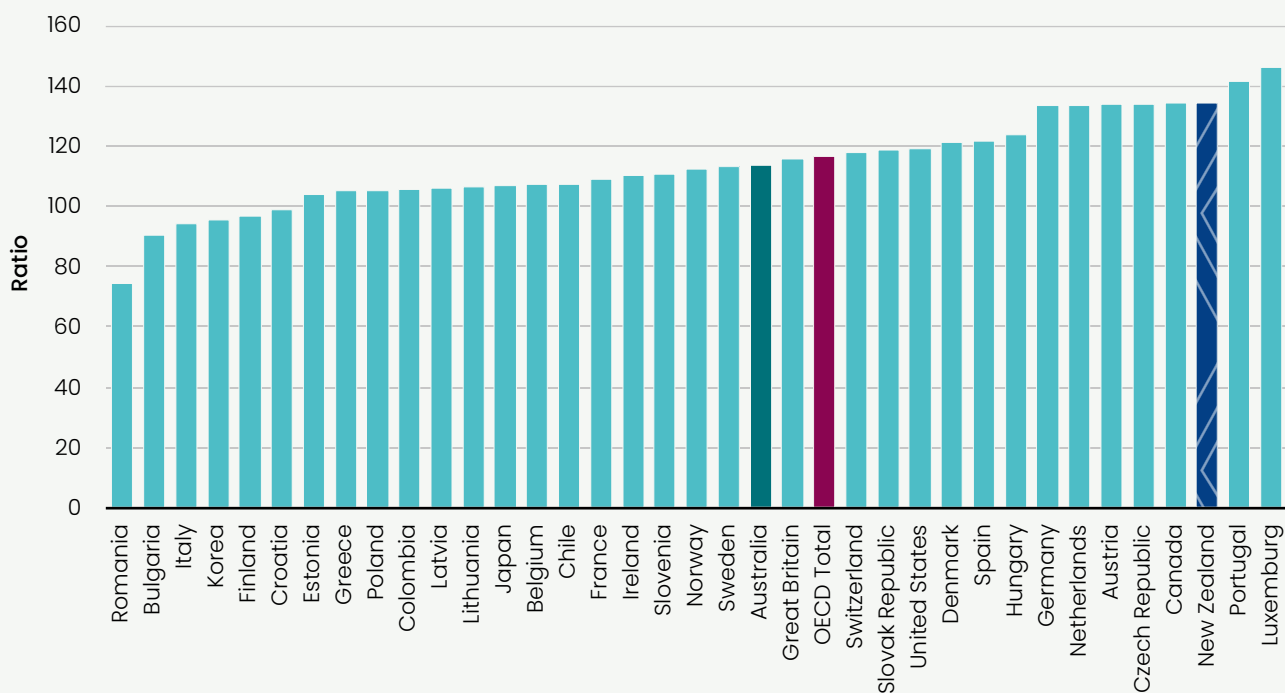
In 2022, 15% of households spent 40% or more of their income on housing. The Organisation for Economic Co-operation and Development (OECD) house price affordability measure for 2021, the price to income ratio, ranks New Zealand as the third-equal least affordable country, alongside Canada, to own a home. The New Zealand ratio was 18 points higher than the OECD total, and 21 points higher than Australia.<sup>28</sup>

Home ownership rates are disproportionate in Aotearoa New Zealand.

Pacific people have the lowest rates of home ownership in Aotearoa New Zealand with only 21% owning their own home, compared to 58% of European/Other people. Ownership rates for Māori (31%) are also much lower than for European/Other and Asian people (40%).

Combined data on homelessness, household composition and crowding from the 2018 Census suggested that 2.2% of Aotearoa New Zealand's population experienced "severe housing deprivation", defined as homelessness, uninhabitable or insecure accommodation.<sup>29</sup> This census largely predated the surge in net immigration.

**Figure 30: OECD housing affordability measure – price to income ratio**  
OECD countries, 2021



Source: <https://data.oecd.org/price/housing-prices.htm> accessed 19/06/2023

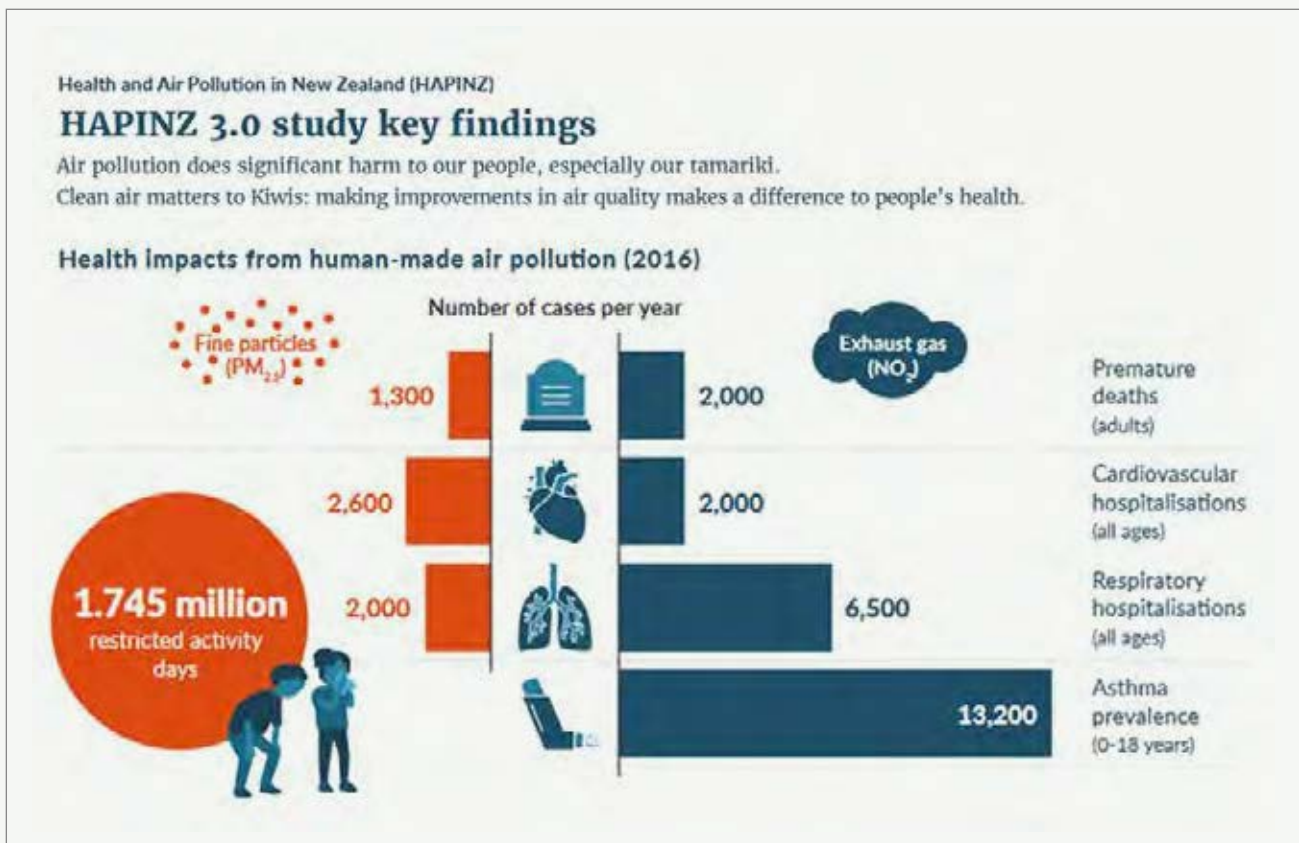
# 4.5 Environmental factors

## 4.5.1 Air quality

Air pollution includes fine particulate matter (PM<sub>2.5</sub>) and nitrogen dioxide (NO<sub>2</sub>). Health impacts include premature deaths and hospitalisations due to strokes, heart diseases, lung cancer, acute and chronic respiratory diseases, and restricted activity days, as well as the social costs from illness and deaths. The Health and Air Pollution in NZ (HAPINZ) 2016 report estimated that human-made air pollution in Aotearoa New Zealand was responsible for approximately 3,300 premature deaths per year and social costs of \$15.6 billion per year. Much of the pollution comes from transport and domestic fires.<sup>30</sup>

In 2016, 81% of the Aotearoa New Zealand population lived in areas with an annual average PM<sub>2.5</sub> exceeding the World Health Organization (WHO) 2021 guideline level (of 5µg/m<sup>3</sup>). The proportion was slightly lower among Māori (77.6%), but much higher among Pacific people (94.4%), reflecting differences in where they live. Furthermore, 31.4% of Aotearoa New Zealand’s areas have annual average NO<sub>2</sub> levels exceeding the WHO 2021 guideline level (of 10µg/m<sup>3</sup>). The proportion was lower among Māori (23.1%), but much higher among Pacific people (54.5%), again reflecting differences in where they live. Note: these data are based on total response ethnicity, not prioritised ethnicity.

Figure 31: Air quality in Aotearoa New Zealand 2016



Source: <https://environment.govt.nz/publications/health-and-air-pollution-in-new-zealand-2016-findings-and-implications/>

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The territorial authorities (TAs) with the highest number of premature deaths due to air pollution were Auckland City (939 deaths) and Christchurch City (462 deaths). Other TAs with high numbers of premature deaths from air pollution included Dunedin City (126 deaths), Tauranga City (107 deaths) and Hamilton City (100 deaths).

The highest rates of premature deaths from air pollution were in Invercargill City (219 per 100,000 people aged 30 years or older), Christchurch City (206 per 100,000), Waitaki District (191 per 100,000) and Timaru District (186 per 100,000).<sup>31</sup>

Air pollution also caused 13,155 hospital admissions in 2016, largely for cardiac and respiratory problems.<sup>30</sup>

Greater use of public transport would help to reduce air pollution. In 2018 (before COVID-19 changed the numbers working from home), of the 2.4 million people who reported their means of travel to work, the dominant travel mode was car, truck or van (73%), with 6.5% taking public transport, 7.2% riding a bike or walking and 12% working from home (Census 2018; data quality was moderate).

Of the 1.15 million people attending schools, universities, polytechnics or other education institutions in Aotearoa New Zealand, 50% travelled to study by car, truck or van, 24% walked or biked and 19% used public transport.

### 4.5.2 Water quality

In the 2018 Census, 3.1% of households (48,000) reported that they did not have drinkable tap water. Data quality for this variable was moderate. Around 18% (921,000) of Aotearoa New Zealand's population 'self-supply' water (using rainwater tanks and bores or very small community supplies).<sup>32</sup> This water is more likely to be untreated and thus poses a greater risk of contamination with pathogenic organisms and potential health risk than treated water. It is also non-fluoridated and therefore lacks protective oral health benefits for children.<sup>33</sup> These types of water supplies are also more vulnerable to disruption through extreme weather events such as flooding or drought.

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## 4.6 Climate change

Climate change has serious implications for health, wellbeing, livelihoods, and the structure of organised society.

The direct effects of climate change result from rising temperatures and changes in the frequency and strength of storms, floods, droughts, and heat waves, with physical and mental health consequences. The impacts of climate change are also mediated through less direct pathways, including changes in crop yields, the burden and distribution of infectious disease, and in climate-induced population displacement and violent conflict.

Many of these effects are already evident.<sup>34</sup>

Global average temperatures for the past three years are more than 1°C higher than the 20th Century average. Existing policies put the world on track to reaching 2.4–3.5°C above pre-industrial times by 2100, and there is a 48% chance that the 1.5°C threshold proposed in the Paris Agreement will be exceeded within five years. The Intergovernmental Panel on Climate Change (IPCC) suggests that limiting temperature rise to 2°C could still result in a sea-level rise of up to 6 metres.<sup>35</sup>

The negative impacts of climate change will be significant for people in lower socio-economic groups, as they are more likely to be impacted by rising food costs, sea-level rise and damage to property following extreme weather events. Decarbonisation of the economy also has the potential to increase inequity; for example, electric vehicle prices are prohibitive for those on lower incomes, while using petrol or diesel vehicles will become more unaffordable due to continuing fossil fuel price increases.

For Māori the impacts may further include loss of access to traditional food sources, particularly seafood. More than 68% of Māori businesses are in the primary sector where climate change impacts are likely to be significant. Furthermore, more than 80% of Māori land is defined as hilly-to-mountainous and susceptible to erosion following extreme rainfall. Māori own 33% of the fisheries quota, which may be severely affected by warming and acidifying of the oceans, affecting food chains, respiration and shell development of fish and shellfish. Damage or loss of culturally significant structures and places, alongside loss of native taonga species, threatens the legacy of Māori culture and practices.<sup>36</sup>

The health and environmental impacts of the climate crisis are likely to disproportionately affect Pacific people in Aotearoa New Zealand. Climate change-induced extreme weather events, rising seas, and ocean acidification threaten the livelihood of small Pacific Island developing states. Aotearoa New Zealand is likely to see an increasing number of climate change migrants from the Pacific, which will have financial, housing and health impacts on Pacific people in Aotearoa New Zealand, as well as Pacific Island-based people dependent on financial support from Aotearoa New Zealand-based whānau. Pacific Island countries have close relationships with Aotearoa New Zealand, and limiting temperature increase is important to the wellbeing of Pacific people in Aotearoa New Zealand, which cannot be separated from the wellbeing of people in the Pacific.<sup>37</sup>

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Rural communities are also disproportionately affected by climate change, with direct and indirect impacts on rural health, in the following ways.

Rural areas are more exposed to climate-related events, such as droughts, flooding and sea-level rise, than urban areas. The toll on wellbeing of these events on people and their livelihoods, or concern for future events, is immense and expected to worsen as they become more frequent.

Climate-related events exacerbate already poor health outcomes. Around half of those impacted by the loss of safe drinking water in 2023's Cyclone Gabrielle were Māori and more than half were living in the most socio-economically deprived areas. A lack of access to safe drinking water and safe sewerage disposal can be another stress on flood-weary communities ([www.phcc.org.nz/briefing/water-infrastructure-failures-cyclone-gabrielle-show-low-resilience-climate-change](http://www.phcc.org.nz/briefing/water-infrastructure-failures-cyclone-gabrielle-show-low-resilience-climate-change)).

Rural communities are more prone to being cut off from vital support networks and economic activity in the aftermath of severe weather, such as Cyclone Gabrielle.<sup>38</sup>

#### 4.6.1 Rapid-onset climate events

Increased frequency of fires, floods, storm tides and extreme rainfall events affect public health. Apart from risks of direct injury, these events can result in disease outbreaks, toxic chemical contamination, mental health issues, particularly anxiety and depression, and the negative effects of living in damp buildings.

Aotearoa New Zealand is already experiencing an increase in events of this type. The displacement of ice at the poles and on mountains into the sea, redistributing weight on the Earth's crust, is predicted to increase the number of earthquakes.<sup>39</sup>

The impact will destroy infrastructure, including housing, roads, water supply, wastewater, electricity and communication networks, and reduce access to healthcare.



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## 4.6.2 Slow-onset impacts

Food production may become more difficult as temperature and rainfall patterns change, pollinators reduce, and pests and diseases increase, potentially resulting in reduced availability and affordability. This is likely to impact more heavily on poorer people. Flooding and droughts already affect food production and prices. Efforts to reduce greenhouse gas emissions are likely to reduce production of ruminant meats and dairy products. Consumption of red meat has known associations with adverse health outcomes and a reduction in supply and consumption could benefit health in reducing colorectal cancer and heart disease.

Warmer water, both sea and fresh, increases harmful algal blooms with potential risks to drinking water supplies. Toxic marine algae that cause gastrointestinal and neurological problems can contaminate shellfish. Bacterial growth increases in warmer sea and fresh water, and can lead to infected wounds on contact. Increased concentrations of salmonella and E. coli in freshwater streams, due to high runoff or low water flow (drought), can cause illness ranging from nausea to renal failure.

A doubling in the number of hot days (above 25°C) is expected by 2100. Hotter weather will particularly affect young children and people with diabetes, cardiovascular disease and mental health issues, increasing attendance at emergency departments and mortality rates. The already higher burden of diabetes and cardiovascular disease (CVD) on Māori, Pacific and South Asian people means they will be at greater risk than others. Outdoor workers may experience more incidents of heat stroke and kidney impairment.

The number of organisms that transmit infectious diseases, e.g. ticks, fleas and mosquitos, is likely to increase. Warmer conditions may increase the rates of breeding for disease carriers, and for the infectious agents themselves. Emerging diseases, for example, chikungunya and Zika viruses, are already present in the Pacific Islands and could become a risk to Aotearoa New Zealand if warmer temperatures allow disease-transmitting mosquitoes to become established here.<sup>39</sup>

Outdoor air quality may be affected by reduced rainfall and wind, leading to air stagnation, which allows pollutants to build up. This may be mitigated by a reduction in emissions from vehicles as electrification of the transport system continues. Increased walking and cycling to replace fossil car transport also has the potential to reduce air pollution, and to carry health benefits of reducing excess body weight, diabetes and CVD.

Drought may increase air-borne soil particles.

Earlier growing seasons may increase the duration of high pollen counts in the air, increasing the period and rates of allergic illnesses, e.g. asthma; again, there may be higher impacts on Māori and Pacific people who already experience higher rates of asthma than European/Other people.

While there is international research available which aims to quantify the impacts of climate change on human health and wellbeing, there is still little data available in an Aotearoa New Zealand context. There is work currently underway to close these gaps through the Health National Adaptation Plan being lead by Ministry of Health | Manatū Hauora, and a sector-wide scenario analysis in line with XRB climate standards.

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## 4.7 Social factors

### Social support and good social relations are important contributors to health.

Social support provides emotional and practical resources that people need. Belonging to a social network of communication and mutual obligation makes people feel cared for, loved, esteemed and valued, and has a powerful protective effect on health. Supportive relationships may also encourage healthier behaviour patterns.<sup>40</sup> They also help to build resilience; those with strong social support networks are better equipped to bounce back from loss or disappointment.<sup>41</sup>

The 2022 Quality of Life Project surveyed adults from nine council areas across

Aotearoa New Zealand. The survey reported that about half (49%) of the respondents felt a sense of community in their neighbourhood and 75% belonged to a social network or group. More than half the respondents (57%) felt they and others of their identity were accepted and valued by others, whereas 6% disagreed. Racism or discrimination towards particular groups was a problem in their area for 54% of respondents. More than a third (39%) of people felt isolated some of the time and 11% felt that way most or all the time. Overall, four out of five people (83%) were happy with their quality of life, but only 56% were happy with their work/life balance.<sup>42</sup>

Historically, social surveys have reported a higher proportion of Māori people experiencing social isolation and stress and difficulty in daily life.<sup>11</sup>

The Stats NZ General Social Survey 2021<sup>18</sup> found that the percentage of people aged 15 years or older who reported experiencing happiness (rated feeling happy overall yesterday at 7 or higher on a scale of 0 to 10, where zero is not at all happy, and ten is completely happy) differed by ethnicity – 85% for Asian, but only 73% for Māori. Pacific people were more likely to rate their family wellbeing highly (85%) and Māori less likely (73%). Māori (23%) were more likely than Europeans (the least likely at 16%) to have

felt lonely some, most of or all the time over the previous four weeks. 86% of Māori and 89% of European/Other people reported a sense of belonging to Aotearoa New Zealand.

The 2020 Health and Lifestyle Survey demonstrates the importance that Māori, Pacific and Asian people place on maintaining a strong connection to their culture.<sup>43</sup>

Many determinants of health are associated with how society is structured and how colonisation, power, racism and privilege is distributed and addressed.<sup>11</sup> Racism is an important determinant of health that contributes to health inequities. Racial discrimination was explored in the 2020/21 NZ Health Survey. Māori, Pacific and Asian adults were more likely to experience racial discrimination than European/Other adults. Verbal abuse was the most common type of racial abuse for all ethnicities and unfair treatment by a health professional was the second most common type for Māori and Pacific people. Racial discrimination experienced in both broader society and specifically in healthcare services can influence perceptions of healthcare by patients, as well as how people engage with and access services.<sup>44,45</sup> In this study, racial discrimination was associated with higher rates of psychological distress, lower rates of positive self-rated health and higher rates of unmet need for primary healthcare.<sup>46</sup>

Internet access, a cornerstone measure of opportunity, information and communication, was available to 90% of adults in 2018, though this varied between ethnicities with Māori at 84% and European/Other people at 92%. Ultra-fast broadband (fibre) was available to 87% of people.<sup>47</sup>

Among disabled people I tangata whaikaha, 77% had internet access compared with 92% of non-disabled people. A mobile phone was available to 95% of non-disabled people but to 86% of disabled people I tangata whaikaha (Census 2018; data quality was moderate).

## 4.8 Violence and crime

### Crime affects the health of individual victims and the community as a whole.

Fear of crime influences the health and wellbeing of individuals and communities.<sup>48</sup>

People may adjust their lifestyles and behaviour as a result of an experience of crime or fear of crime, e.g. not going out after dark, not using public transport and avoiding certain areas. These avoidance measures can weaken social ties and undermine social cohesion.

According to the 2022 Quality of Life Project, in terms of general feelings of safety in their city centre, 84% of people feel safe during the day, whereas only 38% feel safe after dark.

70% of people perceived theft and burglary to be a problem in their city area, and more than half have felt unsafe due to other people's behaviour, attitude or appearance.<sup>42</sup>

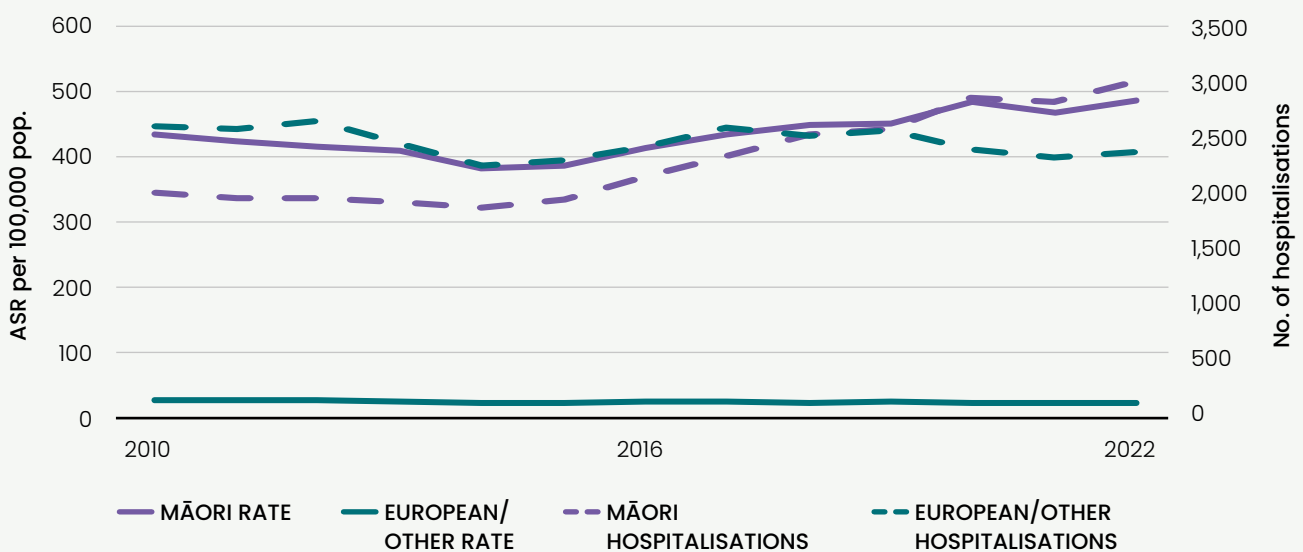
There were 181 hospitalisations per 100,000 population for domestic violence in Aotearoa New Zealand in 2022. The age standardised

rates differ between ethnic groups, with rates for Māori more than four times that of European/Other people (486 versus 117 per 100,000). Rates were even lower for Asian people (59).

While rates and actual numbers of hospitalisations for domestic violence have remained relatively stable for most ethnic groups, both numbers and rates have increased significantly for Māori – numbers of hospitalisations surpass any other ethnic group nationally. By region, the north dominates ethnic specific rates for all except Asian people, where rates are slightly higher in Te Manawa Taki.

The causes of domestic violence are both historic and contemporary and acknowledged as complex. The impact of colonisation needs to be considered in order to respond effectively to whānau violence.<sup>49</sup>

**Figure 32: Age standardised hospitalisation rates and numbers for domestic violence >14 year olds, Māori and European/Other, 2010–2022**



Source: NMDS

## Section 5

# Exposure to key preventable risk factors

The leading risk factors for preventable health loss in Aotearoa New Zealand are tobacco and alcohol use, poor nutrition, lack of physical activity and excess body weight.

These risk factors can cause or contribute to long-term conditions, including cardiovascular diseases, cancers, diabetes and chronic respiratory diseases, which are leading causes of disability and premature deaths.



Exposure to preventable risks and the resulting disease burden is inequitably distributed across population groups in Aotearoa New Zealand, with Māori, Pacific people, and people living in areas of socio-economic deprivation most adversely affected. Significant 'upstream drivers' influence exposure to preventable risks including socio-economic and public policy determinants (e.g. employment and income, social and physical environments, laws and regulations), and commercial determinants of health. Commercial determinants of health (CDoH) refer to the actions and practices of commercial entities, such as industries and businesses, that have an influence on health outcomes. CDoH encompass a wide range of industries, including tobacco, alcohol, food and beverage, pharmaceuticals and advertising. CDoH can significantly impact the availability and accessibility of goods and services that affect health outcomes. For instance, the availability of unhealthy food options, high-sugar beverages, and tobacco products in communities can contribute to poor dietary choices, unhealthy weight and tobacco-related illnesses. Similarly, limited access to affordable medications due to pricing practices can negatively impact health outcomes.

CDoH are closely linked to socio-economic factors and can exacerbate existing health inequities. They can target specific populations, such as low-income communities and children.<sup>8</sup> Māori and Pacific people are disproportionately represented in areas with the most socio-economically deprived NZDep scores and therefore are more heavily impacted by negative CDoH.

Actions on the 'upstream' determinants (e.g. Smokefree legislation framework), as well as at the individual and whānau level (e.g. access to smoking cessation services), are important for reducing and eliminating risk exposures and strengthening protective factors.

The most recent analysis available from the Global Burden of Disease (GBD) Study 2019 ranks tobacco use as the leading risk factor in Aotearoa New Zealand, contributing 10.1% to the total burden of health loss, measured in disability-adjusted life years (DALYs).

High body mass index (BMI), dietary risks, and low physical activity contribute 8.2%, 7.4% and 1.2% respectively, a combined group burden of 16.8% of total DALYs. Alcohol use contributes 4.9% of total DALYs (Institute for Health Metrics and Evaluation, 2019; GBD 2019 Risk Factors Collaborators, 2020).<sup>50</sup> Together, these five risk factors account for nearly one third of health loss. Through Smokefree Aotearoa 2025, successive governments have endorsed the goal that less than 5% of New Zealanders will be smokers by 2025.

Increasing the number of people and whānau living smokefree and free from the harms of alcohol, improving nutrition and physical activity, and increasing the number of people with healthy body weight are key to improving the health of the population and reducing inequities in health outcomes.<sup>51</sup>



**A Disability Adjusted Life Year (DALY)** is the sum of years of potential life lost due to premature death and the years of productive life lost due to disability compared to a standardised life expectancy. DALYs are used to measure the combined quantity and quality of life of a population.



# 5.1 Smoking

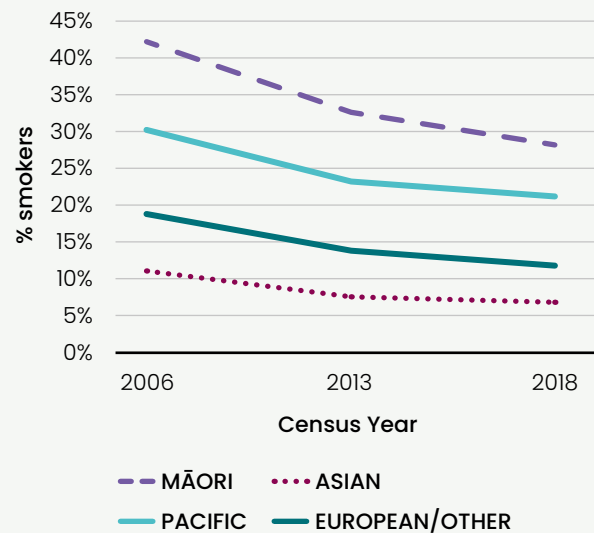
## 5.1.1 Tobacco

Tobacco smoking is the most significant cause of premature and preventable death and morbidity in Aotearoa New Zealand. It is a key driver of inequities in health outcomes for Māori and Pacific people. Smoking and second-hand smoke directly cause or contribute to cancers, cardiovascular disease, respiratory diseases, and adverse pregnancy, infant and child outcomes.<sup>52</sup>

Through Smokefree Aotearoa 2025, successive governments have endorsed the goal that less than 5% of New Zealanders will be smokers by 2025. While smoking prevalence is reducing over time, Aotearoa New Zealand is not on track to reach the goal and stark inequities remain for Māori and Pacific people. However, the Smokefree Aotearoa 2025 Action Plan (2021)<sup>53</sup> and recently amended legislation<sup>54</sup> will accelerate progress towards the goal. Key legislation changes include new controls on nicotine levels in tobacco products, on retailers and on consumer procurement.

At the 2018 Census, 13.2% of adults were smoking cigarettes regularly (one or more per day). However, rates were higher in some groups, notably Māori (28%), Pacific people (21%) and 20 to 29 year olds (17%). For all ethnicities except Māori, men have higher smoking rates than women. Young wāhine Māori had particularly high smoking prevalence. Ethnicity was based on total responses.

**Figure 33: Prevalence of regular smoking among people aged 15 years and over by ethnicity at 2006, 2013 and 2018 Censuses**



Source: Census 2006–2018

The most recent smoking prevalence estimates are from the NZ Health Survey (NZHS 2021/22), which shows smoking rates are continuing to decline overall (8.0% of adults were smoking daily, down from 9.4% the previous year), however large inequities remain (Māori 19.9%, Pacific people 18.2%, and European/Other 7.2%).

Recent declines in smoking rates among Māori correspond to increases in rates of vaping. Smoking rates have not shown the same decline for Pacific people, however.

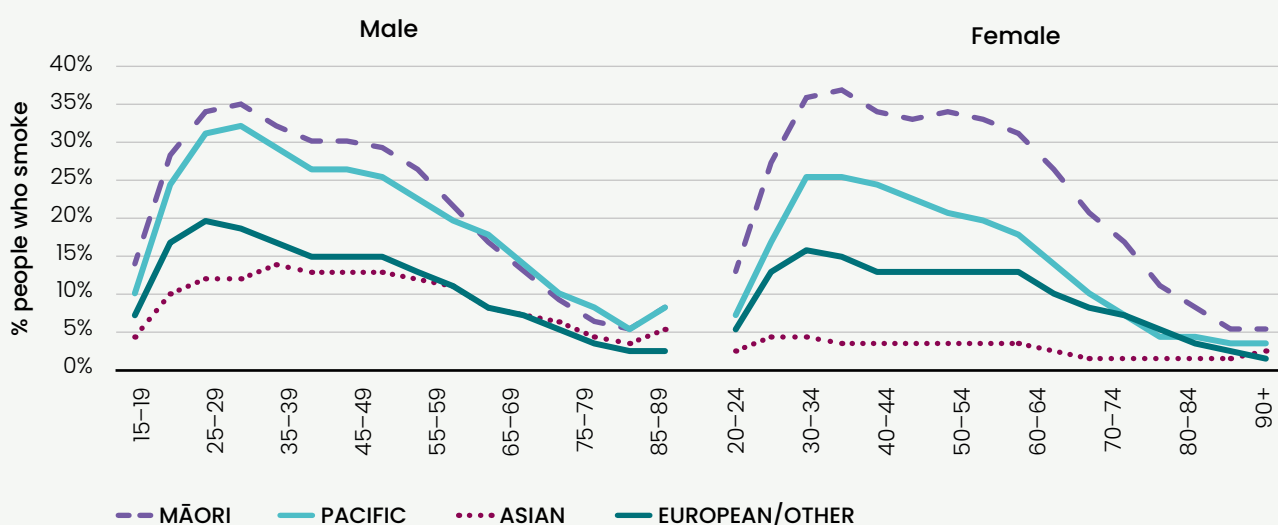
The most marked inequities in smoking are by socio-economic status, with adults living in areas with the most socio-economically deprived NZDep scores being 4.3 times as likely to smoke daily as adults living in areas with the least deprived NZDep scores.

The estimated number of people who currently smoke regularly is around 380,000.

The number of Year 10 students who smoke has declined, from 11% in 2009 to 3% in 2022. Smoking rates remain higher for Māori boys (5.6%) and girls (6.8%) compared to 1.9% for non-Māori/non-Pacific boys and girls, but the rate has dropped more rapidly for Māori than for other ethnicities.<sup>55</sup>

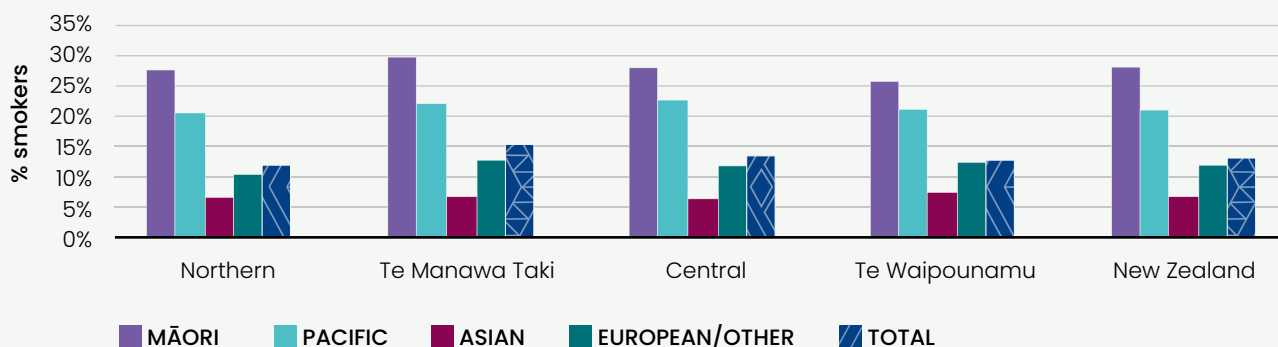
Ethnic inequities in smoking prevalence are evident across the country. The highest total population rates of smoking are reported in Te Manawa Taki at 15.5% and the lowest in the Northern region at 12%.

**Figure 34: Prevalence of regular smoking among people aged 15 years and over by gender, age group and ethnicity, 2018**



Source: Census 2018. The quality of smoking data was rated as moderate to poor, with a response rate of 84%.

**Figure 35: Prevalence of regular smoking among people aged 15 years and over by region and ethnicity, 2018**



Source: Census 2018

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## 5.1.2 Vaping

Vaping products (e-cigarettes) have the potential to contribute to the Smokefree 2025 goal by helping people who smoke to quit or reduce the number of cigarettes they smoke. They are now included as one of the recommended methods for quitting in the 2021 revised New Zealand guidelines for helping people to stop smoking.<sup>56</sup> However, while vaping is less harmful than smoking, there is a lack of long-term data on the health impacts associated with vaping.

Vaping poses a risk to people who do not smoke cigarettes, including young people, due to its addictive nature (related to nicotine content) and other potentially harmful impacts.<sup>57</sup>

In Aotearoa New Zealand, vaping products have been regulated since 2020 under the Smokefree Environments and Regulated Products Act.<sup>54</sup> They are subject to the provisions of this Act including the prohibition of sale and supply to people under the age of 18; the prohibition of vaping in legislated Smokefree areas; the prohibition of advertising, endorsements and sponsorship; controls of premises selling vaping products; and controls on product constituents, labelling and notification. Regulations are currently being strengthened in response to increasing rates of vaping among young people.

Currently, vape stores are disproportionately concentrated in areas with the most socio-economically deprived NZDep scores. Further to this, neighbourhoods with a higher concentration of vape stores tend to have a larger proportion of Māori, Pacific and Asian residents compared to areas with fewer vape stores. About 30% of vape stores are within 400m of a school, and schools in areas with the most socio-economically deprived NZDep scores are more likely to have a vape store nearby.<sup>58</sup>

Vaping has become more common in Aotearoa New Zealand with 8.3% of adults (approximately 346,000 people) reporting that they used e-cigarettes daily in 2021/22, up from 6.2% in 2020/21 and 3.5% in 2019/20 (NZHS). Daily vaping use was highest in 2021/22 among those aged 18-24 years (22.9%), up from 15.3% in 2020/21 and 5.0% in 2019/20 (NZHS).

Among Year 10 students, 18.2% reported vaping regularly in 2022. Māori girls and boys had the highest rates of regular vaping (39% and 29% respectively), followed by Pacific girls (22%) and boys (17%).<sup>55</sup>

Recent analysis of people aged 15 years or under who reported vaping daily in 2021/22 showed that the majority had stopped smoking (56%) and that 22% were now smoking and vaping (i.e. dual users). A relatively small, but increasing, percentage of people reported daily vaping and had never smoked tobacco.

In 2021/22, 18% of people who were vaping daily had never smoked, up from 7% in 2017/18. Among those daily vaping and aged 25 years or older, nearly all were ex-smokers (64%) or current smokers (26%). Among those daily vaping and aged 18-24 years, 33% were ex-smokers, 21% were current smokers (i.e. dual users), and 37% were never-smokers.<sup>59</sup>

## 5.2 Nutrition, physical activity and body weight

Changes in nutrition patterns and decreases in physical activity are recognised as major contributors to the increasing prevalence of excess body weight.<sup>60</sup>

Both elements are recognised as key drivers of health loss due to a range of conditions including cardiovascular disease, diabetes and cancers.

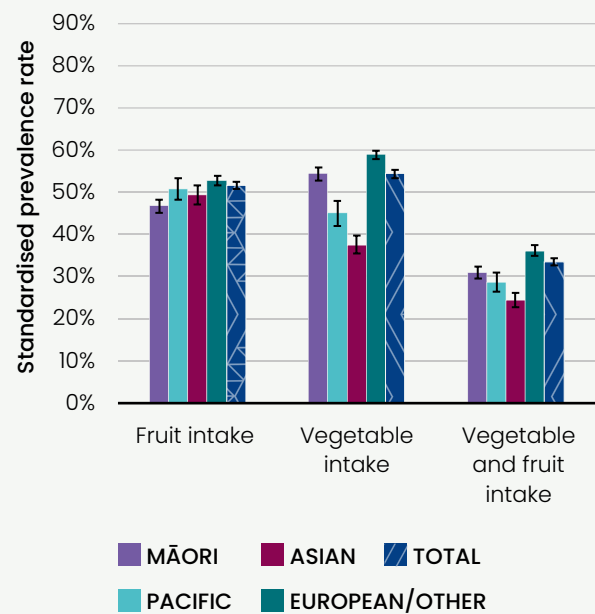
Health is best when households have enough resources to make their own decisions about healthy eating. Food insecurity (that is, a limited or uncertain availability of nutritionally adequate and safe foods, or limited ability to acquire personally acceptable foods) has been linked to outcomes such as a nutritionally inadequate diet, iron deficiency anaemia, multiple chronic conditions, obesity, and poor self-rated physical and mental health.<sup>61</sup> A strong association between neighbourhood deprivation and geographic access to fast food outlets has been demonstrated in Aotearoa New Zealand, which may also contribute to unhealthy eating patterns.<sup>62</sup>

In Aotearoa New Zealand, 65% of adults eat the recommended daily intake of vegetables, 52% eat that of fruit, and 41% eat that of both (NZHS 2017/18–2019/20). Women have a healthier diet than men. Pacific and Asian people are less likely to eat the recommended vegetable intake. Almost three in ten (28%) adults eat processed meat three or more times per week, and half eat red meat three or more times per week (Adults' Dietary Habits 2018/19 and 2019/20 NZHS).

Protective dietary patterns such as eating the recommended number of servings of vegetables and fruit, eating takeaways infrequently and cutting fat off red meat were more common in older adults. Conversely, some unhealthy dietary patterns like drinking fizzy drinks, eating processed meat and often having takeaways were most prevalent in young adults.

Less than half of the children in Aotearoa New Zealand eat the recommended servings of fruit and vegetables (44%). Around 10% eat takeaways three or more times per week. More than two-thirds (70.9%) of children drank little or no fizzy drink. Older children were more likely than younger children to drink fizzy drinks often. Around 50% of children ate red meat three or more times per week, and nearly 40% ate processed meat three or more times a week (Children's Dietary Habits 2018/19 and 2019/20 NZHS).

**Figure 36: Adequate fruit and vegetable intake for adults aged 15 years and over (age-standardised) by ethnicity, 2017–20**



Source: NZHS 2017–2020

For individual districts, with smaller sample sizes, there was no clear message of statistically significant differences in fruit and vegetable intake between ethnic groups.

Physical activity is protective against health conditions such as heart disease, type 2 diabetes and some cancers, and there are mental health benefits. It also helps to reduce the prevalence of overweight and obesity. About half (53%) of adults are regularly physically active and undertake at least 30 minutes of exercise five days a week. Asian people are the least likely to be physically active (45%).

Active travel to work or school is a good source of physical activity. Less than half (43%) of all school children walk, cycle or otherwise travel actively to school (NZHS 2017-20).

For individual districts, with smaller sample sizes, there was no clear message of statistically significant differences in physical activity levels between ethnic groups.

Overweight and obesity is associated with a wide range of health conditions, including cardiovascular disease, various types of

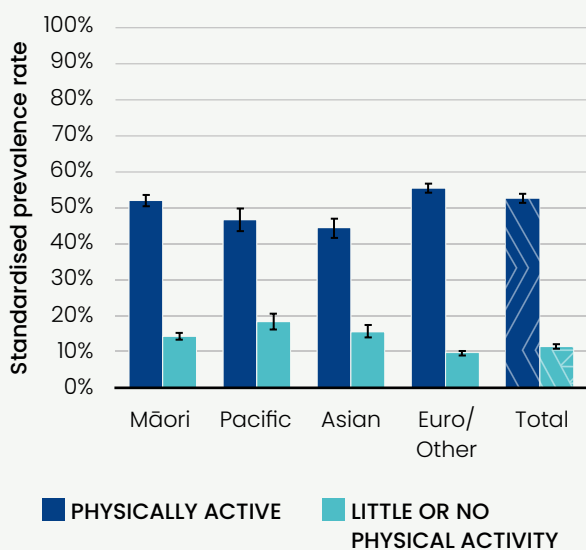
cancer, type 2 diabetes, kidney disease, osteoarthritis, gout, gallstones, complications of pregnancy and mental health issues.<sup>63</sup>

Three in ten (31%) of the adult population have BMI greater than 30. Almost two in three adults (64%) have a BMI greater than 25 (i.e. overweight or obese). Obesity is much more common in Māori (48%) and Pacific (66%) populations and much less common in Asian (15%) and European/Other (28%) populations.

Adults living in those areas with the most socio-economically deprived NZDep scores are twice as likely to be obese as adults living in those areas with the least socio-economically deprived NZDep scores (44% versus 23% in 2019/20). Of all children in Aotearoa New Zealand aged 2-14 years, 11% are obese. 29% of Pacific children are obese.

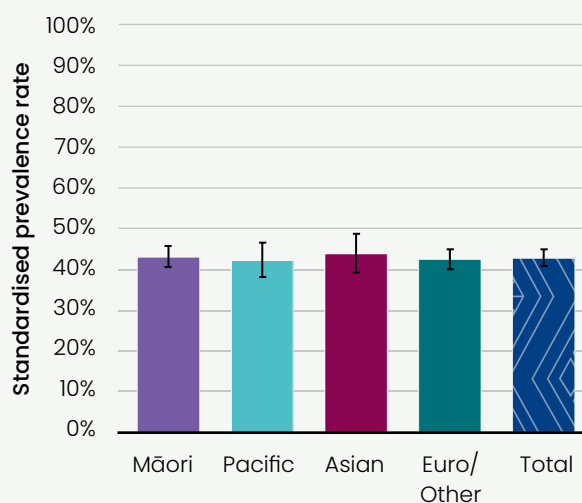
For individual districts, with smaller sample sizes, there was no clear message of statistically significant differences between ethnic groups in the proportion of children who were obese.

**Figure 37: Physical activity (age-standardised) by ethnicity, adults 15 years and over, 2017-20**



Source: NZHS 2017-2020

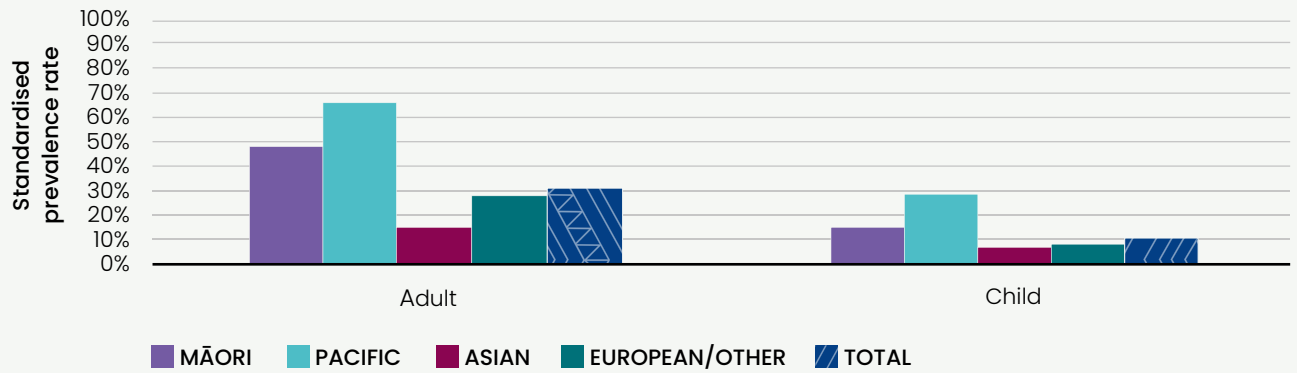
**Figure 38: Children aged 5-14 years usually using active transport to and from school (age-standardised) by ethnicity, 2017-20**



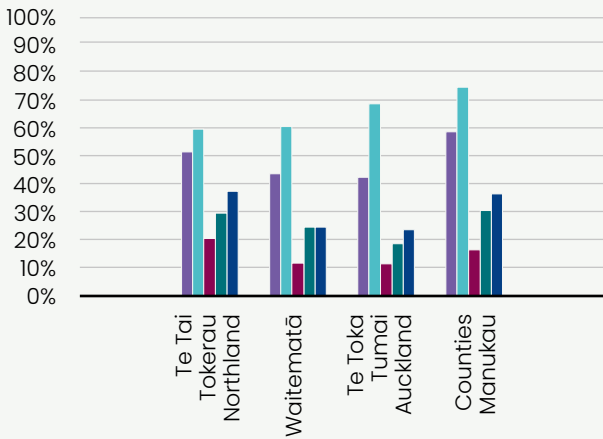
Source: NZHS 2017-2020



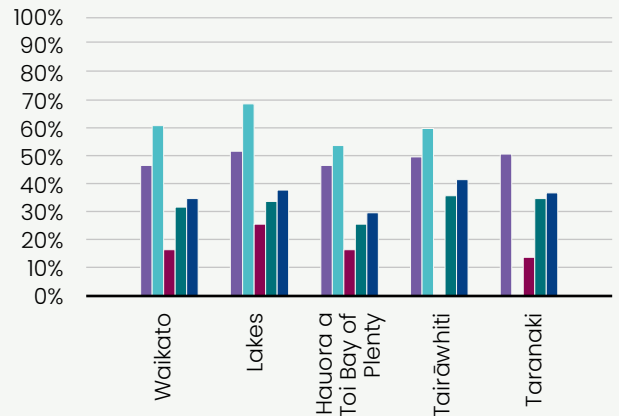
**Figure 39: Obesity rate (age-standardised adults 15 years and over and children 2 to 14 years) by ethnicity, 2017-20**



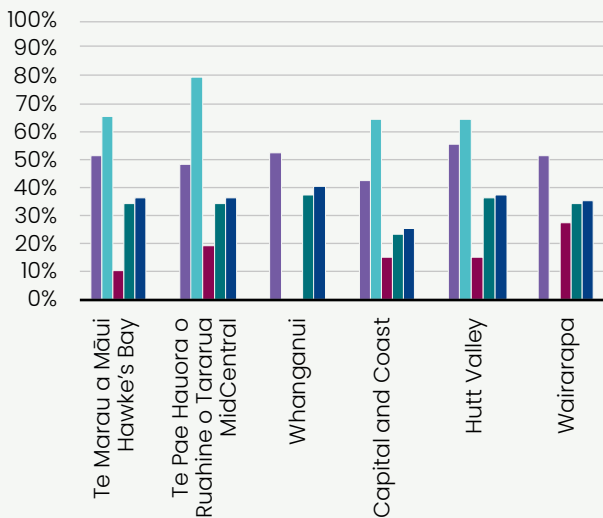
**Northern**



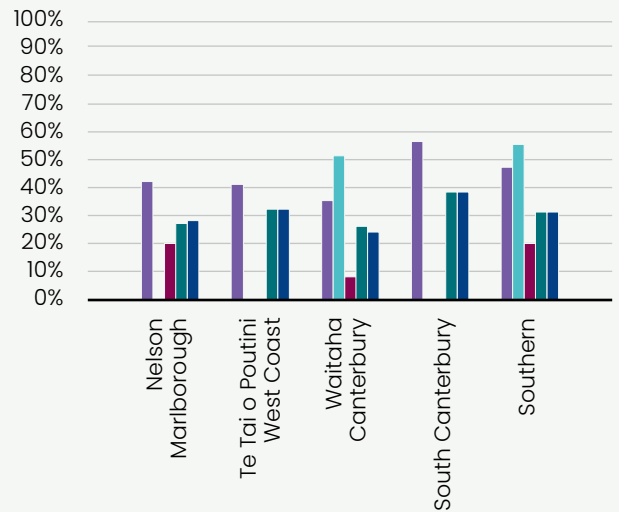
**Te Manawa Taki**



**Central**



**Te Waipounamu**



Source: NZHS 2017-20

## 5.3 Alcohol use

Alcohol is an addictive psychotropic drug, a toxin and carcinogen, and an intoxicant.

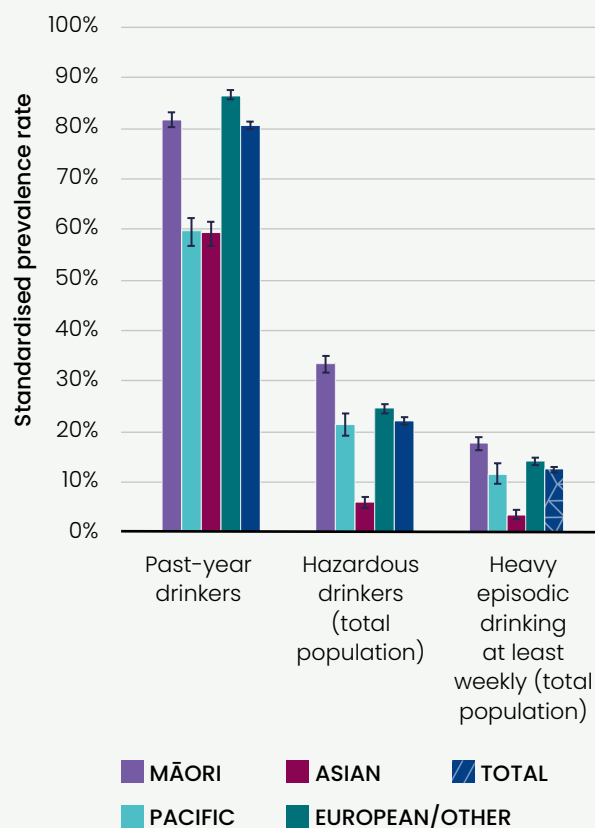
Alcohol use causes substantial health loss across the population and is the leading risk factor for health loss in people aged 15–49 years.<sup>50</sup> Alcohol use can cause many conditions such as liver cirrhosis, cancers and fetal alcohol spectrum disorder, is a causal factor in much violence and injury, and is a contributing factor to many mental health problems and suicide. Alcohol-related harms extend beyond the individual with impacts experienced by children (including those exposed to alcohol in utero), whānau and communities.<sup>64</sup> People living in areas of higher deprivation in New Zealand have been shown to have easier access to alcohol outlets<sup>65</sup> and studies suggest that there is more alcohol-related social harm in these areas.<sup>66</sup> There is no safe level of alcohol consumption.<sup>64,67</sup>

Alcohol use indicators from the New Zealand Health Survey 2021/22 show that approximately four out of every five people in Aotearoa New Zealand drink alcohol (79.1%). Nearly one in five adults (18.8%, approximately 780,000) reported a hazardous drinking pattern, defined as an established pattern of drinking that carries a high risk of future damage to physical or mental health. Asian adults (6.0%) had a lower rate of hazardous drinking than other ethnic groups: Māori (33.2%), Pacific people (21.7%) and European/Other (20.1%). One in ten adults (approximately 425,000) reported heavy episodic drinking at least weekly, defined as consumption of six or more standard drinks on one occasion at least weekly. The highest prevalence of heavy episodic drinking was seen among males (14.6%) and Māori (15.1%). For individual districts, with smaller sample sizes, there was no clear message of statistically significant differences between ethnic groups in the alcohol use indicators; where there were significant differences the pattern broadly mirrored differences seen in national rates.

Variation in alcohol use is evident across the country (NZ Health Survey district level data for 2017/18–2019/20). Prevalence of

drinking (in the past year) ranges from 69.4% (Counties Manukau) to 87.7% (Southern). Hazardous drinking rates range from 14.6% of people (Counties Manukau) to 37.7% of people (Tairāwhiti). High hazardous drinking rates are also shown in Hauora a Toi Bay of Plenty (28.7%), Southern (28.6%), and Whanganui (28.4%). Heavy episodic drinking at least weekly ranges from 7.1% (Te Tai o Poutini West Coast) to 20% (Tairāwhiti), with high rates also seen in Whanganui (17.7%), Hauora a Toi Bay of Plenty (16.2%), and Southern (16%).

**Figure 40: Prevalence of alcohol use indicators among people aged 15 years and over by ethnicity, 2017/18–2019/20**



Source: NZHS 2017–20

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## 5.4 Illicit drug use

Illicit drug use accounted for 1.5% of health loss from all causes in 2019, and approximately 6% of health loss in youth aged 15–24 years.<sup>50</sup>

Although four out of five New Zealand adults who used an illicit drug in the past year reported no harmful effects, drug use still accounts for significant harm (NZHS 2020/21). Drug-related harm includes both individual harm (premature death and reduction in quality of life due to physical and mental health risks associated with acute intoxication and with chronic use) and community harm (such as mental health and financial impacts on immediate friends/family, and wider societal impacts such as from crime).<sup>68,69</sup>

The likelihood of developing harmful patterns of use depends on a range of social, cultural and genetic factors. Although chemical addiction can play a part, more significant factors contributing to substance use disorders are trauma and abuse, mental health problems, stress, poverty, and housing insecurity. As a result, the most disadvantaged are often the worst affected. Māori, Pacific people and people in areas with the most socio-economically deprived NZDep scores are more likely to experience harm from their own drug use and are most likely to want help with their drug use but not receive it. For example, drug-related deaths for Māori are three times the rate for non-Māori<sup>70</sup> and Māori are over-represented in drug harm incidents, including adverse events associated with synthetic cannabinoids,<sup>71</sup> higher rates of cannabis and methamphetamine use,<sup>72</sup> and an elevated likelihood of arrest and conviction for cannabis-related offences.<sup>73,74</sup>

Evidence indicates that the negative impacts of drug use are more pronounced when drug use begins at a young age (e.g. under 16 years) and when multiple drugs are used.<sup>75,76</sup>

A recent Aotearoa New Zealand drug harms ranking found that the most harmful drugs (aside from alcohol and tobacco) were methamphetamine and synthetic cannabinoids in both the overall population and youth (aged 12–17 years). In the overall population opioids ranked next most harmful, followed by cannabis, whereas for youth solvents and fuels were deemed more harmful than opioids and cannabis.<sup>73</sup>

### 5.4.1 Cannabis

There is evidence that recreational cannabis use is associated with negative health outcomes, especially in more frequent users, including mental illness (particularly in youth), drug use disorders, respiratory illness, impaired cognition, increased road accidents and lower birthweight in babies born to women exposed to cannabis.<sup>77</sup>

The NZ Health Survey 2021/22 estimated that 4.3% of adults use recreational (non-prescribed) cannabis at least weekly and 14.7% use it each year. Although this rate has been relatively steady for the past four years it is nearly double that of a decade ago. Youth aged 15–24 years are the age group with the highest use, with more than a quarter (28.4%) reporting use in that past year and 8% reporting once a week or more. Men are 1.4 times more likely to use than women. Māori are more likely than European/Other people to use cannabis weekly or more (9.1% versus 4.6%). Those living in areas with the most socio-economically deprived NZDep scores are nearly three times more likely to use weekly than those living in areas with the least socio-economically deprived NZDep scores. Regional variations are seen, with the highest use among those living in Capital and Coast District area.

## 5.4.2 Amphetamines

The negative health impacts of amphetamine use include injury, cardiovascular disease, brain damage, impaired mental health and oral health, in addition to significant social impacts particularly related to violence and crime.<sup>78</sup>

In the NZ Health Survey pooled results for 2017/18 to 2019/20, the past year prevalence of self-reported amphetamine use in adults (15 years and over) was 1.0% (approximately 39,000 people). Consumption rates have remained relatively steady for the past decade. Use is correlated to gender and ethnicity: Māori are more likely to use amphetamines than European/Other or Pacific people (3.1% versus 1.3% and 0.9%) while Asian people have a very low rate of use. Men are twice as likely to use amphetamines as women. People living in the areas with the most socio-economically deprived NZDep scores are five times more likely to use amphetamines than those living in the areas with the least deprived NZDep scores. Highest use is seen in Te Tai Tokerau Northland and the Eastern and Bay of Plenty districts, based on wastewater testing. Aotearoa New Zealand has high rates of methamphetamine use compared to Europe, but lower than Australia, the United States and Canada.

## 5.4.3 MDMA ('ecstasy')

In the past year, 4.3% of people 15 years and older (approximately 181,000 people) used MDMA (3,4-Methylenedioxymethamphetamine). Use is twice as high in Māori as in European/Other people, and the highest age group for use is 15 to 24 year olds (12.8%). Even though MDMA use is significantly higher in the North Island, the two regions that use the most MDMA per capita are in the South Island: Canterbury and the Southern District (which includes Dunedin and Invercargill). Negative health impacts include psychological dependence and acute overdose, which can rarely result in death.<sup>79</sup>

## 5.4.4 Opioids

In the past year, 1.2% of people 15 years and older (approximately 49,000 people) used illicit opioids. Other than alcohol, the substances that cause or contribute to the most non-intentional deaths each year, according to coronial data, are opioids, at 46 deaths per year – and the opioids that cause by far the most deaths are methadone, codeine and morphine. In addition to the risk of overdose and death due to respiratory depression, harmful health effects of opioids include dependence and withdrawal.<sup>80</sup>

## 5.4.5 Other drugs

The drug scene can change very quickly in Aotearoa New Zealand, as it is such a small market. Other drugs of concern include ketamine, LSD (Lysergic acid diethylamide), synthetic cannabinoids, synthetic cathinones and volatiles. A small number of New Zealanders inject their drugs (an estimated 8,000–15,000 people use the Needle Exchange Programme) and the most commonly injected drug is methamphetamine. This number is gradually increasing due to population growth, increased popularity of performance and image-enhancing drugs, and use of injection to consume methamphetamine.

Injecting of drugs carries an additional health risk of contracting infectious diseases such as hepatitis and human immunodeficiency virus (HIV) from shared needles.<sup>69</sup>

## Section 6

# Health Status

6.1	Overall health	68
6.2	Maternity and early years, child health and youth health	79
6.3	People living with chronic health conditions	110
6.4	People with cancer	126
6.5	People living with mental distress, illness and addictions	137
6.6	Disabled people   tangata whaikaha	145
6.7	Chronic pain	150
6.8	Injury	152
6.9	Pandemic infectious disease	154
6.10	Sexual health	155
6.11	Older people	157





## 6.1 Overall health

Overall, the self-reported health status of people who live in Aotearoa New Zealand is excellent, with 88% of adults reporting that their overall health is excellent, very good or good, although this is slightly lower for Māori (81%) and Pacific people (83%) (NZHS 2021/22).

The following sections examine how long we are living and look at the key diseases that shorten people's lives through avoidable deaths, and those causing avoidable hospital admissions.

We use the disability-adjusted life year (DALY) to quantify and rank disease burden due to specific causes. The Global Burden of Disease Study 2019<sup>50</sup> results for Aotearoa New Zealand found that the most significant disease groups causing health loss, measured in disability-adjusted life years (DALYs), are cancers (18% of health loss), cardiovascular diseases (15% of health loss), mental disorders (8.7% of health loss), musculo-skeletal disorders (8.6% of health loss) and unintentional injuries (8.1% of health loss). Together, these conditions account for 59% of health loss.

**Table 2: Disease groups collectively accounting for 80% of DALYs GBD Level 2 causes, 2019**

CAUSE	% OF DALY
Cancers	18%
Cardiovascular diseases	15%
Mental disorders	8.7%
Musculoskeletal disorders	8.6%
Unintentional injuries	8.1%
Other non-communicable diseases (mainly oral, gynaecology, and endocrine, metabolic, blood and immune disorders, congenital birth defects)	6.6%
Neurological disorders	6.3%
Chronic respiratory diseases	5.2%
Diabetes and kidney diseases	4.1%

Source: GBD Study 2019 Results

The table below shows the top 12 causes of health loss for men and women and number years of healthy life lost to each in 2019. These account for 44% of estimated total health loss in 2019.

**Table 3: Twelve leading causes of DALYs, total numbers GBD Level 3 causes by gender, 2019**

FEMALE DALY		MALE DALY	
Ischaemic heart disease	33,774	Ischaemic heart disease	59,006
Low back pain	31,635	Low back pain	23,549
Chronic obstructive pulmonary disease	24,211	Chronic obstructive pulmonary disease	22,462
Stroke	23,588	Falls	21,679
Falls	23,149	Tracheal, bronchus, and lung cancer	21,075
Breast cancer	20,738	Exposure to mechanical forces	19,021
Anxiety disorders	20,529	Stroke	18,608
Tracheal, bronchus, and lung cancer	19,886	Self-harm	17,905
Gynaecological diseases	18,953	Colon and rectum cancer	17,037
Alzheimer's disease and other dementias	18,082	Diabetes mellitus	16,838
Depressive disorders	18,030	Prostate cancer	15,187
Headache disorders	17,156	Road injuries	15,136
All causes	606,981	All causes	608,793

Source: GBD Study 2019 Results

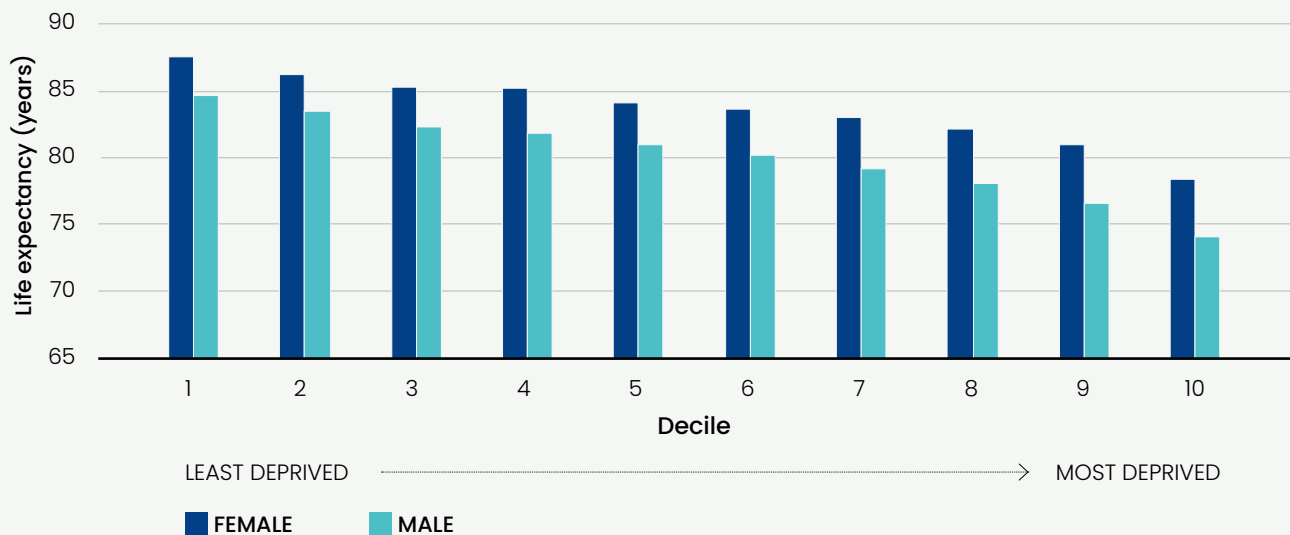
## 6.1.1 Life expectancy

Aotearoa New Zealand has high life expectancy compared with other countries, ranking 16th in the world at 82 years, 2.4 years less than Japan and one year less than Australia. A female child born in 2022 who experienced the mortality seen in 2020–2022 across her lifespan would live to 84 years of age. A male child would live to 80.5 years.

Life expectancy has increased by three years over the past 20 years.<sup>81</sup>

Life expectancy is highest in areas with the least socio-economically deprived NZDep scores and lowest in areas with the most deprived NZDep scores, as measured by the NZDep2018 rankings. For women it ranges from 87.6 years in decile 1 areas to 78.5 years in decile 10 areas (a gap of 9.2 years). For men from 84.7 years in decile 1 to 74.2 years in decile 10 (a gap of 10.5 years).

**Figure 41: Average life expectancy at birth by NZDep2018 decile and gender, 2017–2019**



Source: New Zealand and District Health Board period life tables 2017–2019 by NZDep2018

Life expectancy varies across ethnic groups in Aotearoa New Zealand.

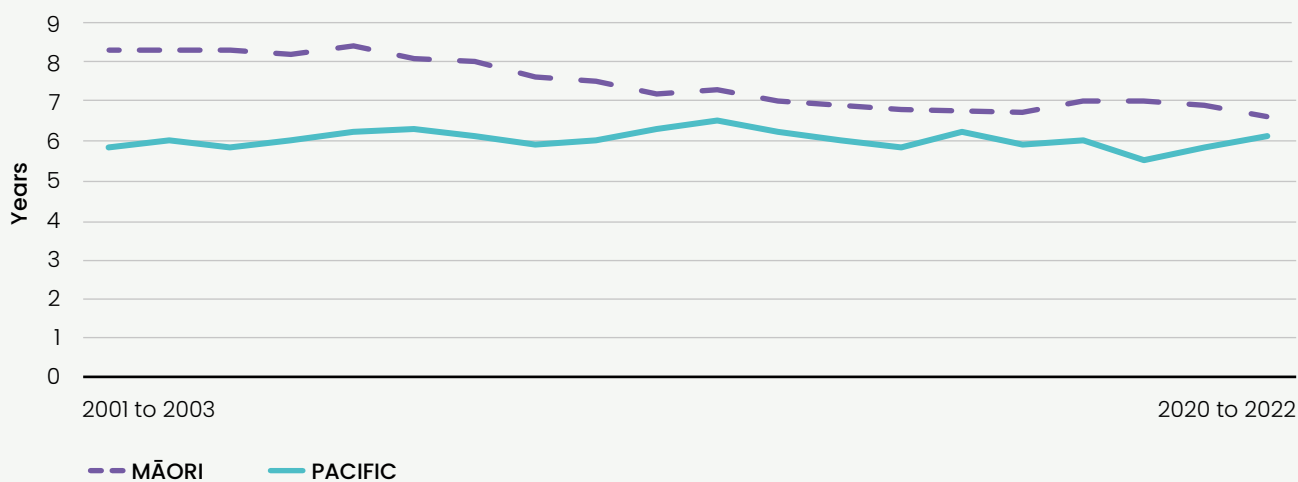
Māori women die on average seven years earlier than European/Other women, and Māori men eight years earlier than European/Other men.

The life expectancy gap for Pacific women and men is six years compared to European/

Other people. Asian women live three years longer than European/Other women and Asian men four years longer than European/Other men.

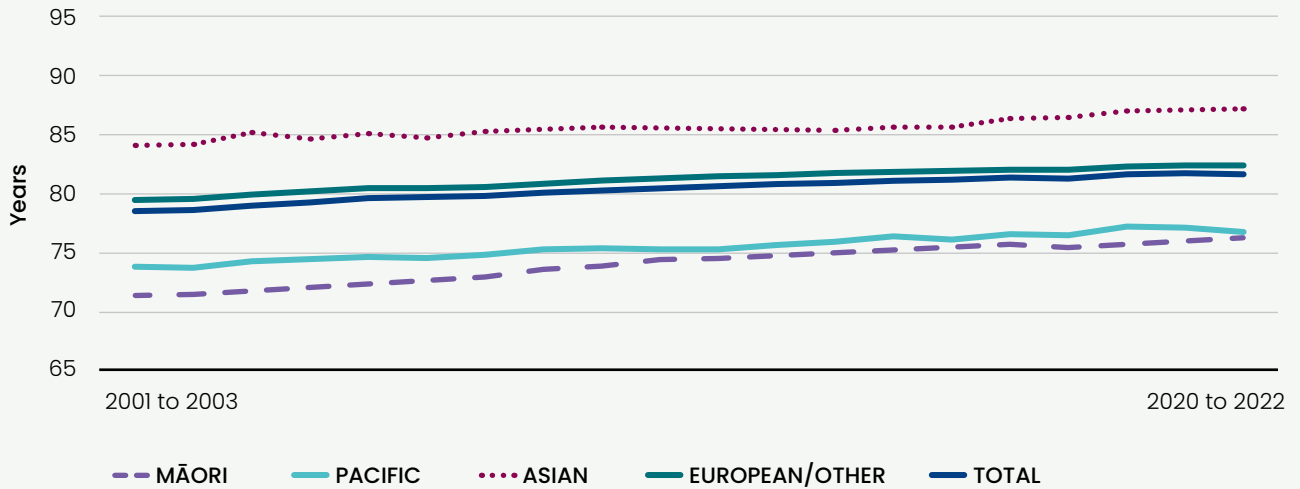
Aotearoa New Zealand is one of very few countries in the world that did not experience a dip in life expectancy as a result of the COVID-19 pandemic.

**Figure 42: Trend in the gap in life expectancy for Māori and Pacific people in Aotearoa New Zealand, 2001-03 to 2020-22**



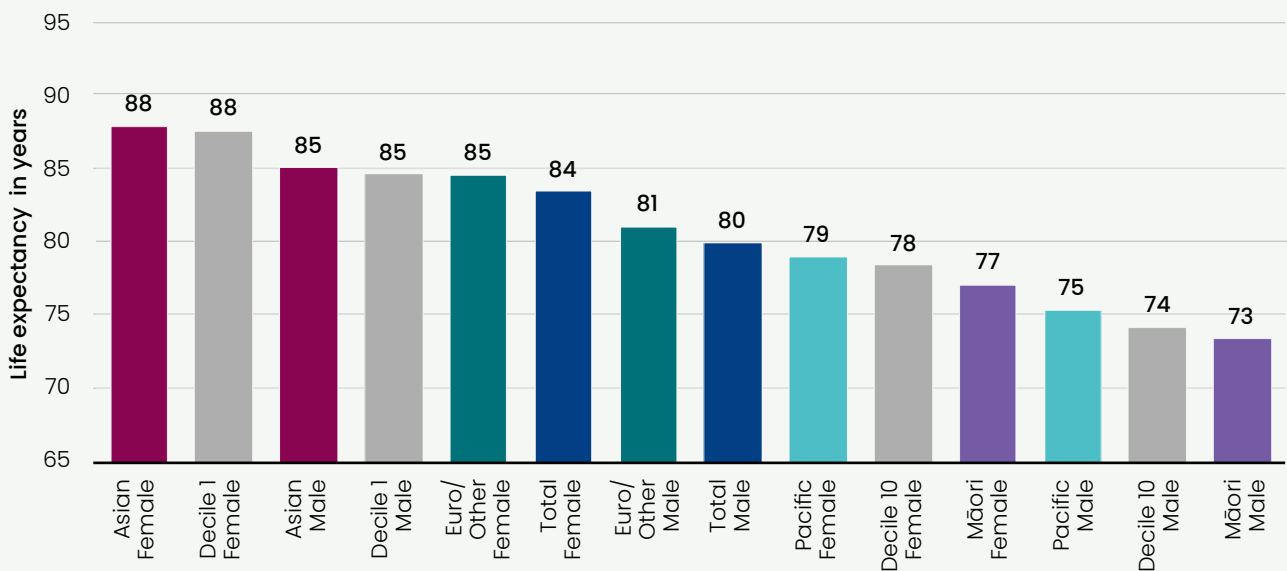
Source: Calculation from Stats NZ life tables, MoH mortality collection

**Figure 43: Trend in life expectancy at birth by ethnicity, 2001-03 to 2020-22**



Source: Calculation from Stats NZ life tables; three-year rolling averages

**Figure 44: Average life expectancy at birth by ethnicity and gender, 2017-2019**

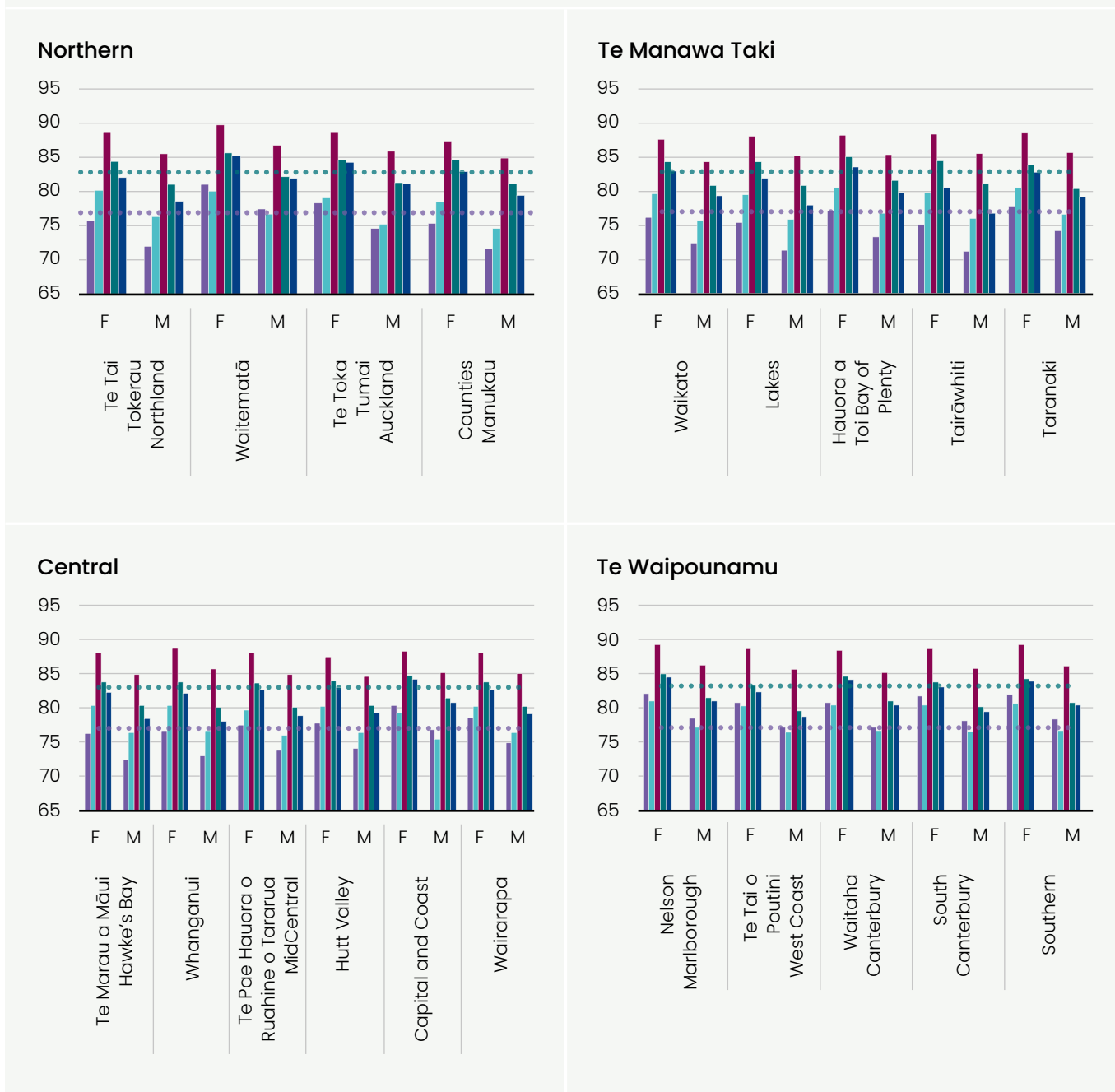


Source: New Zealand and District Health Board period life tables 2017-2019 by NZDep2018

The pattern of lower life expectancy for Māori and Pacific people compared with Asian and European/Other people is found in every district, but the gap is smaller in Te Waipounamu than in the North Island regions.

**Figure 45: Average life expectancy at birth by ethnicity and gender, 2017-19**

■ MĀORI ■ PACIFIC ■ ASIAN ■ EUROPEAN/OTHER ■ TOTAL ●●● NZ AVG MĀORI ●●● NZ AVG EUROPEAN/OTHER



Source: New Zealand and District Health Board period life tables 2017-2019 by NZDep2018



## 6.1.2 Contributors to the gap in life expectancy for Māori and Pacific people compared with others

This section seeks to provide an overview of the underlying, potentially avoidable factors contributing to the life expectancy gap between Māori and Pacific people compared with non-Māori/non-Pacific people.

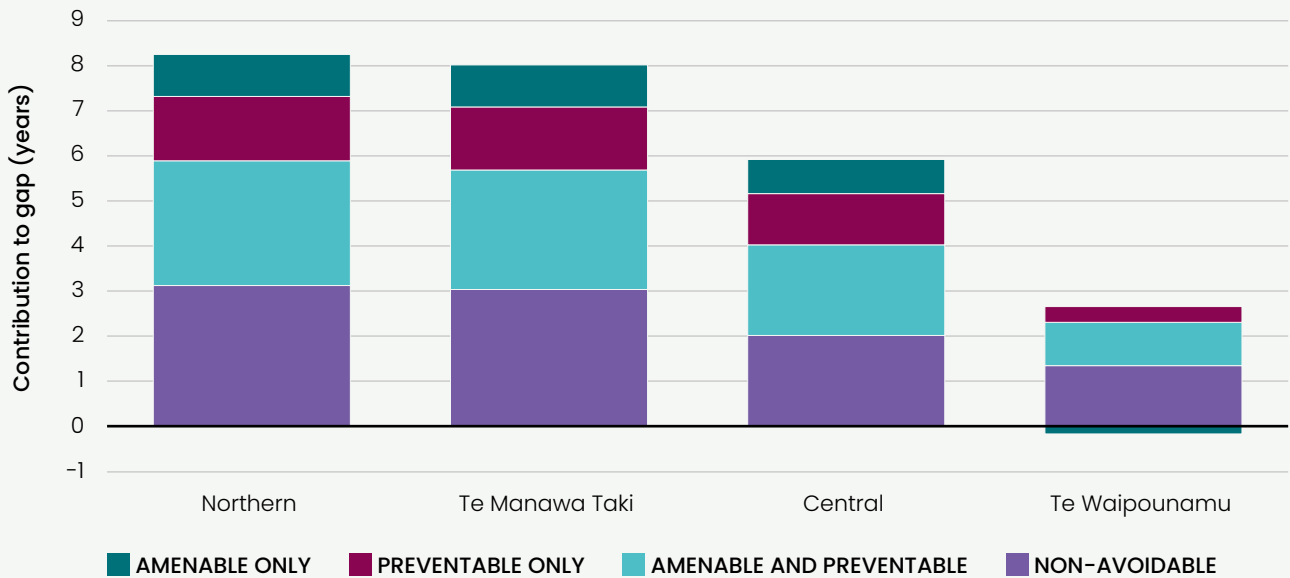
This analysis uses data from 2018–2020 as the data is not yet available for years after 2020.

Life expectancy for Māori is higher in Central and Te Wai Pounamu, and the gap is smaller.

Te Waipounamu is the only region where lung cancer is not in the top 10 contributors to the life expectancy gap for Māori versus non-Māori/non-Pacific. Indeed, for the amenable conditions there is a small advantage for Māori – hence the negative bar in Figure 46.

Māori develop lung cancer 6–8 years earlier than non-Māori on average and at lower exposure to smoking.<sup>82</sup> With the incidence of lung cancer for Māori women continuing to rise steeply and an ongoing very high death rate from the disease, it is likely that differences in mortality from lung cancer will persist for some time.

**Figure 46: Life expectancy gap between Māori and non-Māori/non-Pacific by region, 2018–2020**

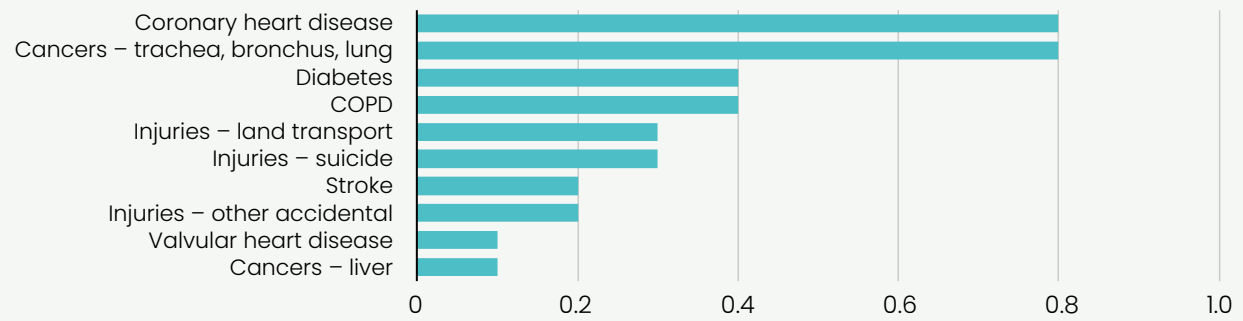


2019 and 2020 cause of death data is provisional.  
Source: Calculation from Stats NZ life tables, MoH mortality collection

\*2019 and 2020 cause of death coding was incomplete at time of analysis, mainly with respect to coroners' cases. The shortfall was judged unlikely to affect these high level analyses.

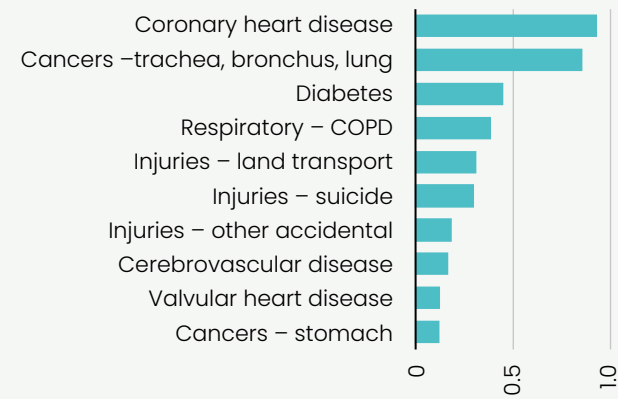
**Figure 47: Top 10 avoidable contributors to life expectancy gap between Māori and non-Māori/non-Pacific, 2018-2020**

**Contribution to gap (years)**



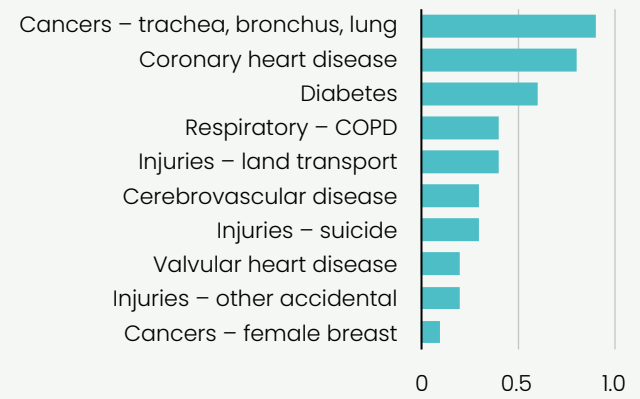
**Northern**

**Contribution to gap (years)**



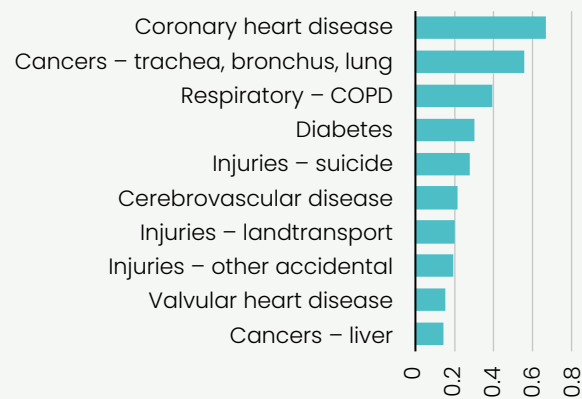
**Te Manawa Taki**

**Contribution to gap (years)**



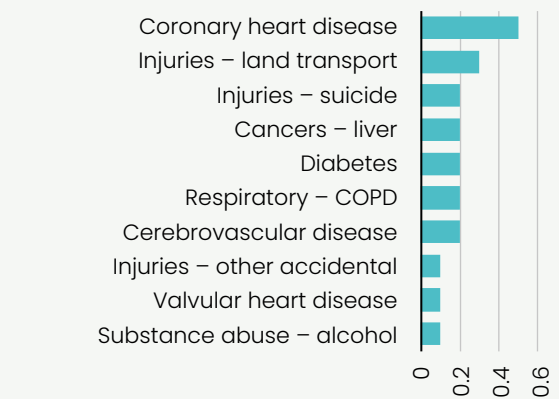
**Central**

**Contribution to gap (years)**



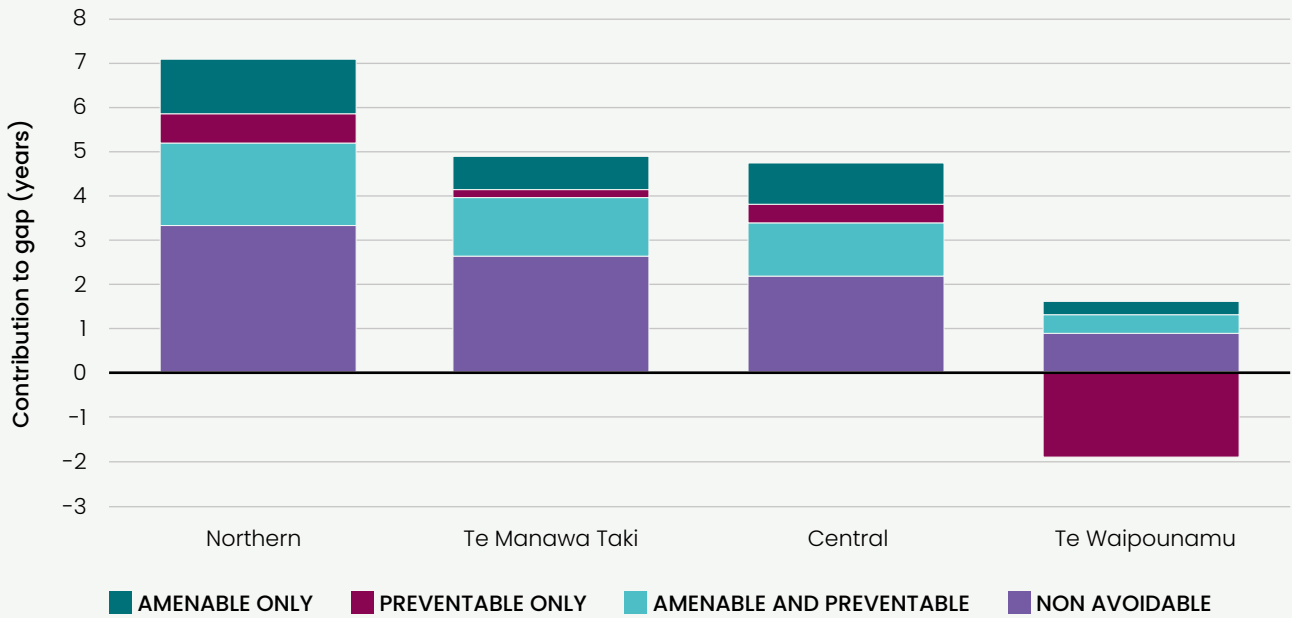
**Te Waipounamu**

**Contribution to gap (years)**



2019 and 2020 cause of death data is provisional.  
Source: Calculation from Stats NZ life tables, MoH mortality collection

**Figure 48: Life expectancy gap between Pacific people and non-Māori/non-Pacific by region, 2018-2020**

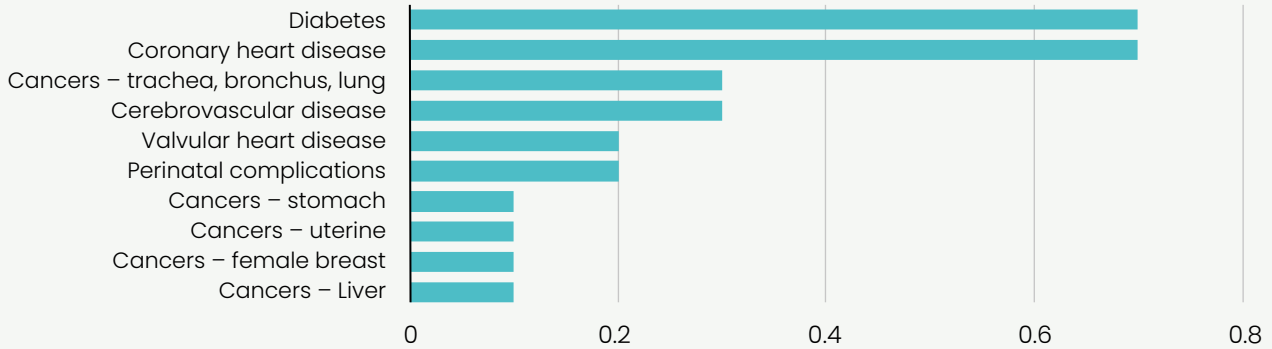


2019 and 2020 cause of death data is provisional.  
 Source: Calculation from Stats NZ life tables, MoH mortality collection

For Pacific people, the avoidable contributors are similar for three of the Regions. For Te Waipounamu, while relatively small numbers are involved, for coronary heart disease Pacific actually have a lower risk than non-Māori/non-Pacific people. Hence the negative bar in Figure 48.

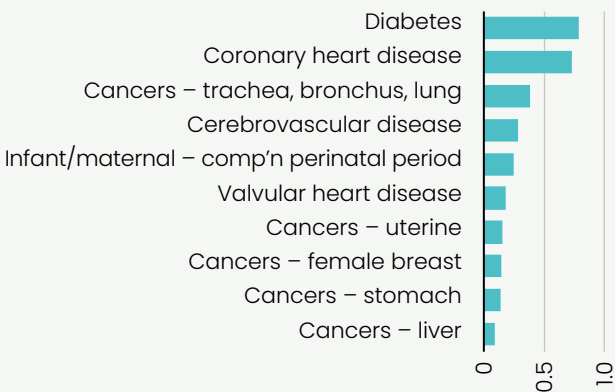
**Figure 49: Top 10 avoidable contributors to life expectancy gap between Pacific people and non-Māori/non-Pacific, 2018-2020**

**Contribution to gap (years)**



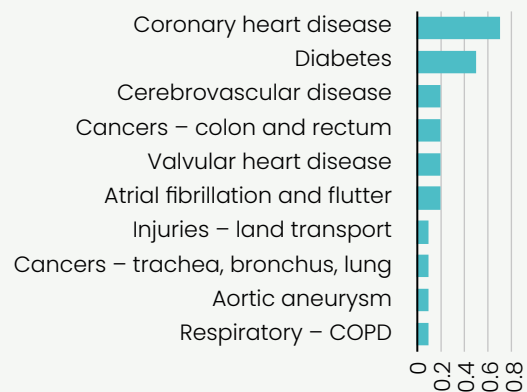
**Northern**

**Contribution to gap (years)**



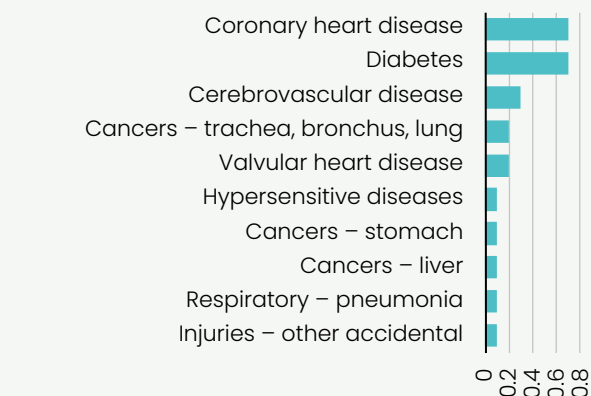
**Te Manawa Taki**

**Contribution to gap (years)**



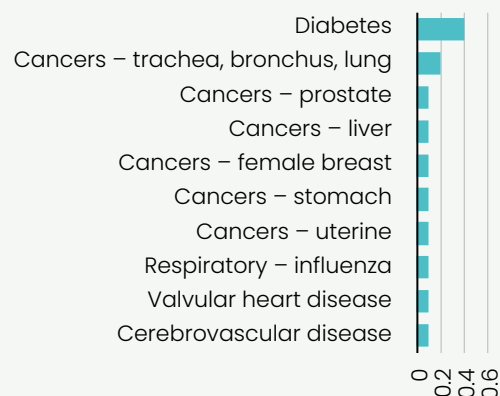
**Central**

**Contribution to gap (years)**



**Te Waipounamu**

**Contribution to gap (years)**



2019 and 2020 cause of death data is provisional.  
Source: Calculation from Stats NZ life tables, MoH mortality collection

### 6.1.3 Total mortality

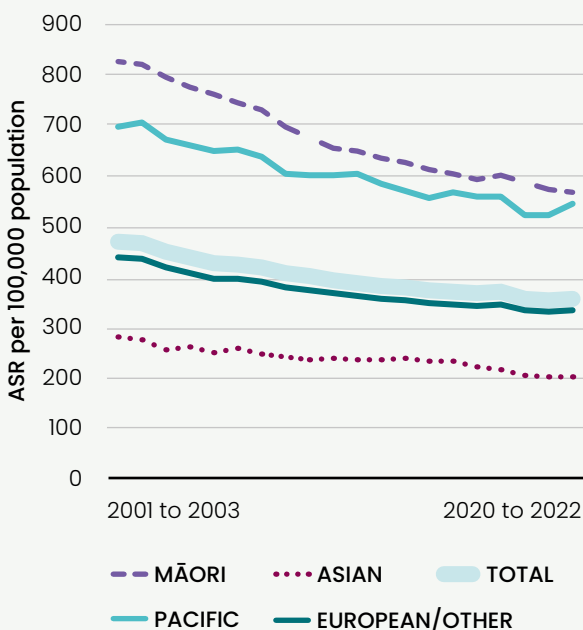
In Aotearoa New Zealand about 33,000 people die each year. 80% of those people are 65 or older.

For Māori, 53% of people who die are 65 or older, for Pacific people 58% of people who die are 65 or older and for European/Other people, 86% of people who die are 65 or older.

The most common causes of death in 2020 were cancers (32%), ischaemic heart diseases (12%), cerebrovascular diseases (stroke) (5%) and chronic lower respiratory disease (4%).

The age-standardised mortality rate in the period 2020–22 was 357 deaths per 100,000 population, but the rates for Māori and Pacific people were much higher at 570 and 547. The rate for European/Other people was 334. Asian people had the lowest mortality rate at 203 per 100,000 population.

**Figure 50: All deaths, age standardised mortality rate per 100,000 population by ethnicity, three year rolling average, 2001–03 to 2020–22**



Source: Ministry of Health Mortality Collection, standardised to WHO population

### 6.1.4 Avoidable causes of mortality

Avoidable mortality is deaths occurring in those aged 0–74 years (excluding stillbirths) that could potentially have been avoided. This is divided into preventable deaths that could have been avoided through public health and prevention interventions, and amenable deaths that could have been avoided through effective and timely healthcare.<sup>83</sup>

Prevention includes successful public health promotion such as smoke-free legislation, alcohol harm reduction and injury prevention.<sup>84,85</sup> Some deaths are both preventable and amenable, for example ischaemic heart diseases, colorectal cancer and breast cancer are considered for both areas.

In 2018, 9,000 deaths (27% of the total) were considered “potentially avoidable”.

The leading causes of avoidable mortality were injuries (2,064 including 620 due to suicide and self-harm), ischaemic heart disease (1,411), lung cancer (1,011), colorectal cancer (550), chronic obstructive pulmonary disease (536), other heart disease (481), stroke (480), and diabetes (432). For women, breast cancer (403) is also important.



**Table 4: Number of deaths from most common causes of avoidable mortality, 2018**

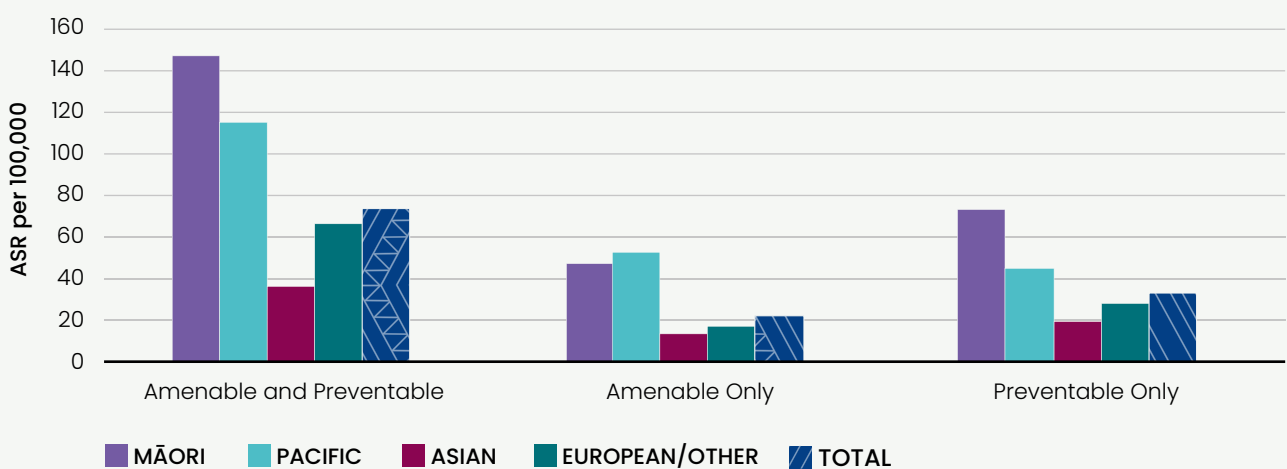
FEMALE		MALE	
Injuries	604	Coronary heart disease	1,077
Lung cancer	475	Injuries	840
Breast cancer	402	Lung cancer	505
Coronary heart disease	334	Suicide	444
COPD	260	Colorectal cancer	308
Cerebrovascular disease	244	Other CVD	281
Colorectal cancer	242	COPD	276
Other CVD	200	Diabetes	263
Suicide	176	Cerebrovascular disease	236
Diabetes	169		

Source: Ministry of Health Mortality Collection

The marked differences between ethnic groups highlight the opportunity for eliminating health inequities. Māori and Pacific people’s avoidable mortality rates are more than double that of European/Other groups.

Similar analyses can be performed using NZDep based on where people live and show similar discrepancies and opportunities for intervention. Many of the most effective interventions lie outside of the remit of the health system – housing, income, safe environments – and require an all-of-government approach.

**Figure 51: Amenable and preventable mortality by ethnic group (age-standardised per 100,000 population), 2018-2020**



2019 and 2020 cause of death data is provisional.  
Source: Ministry of Health Mortality Collection

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## 6.2 Maternity and early years, child health and youth health

There is increasing recognition of the importance of the early years on life trajectories and the positive impact supporting healthy child development has on long-term outcomes across a range of health and wellbeing measures.<sup>86</sup>

Ensuring the health and wellbeing of babies, children and young people living in Aotearoa New Zealand is important both for children and young people in the present as well as to ensure the health of the population as they grow into adults. There are significant health inequities across a range of health outcomes for Māori, with health services less accessible for Māori.<sup>2</sup> Factors underpinning inequitable access to maternal and child health services in Aotearoa New Zealand include cultural factors, geographical access, colonialism, acceptability and the maternity care system.<sup>87,88</sup>

While access to timely, quality health services is important to support good health, paying attention to the broader determinants of health is as critical. The influence these determinants have on health is recognised and underpins the value of working with other agencies/organisations to support whānau.

Several measures can be used to understand healthcare access and the burden of severe disease and mortality for babies, children and young people living in Aotearoa New Zealand. These measures include enrolment with primary care, immunisation coverage, hospitalisation admission data and mortality data. There is, however, limited data about the reasons for primary care visits, outpatient clinic attendance (including mental health), as well as limited data about the prevalence of neurodevelopmental and behaviour disorders. This, coupled with the likely under-recognition of neurodevelopmental and behavioural conditions, means this is an area that needs further exploration to understand the health needs and service requirements resulting from these conditions.<sup>89</sup>

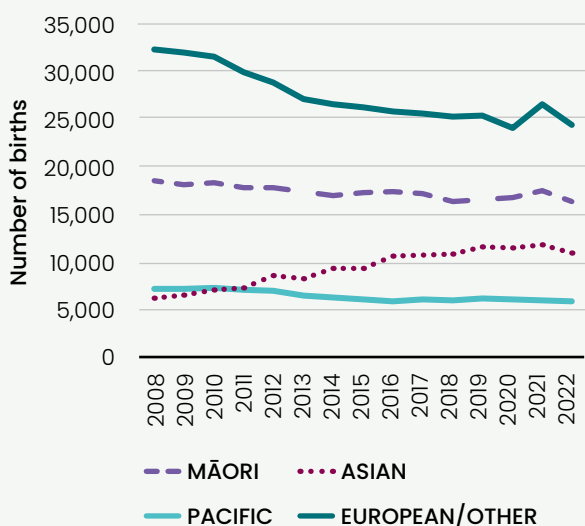
The Child and Youth Epidemiology Service currently produces annual reports summarising key indicators for children and young people with in-depth reviews of specific topic areas. These reports can be accessed at [NZ Child and Youth Epidemiology Service, University of Otago, New Zealand](#).

### 6.2.1 Births

Influences on the wellbeing of children begin before birth and pregnancy. Parental characteristics such as education, age at pregnancy, health related behaviours including smoking status, alcohol and drug use, and mental health impact child wellbeing prior to conception. Maternal physical, mental and psychosocial stressors tend to cluster together and are more common for mothers who are subject to greater socio-economic stressors such as material hardship, financial stress and relationship conflict. Early parental support is required, from pregnancy preparation (with respect to mental, physical, psychosocial, and economic wellbeing) through to interventional services that are culturally acceptable and accessible.<sup>90</sup>

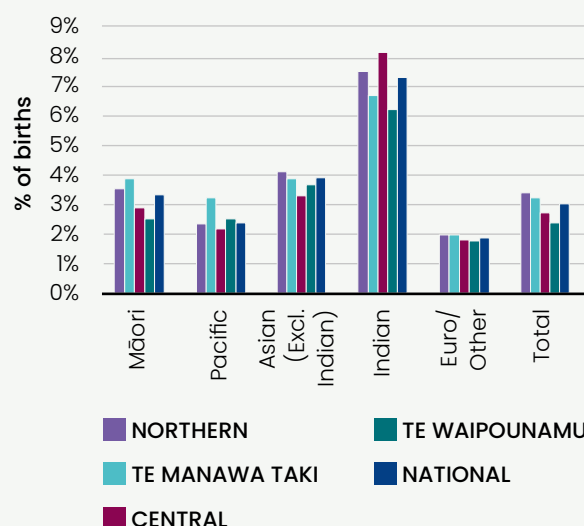
There has been a gradual decline in the number of live births in Aotearoa New Zealand, from 64,500 in 2008 to 57,500 in 2022 (MoH maternity data collection). The trend downwards was interrupted by an increase in 2021 but this was not maintained. The percentage of women giving birth in primary birthing facilities has remained static over time overall. By ethnic group, Māori (6% of births) and European/Other people (5.8%) are the largest users of primary birthing facilities.

**Figure 52: Trends in live births by ethnicity, 2008-2022**



Source: National Maternity data collection

**Figure 53: Low birth weight by ethnicity and region, 2020**



Source: National Maternity data collection

In 2020, the overall national fertility rate was 58 per 1,000 women (15-44 years). The rate was higher for Māori and Pacific women (82 and 77, respectively), with European/Other women at 49 and Asian women at 52. The birth rates vary across districts with the lowest rates of 41 and 42 births per 1,000 women in Capital and Coast and Te Toka Tumai Auckland respectively, and the highest of 77 and 79 per 1,000 in Te Tai Tokerau Northland and Tairāwhiti.

There were 1,991 babies born to young women aged 15-19 years, a national rate of 13 births per 1,000 women for this age group. Birth rates in this youngest age group vary from 6 per 1,000 in the Capital and Coast and Southern districts, up to 27 per 1,000 in Te Tai Tokerau Northland and 29 per 1,000 in Tairāwhiti (National Maternity Collection, <https://tewhatauora.shinyapps.io/report-on-maternity-web-tool>).

Pregnancy termination numbers, rates and ratios have remained relatively stable over the past 5 years, with a national rate of 13.1 procedures per 1,000 women aged 15-44 years in 2021. There were 183 abortions per 1,000 known pregnancies in 2021 (MoH Abortion Services Annual Report 2022).

Māori access terminations at a higher rate than non-Māori/non-Pacific people in most regions of Aotearoa New Zealand. There are also district differences in the type of abortion procedure accessed. In 2021, in Te Tai o Poutini West Coast, 90.9% of people had a surgical abortion, compared to 10.2% in Taranaki. These statistics most likely reflect differences in surgical and medical service provision, and practical considerations related to out-of-region travel for services.

Gestation at the time of termination is an important indicator of access to service; an earlier gestation indicates people face fewer barriers to care. The average gestation for non-Māori/non-Pacific people was earlier (7.9 weeks), compared with Māori (8.6 weeks) and Pacific people (9.1 weeks).

In 2020, approximately 3% of all babies born in Aotearoa New Zealand had low birth weight at term (37-42 weeks). There was a markedly higher rate of low birth weight for Indian mothers across all districts, with slightly increased rates for Asian, Māori and Pacific mothers compared to European/Other mothers.

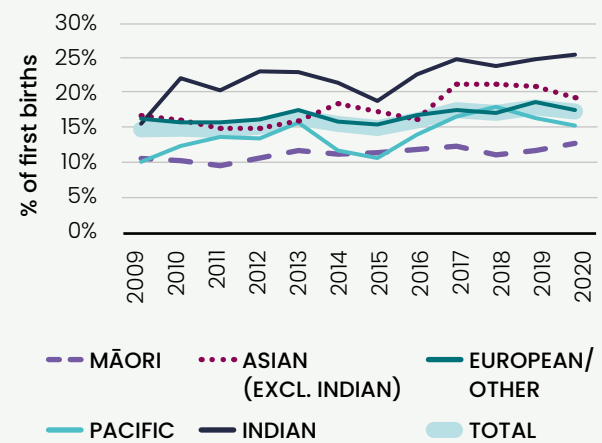
Birth complications are more common for Māori, Pacific and Indian women. These groups are more likely to have pre-term births and require blood transfusions after delivery. Indian women are more likely than others to require instrumental vaginal births. In New Zealand's hospitals, 30% of all births were by caesarean section, with 18% being emergency procedures. Māori and Pacific mothers were more likely to have normal deliveries (National Maternity Collection, <https://tewhatauora.shinyapps.io/report-on-maternity-web-tool>).

Of the 2020 cohort of pregnant women having their first birth and considered low risk, 18% of births resulted in caesarean section. There has been a slight upward trend for most ethnicities over the last 10 years and there is variability among ethnicities at district levels. However, overall there is a higher caesarean section rate for Indian women and generally lower for Māori and Pacific women.

Other birth interventions, including epidural, induction and episiotomy, have increased in frequency by 14-32% nationally over the last 10 years, whereas augmentation has decreased by 28%. Again, intervention trends vary at district levels and by ethnicity. Notably,

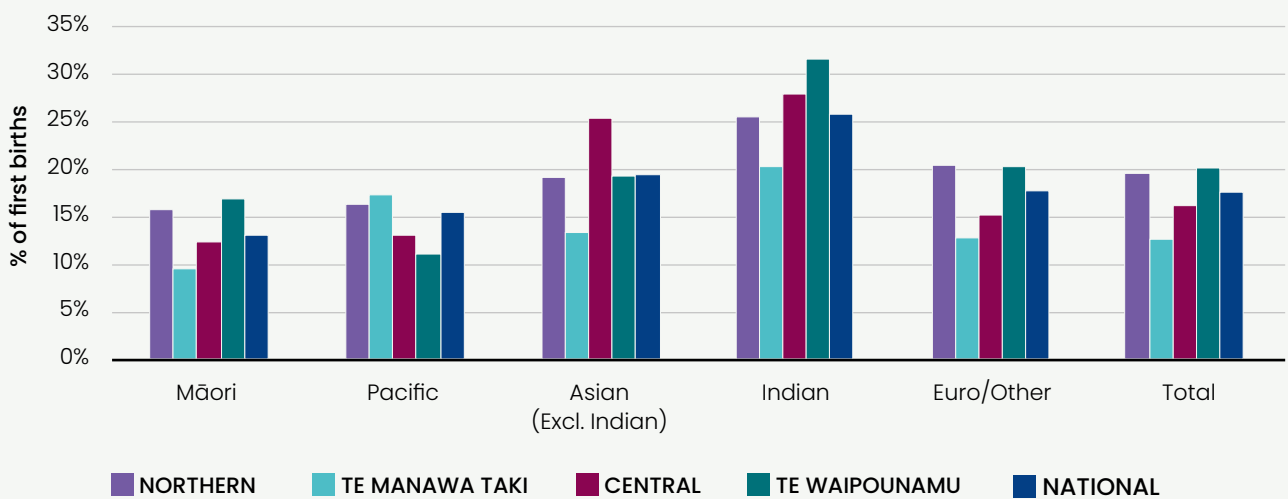
Māori and Pacific women have lower rates of epidural and episiotomy compared to European/Other women. Māori women also have a lower rate of induction compared to European/Other women, whereas Pacific and Indian women have a higher rate (National Maternity Collection, <https://tewhatauora.shinyapps.io/report-on-maternity-web-tool>).

**Figure 54: Caesarean section rate first birth trend by ethnicity**



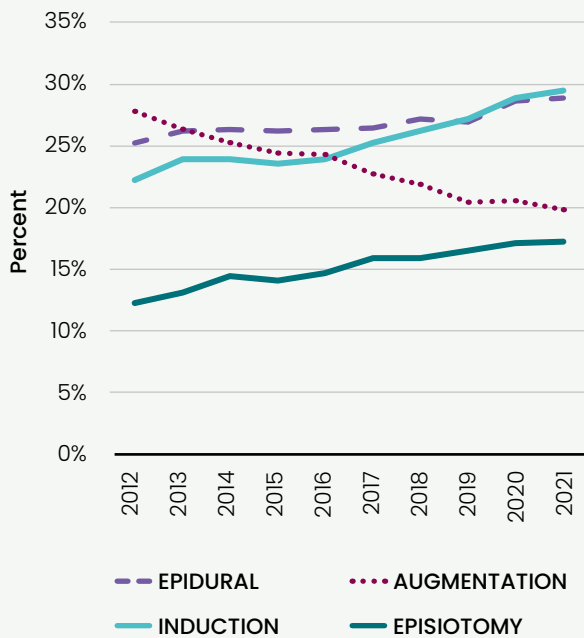
Includes first births for those considered low risk. Source: National Maternity data collection

**Figure 55: Caesarean section rate for first births by ethnicity and region, 2020**



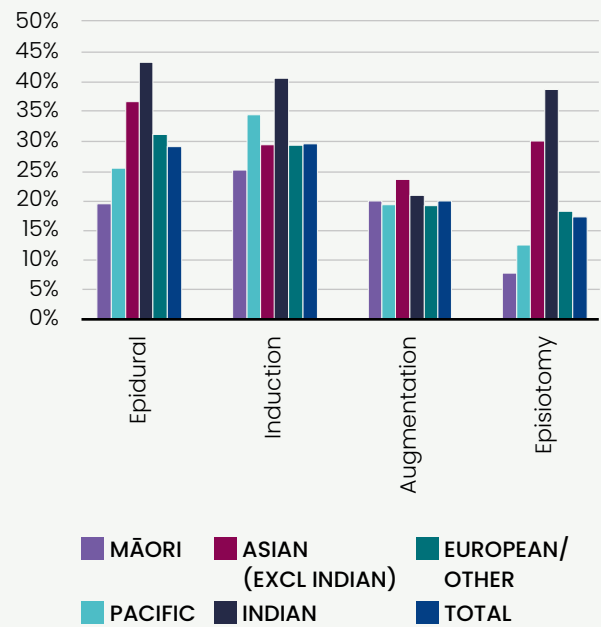
Includes first births for those considered low risk. Source: National Maternity data collection

**Figure 56: Birth intervention rate trend, 2012-2021**



Source: National Maternity data collection

**Figure 57: Birth intervention by ethnicity, 2021**



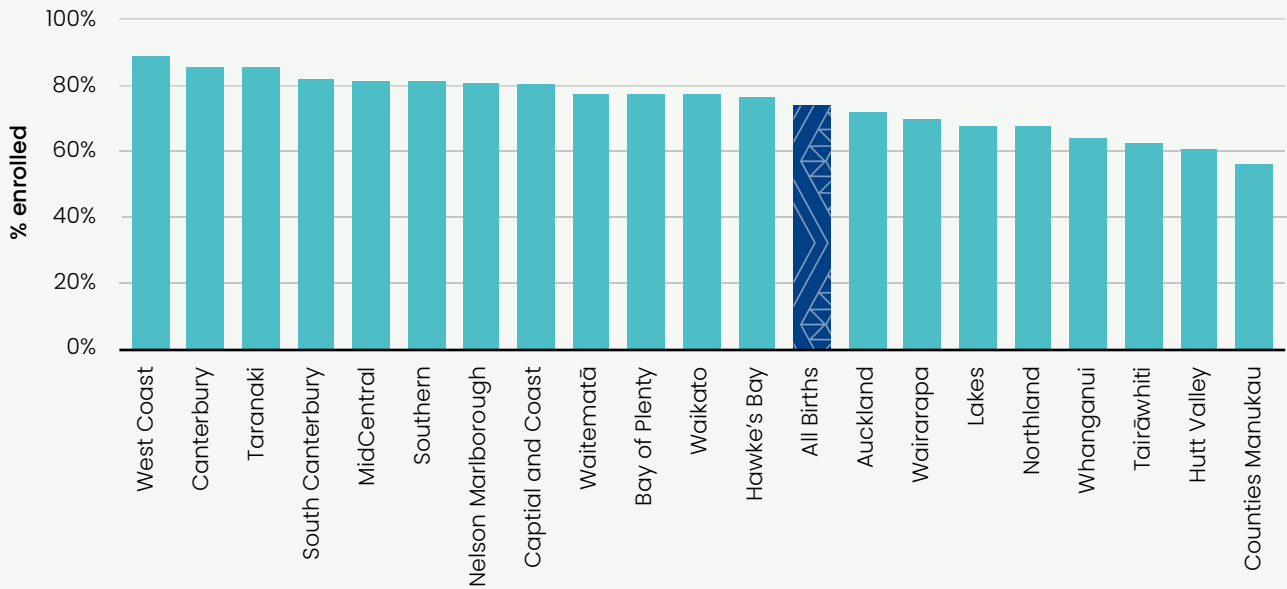
Source: National Maternity data collection

Poor outcomes for pregnant women and their babies are associated with later engagement with health professionals, low uptake of antenatal immunisations, smoking during pregnancy and high BMI, all of which have further upstream causes. Lower uptake of maternal pertussis vaccination in Aotearoa New Zealand arises from lack of awareness, safety or effectiveness concerns, or discouragement from healthcare professionals.<sup>87</sup>

Three quarters (75%) of women were enrolled with a lead maternity carer (LMC) at 12 weeks of pregnancy in 2020. District enrolment rates range from 89% in Te Tai o Poutini West Coast down to just 61% in Hutt Valley and 56% in Counties Manukau. Nationally, only 47% of Pacific mothers and 61% of Māori mothers were enrolled by 12 weeks, compared to 86% of European/Other women (Maternity Clinical Indicators, 2020). Increasingly, Hapū Wānanga, a free kaupapa Māori antenatal educational service for Māori hapū māmā (pregnant women), is being offered around Aotearoa New Zealand.<sup>87</sup>

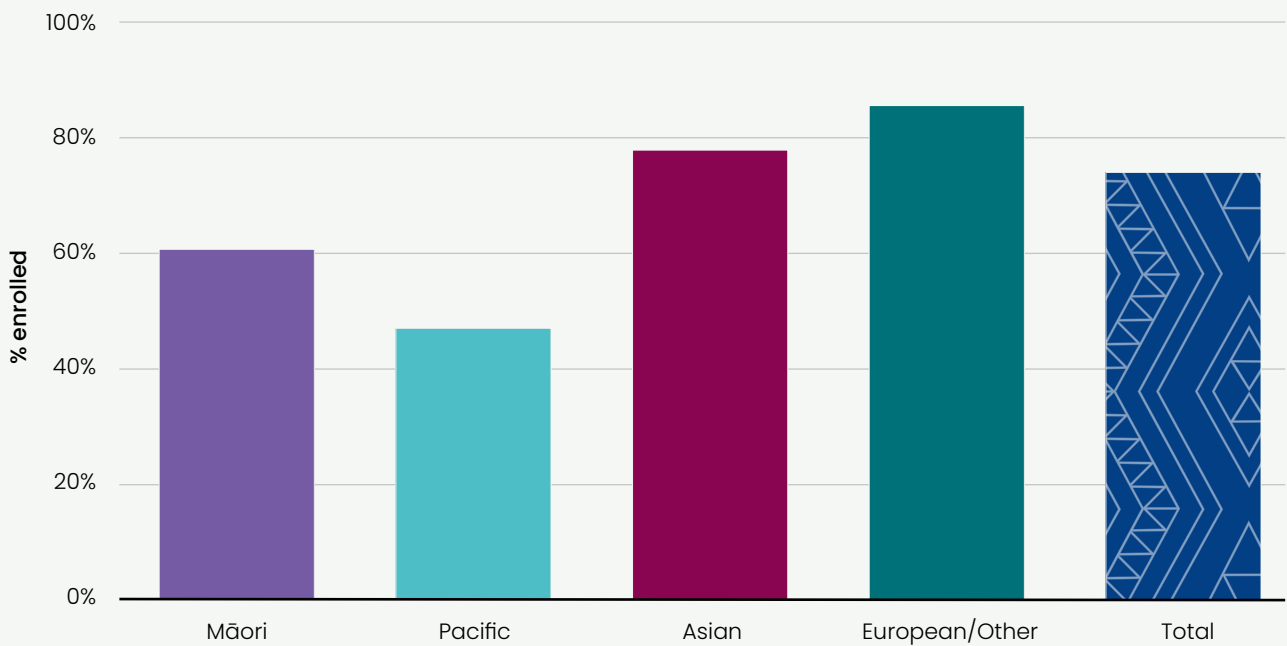


**Figure 58: Lead maternity carer enrolment by 12 weeks, by district, 2020**



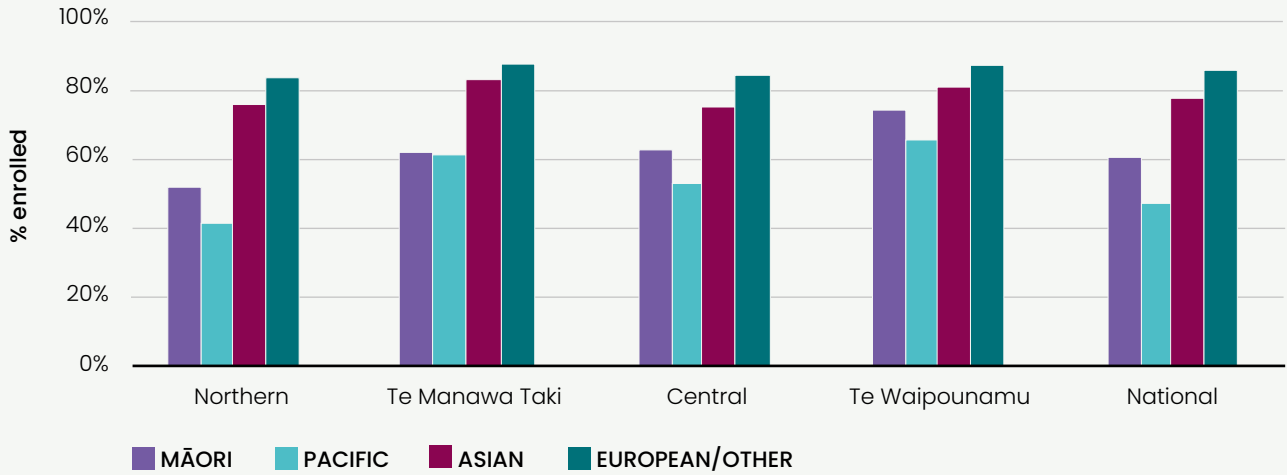
Source: Maternity Clinical Indicators, 2020

**Figure 59: Lead maternity carer enrolment by 12 weeks, by ethnicity, 2020**

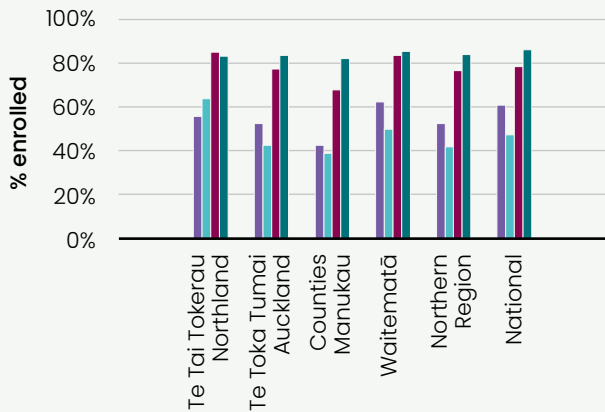


Source: Maternity Clinical Indicators, 2020

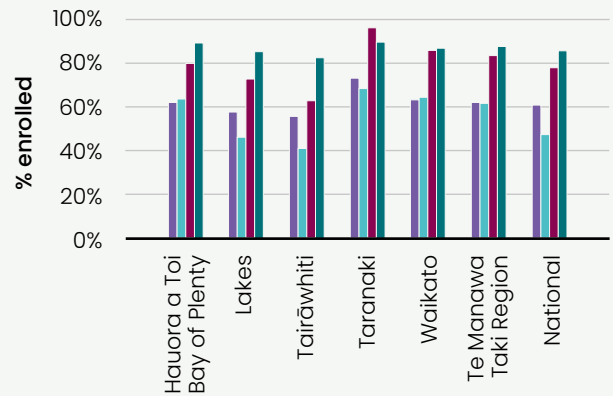
**Figure 60: Lead maternity carer enrolment by 12 weeks, by region and ethnicity, 2020**



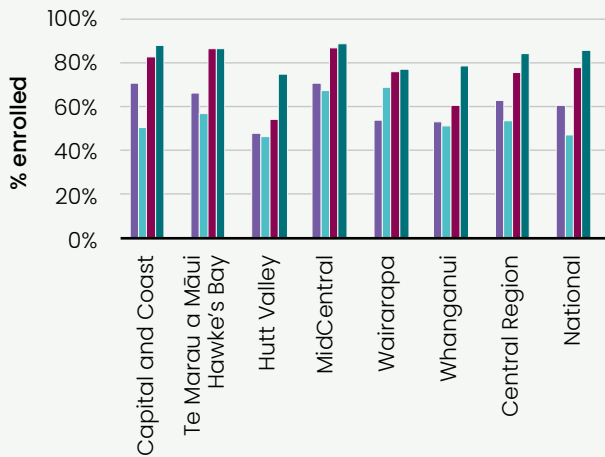
**Northern**



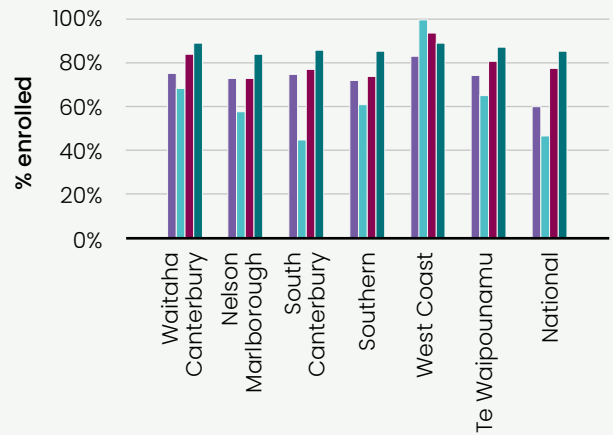
**Te Manawa Taki**



**Central**



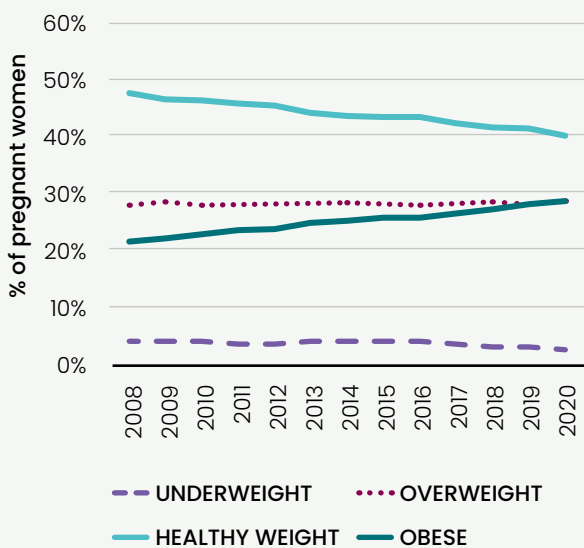
**Te Waipounamu**



Source: Maternity Clinical Indicators, 2020

Maternal body mass index (BMI) trends show a decrease in the number of women with a healthy weight at birth, and a corresponding increase in the number of obese women. In 2020, 58% of women giving birth were overweight or obese, including 29% who were obese. This varies by ethnicity and geographical area, in turn driving varying rates of diabetes in pregnancy and gestational diabetes.

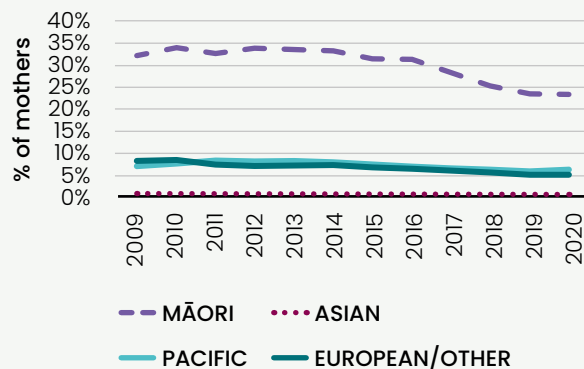
**Figure 61: Maternal BMI 2008-2020**



Source: Maternity Clinical Indicators, 2020

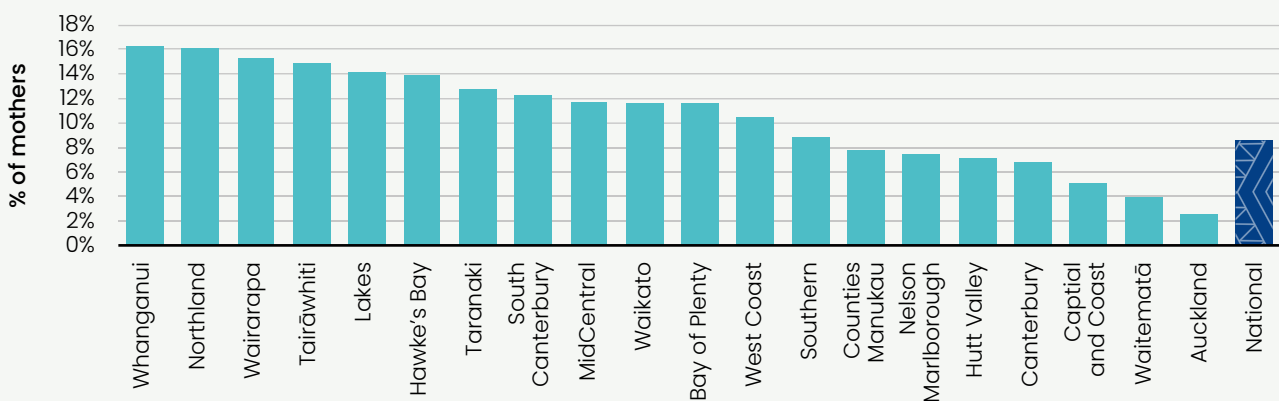
Maternal tobacco use has been decreasing across all reported ethnicities over the last 10 years. The maternal smoking rate at 2 weeks post birth was reported as 9% nationally in 2020. This rate varied substantially between districts from just 3% of mothers reported smoking in Te Toka Tumai Auckland to 16% in Whanganui and Te Tai Tokerau Northland. Mothers identifying as Māori were at least 3 times more likely to smoke than European/Other mothers across all districts and regions (Maternity Clinical Indicators, 2020).

**Figure 62: Postnatal smoking trend, two weeks post-birth by ethnicity, 2009 to 2020**



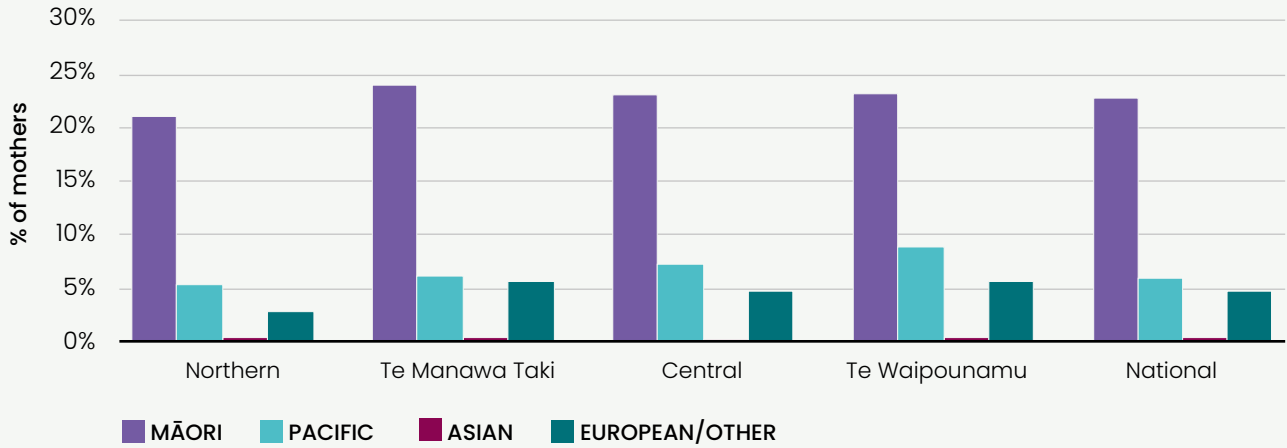
Source: Maternity Clinical Indicators, 2020

**Figure 63: Postnatal smoking rate two weeks post-birth by district, 2020**

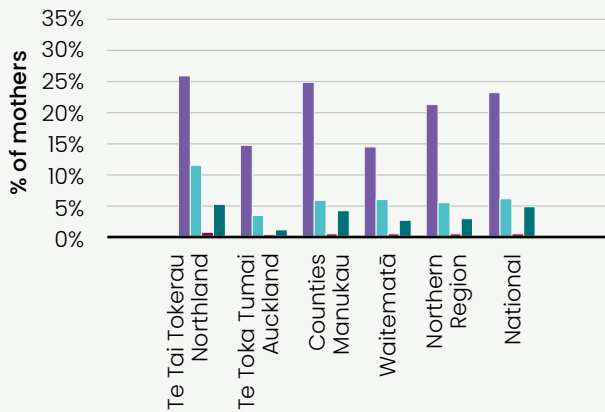


Source: Maternity Clinical Indicators, 2020

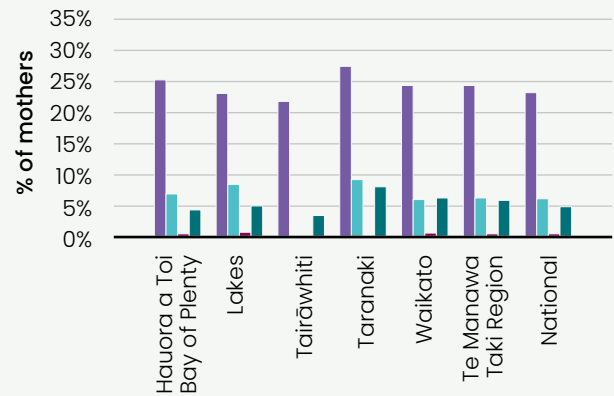
Figure 64: Postnatal smoking rate two weeks post-birth by region, 2020



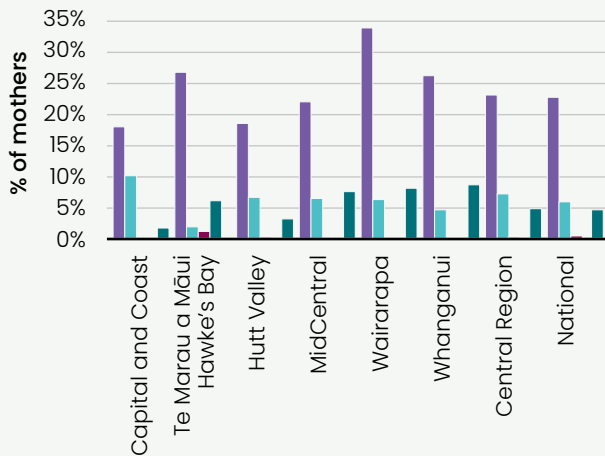
Northern



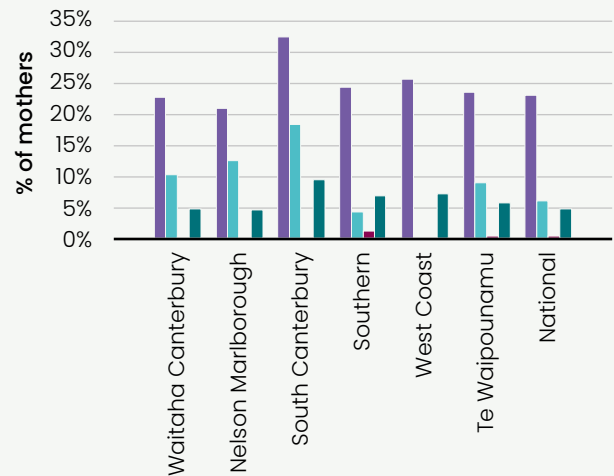
Te Manawa Taki



Central



Te Waipounamu



Source: Maternity Clinical Indicators, 2020

## 6.2.2 Infants and children

### Mortality data

Youth mortality rates and causes of death vary considerably by age (see table below). In the five years between 2015 and 2019, there were 1,012 deaths of Māori children and young people. Overall, Māori children and young people had higher mortality rates compared with non-Māori/non-Pacific children and young people.

Large inequities remain in mortality rates.

Other than for those aged five to nine years, mortality rates for Māori children and young people were statistically significantly higher than those for non-Māori/non-Pacific children and young people in every age group.<sup>91</sup>

### Perinatal and infant deaths

The Perinatal and Maternal Mortality Review Committee (PMMRC) produces an annual report detailing perinatal mortality rates in Aotearoa New Zealand. Perinatal deaths are defined as those that occur after 20 weeks gestation or greater than or equal to 400g birthweight (fetal deaths) and early neonatal deaths (0- <7 days). Infant deaths refer to those that occur between birth and 12 months (that is, in the first year of life).

The annual report acknowledges perinatal deaths are often multifactorial in nature,

often with more than one cause. The report identifies the impact of structural determinants and calls on the government to recognise and address the impact of socio-economic deprivation on perinatal death, specifically on preterm birth, which after congenital abnormality is the leading cause of perinatal death.

Mortality rates vary by ethnicity and socio-economic status with higher perinatal mortality rates for Māori and Pacific babies compared to European/Other babies. Mothers living in deprivation quintile 5 (most socio-economically deprived NZDep scores) were significantly more likely to experience a stillbirth, neonatal death or perinatal related death, overall compared to women living in any other quintile.

The health system can support the reduction of perinatal mortality through supporting pregnancy planning, weight management, improving nutrition, smoking cessation and improved engagement in antenatal care. Death related to poor intrapartum care is rare.<sup>92</sup>

Infant mortality rates fell overall from 1990 to 2018, with most of that decrease occurring during the 1990s followed by a more gradual decline from 2000 to 2007. Infant mortality rates were lower in all ethnic groups in 2018 compared with 1996–1997.<sup>93</sup>

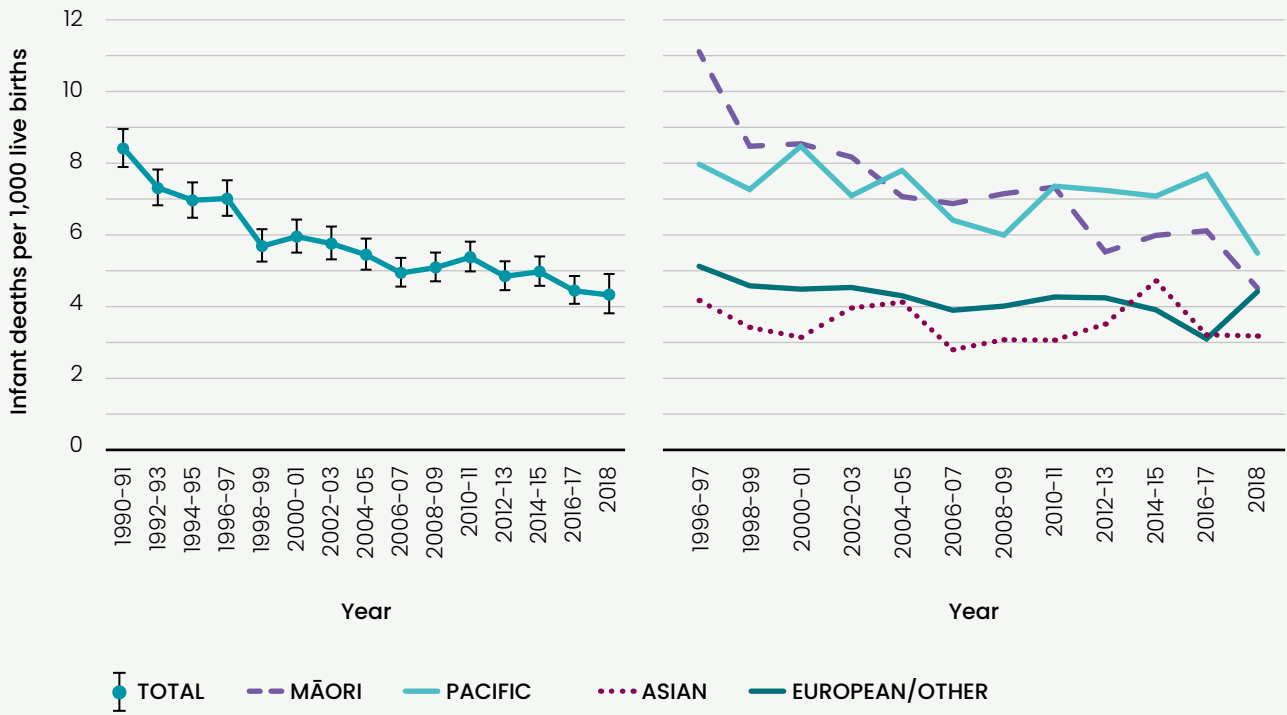
**Table 5: Mortality (number of deaths) in children and young people aged 28 days to 24 years by cause of death and age group Aotearoa New Zealand 2015–19 combined (n=2,666 deaths)**

CATEGORY	<1 YEAR*	1–4 YEARS	5–9 YEARS	10–14 YEARS	15–19 YEARS	20–24 YEARS	TOTAL	PERCENTAGE (%)
Medical	215	166	105	94	161	240	981	36.8
Injury	26	86	49	60	233	363	817	30.6
Suicide	–	–	–	43	263	349	655	24.6
SUDI	198	–	–	–	–	–	198	7.4
Missing data	3	–	<3	–	5	6	15	0.6
<b>Total</b>	<b>442</b>	<b>252</b>	<b>155</b>	<b>197</b>	<b>662</b>	<b>958</b>	<b>2,666</b>	<b>100.0</b>

\*This category represents infants 28 days and older, and less than one calendar year in age. SUDI = sudden unexpected death in infancy (see below). Source: Mortality Review Database.



**Figure 65: Infant mortality rates by ethnicity, 1990–2018**



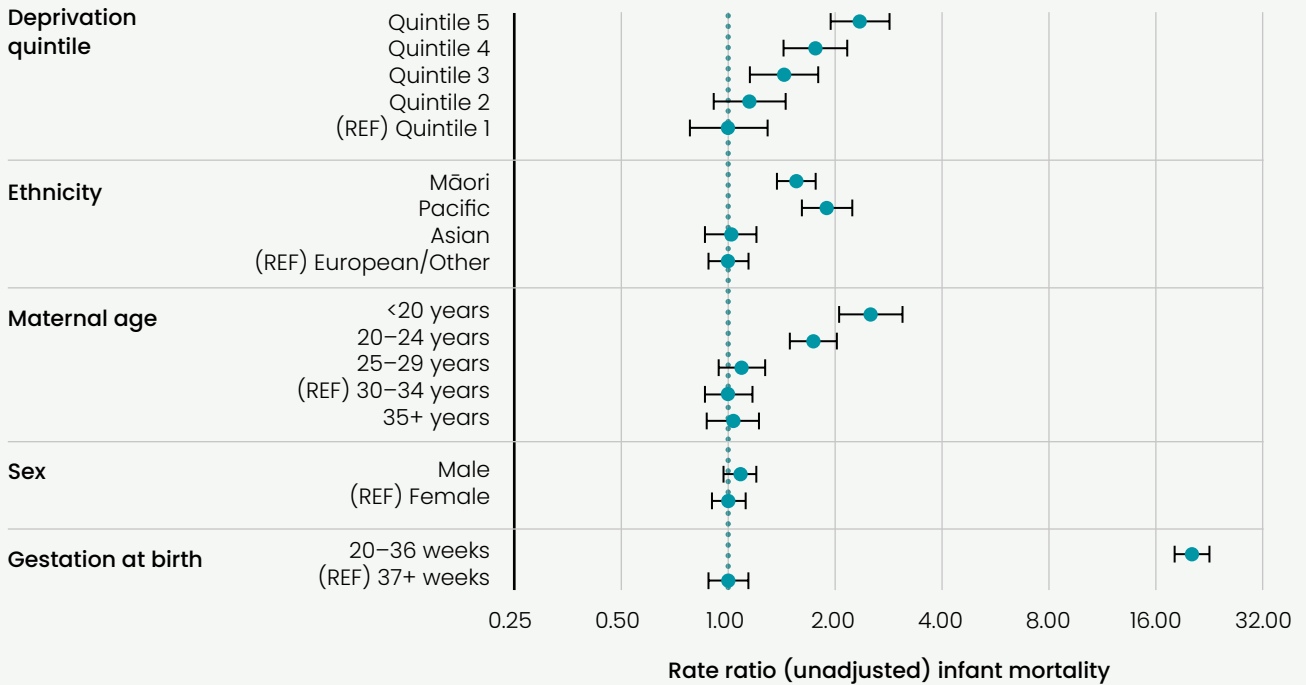
Numerator: National Mortality Collection, Denominator: Birth Registration Dataset; Ethnicity is level 1 prioritised, \*2018 is a single year of data. Source: Indicators of Child and Youth Health Status in Aotearoa 2021

Inequities in infant mortality rates were observed during 2014–2018 by ethnicity and by neighbourhood socio-economic deprivation (NZDep2013). The mortality rate for infants born in areas with the highest socio-economic deprivation scores (quintile 5) was more than twice as high as the mortality rate for infants born in areas with the lowest deprivation scores (quintile 1). The mortality rates for Māori and Pacific infants were 1.5 and 2 times as high, respectively, as that of European/Other infants.

The overall Aotearoa New Zealand infant mortality rate for 2021 at 4.3 deaths per 1,000 live births was higher than that reported by the OECD for Australia at 3.3 and the United Kingdom at 4.0. The Aotearoa New Zealand Māori infant mortality rate of 5.8 was comparable to the provisional rate for Chile.<sup>94</sup>

The most common causes of infant deaths were congenital anomalies, extreme prematurity, and other perinatal conditions. Sudden unexpected death in infancy (SUDI), most commonly as a result of suffocation in bed or sudden infant death syndrome, was the most common cause of death for infants aged from 28 days to 1 year.<sup>93</sup>

**Figure 66: Infant mortality by demographic factors, 2014–2018**



Numerator: National Mortality Collection; Denominator: Birth Registration Dataset. Rate ratios are unadjusted; REF = reference group; Ethnicity is Level 1 prioritised; Quintile is NZDep2013 Index of deprivation (1 = least deprived; 5 = most deprived).  
 Source: Indicators of Child and Youth Health Status in Aotearoa 2021

## Sudden unexpected death in infancy

There were 38 sudden unexpected deaths in infancy (SUDI) in 2018 (20 males and 18 females), including 25 sudden infant death syndrome (SIDS) deaths. The sudden unexpected death in infancy (SUDI) rate in 2018 was 0.6 per 1,000 live births. In the period 2014–2018, the SUDI rate was between 0.6 and 0.8 per 1,000 live births.

In the five-year period 2014–2018, SUDI rates for Māori and Pacific babies were significantly higher than the total rate for babies in all ethnic groups, while SUDI rates for Asian and European/Other babies were significantly lower than the total rate.

SUDI rates for babies of mothers who were under 20, and those aged 20–24, were significantly higher than the total rate for babies of mothers in all age groups.

The SUDI rate for babies born in areas with the most socio-economically deprived NZDep scores (quintile 5) was significantly higher than the rate for all other deprivation quintiles.

These marked inequities in SUDI outcomes for Māori and Pacific infants underpin the importance of designing interventions to support whānau that are culturally appropriate, acceptable and effective.<sup>95</sup>

**Table 6: Infant mortality by main underlying cause of death, 2014–2018**

CAUSE OF DEATH	NUMBER	ANNUAL AVERAGE	RATE PER 1,000 LIVE BIRTHS	PERCENT
Congenital anomalies	307	61	1.02	22.1
Extreme prematurity	307	61	1.02	22.1
Other perinatal conditions	406	81	1.35	29.2
SUDI				
– Suffocation or strangulation in bed	103	21	0.34	7.4
– SIDS	99	20	0.33	7.1
– All other types	12	2	0.04	0.9
Injury or poisoning	30	6	0.10	2.2
Intrauterine hypoxia or birth asphyxia	10	2	0.03	0.7
Other causes	118	24	0.39	8.5
<b>Total</b>	<b>1,392</b>	<b>278</b>	<b>4.64</b>	<b>100.0</b>

Numerator: National Mortality Collection; Denominator: Birth Registration Dataset;  
SUDI = sudden unexpected death in infancy, SIDS = sudden infant death syndrome.  
Source: Indicators of Child and Youth Health Status in Aotearoa 2021

## Mortality in children

The leading category of death changes with age. Medical conditions were the most common cause of death in children under 15 years; injuries accounted for 224 (37.8%) of the deaths of 1 to 14 year olds from 2014 to 2018 inclusive. Almost three-quarters of the injury-related deaths were coded as unintentional injuries. In this age group there were, on average, four deaths from assault and eight deaths from intentional self-harm (suicide) each year. Cancer and congenital anomalies were the most common main underlying causes of death as a result of medical conditions.

Between 1996–1997 and 2018 there was persistent inequity, in terms of mortality rates, for Māori and Pacific children aged 1–14 years compared to European/Other and Asian children and young people. Although there was a decrease in mortality rates over time for all ethnic groups and some narrowing of the absolute equity gaps over time, consistent relative differences remained.<sup>93</sup>

**Table 7. Deaths of 1 to 14 year olds by main underlying cause of death, 2014–2018**

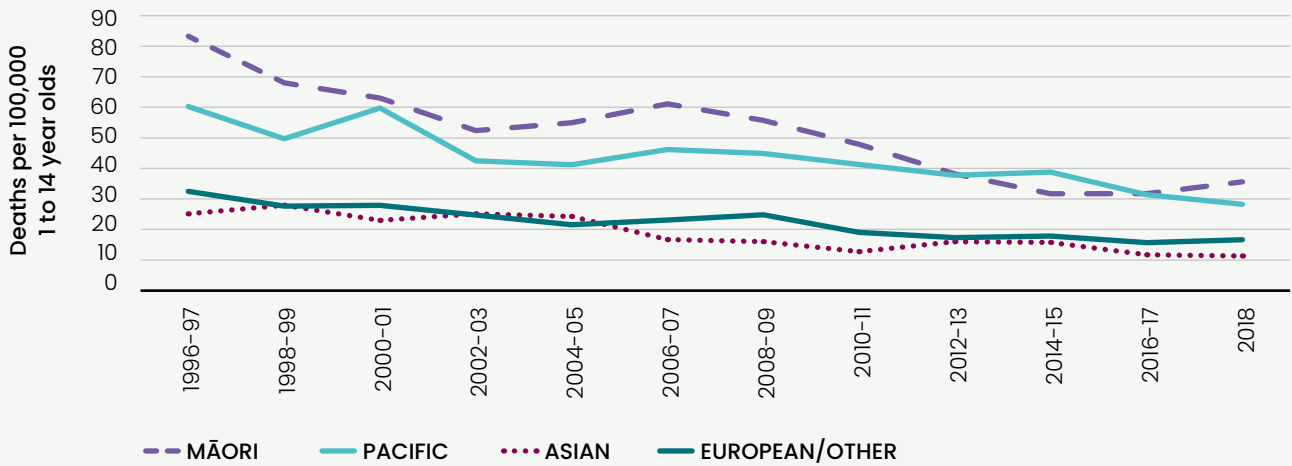
MAIN UNDERLYING CAUSE OF DEATH	NUMBER	ANNUAL AVERAGE	RATE PER 100,000 1 TO 14 YEAR OLDS	95% CI	PERCENT
<b>Injuries</b>					
Unintentional injury	166	33	3.81	3.25–4.44	28.0
Intentional self-harm	39	8	0.90	0.64–1.22	6.6
Assault	19	4	0.44	0.26–0.68	3.2
<b>Medical causes</b>					
Neoplasms	101	20	2.32	1.89–2.82	17.1
Congenital anomalies	60	12	1.38	1.05–1.77	10.1
Pneumonia	24	5	0.55	0.35–0.82	4.1
Asthma and wheeze	20	4	0.46	0.28–0.71	3.4
Cerebral palsy	16	3	0.37	0.21–0.60	2.7
Epilepsy or status epilepticus	16	3	0.37	0.21–0.60	2.7
Metabolic disorders	15	3	0.34	0.19–0.57	2.5
Other diagnoses	116	23	2.66	2.20–3.19	19.6
<b>Total</b>	<b>592</b>	<b>118</b>	<b>13.59</b>	<b>12.52–14.73</b>	<b>100.0</b>

Numerator: National Mortality Collection; Denominator: NZCYES Estimated Resident Population

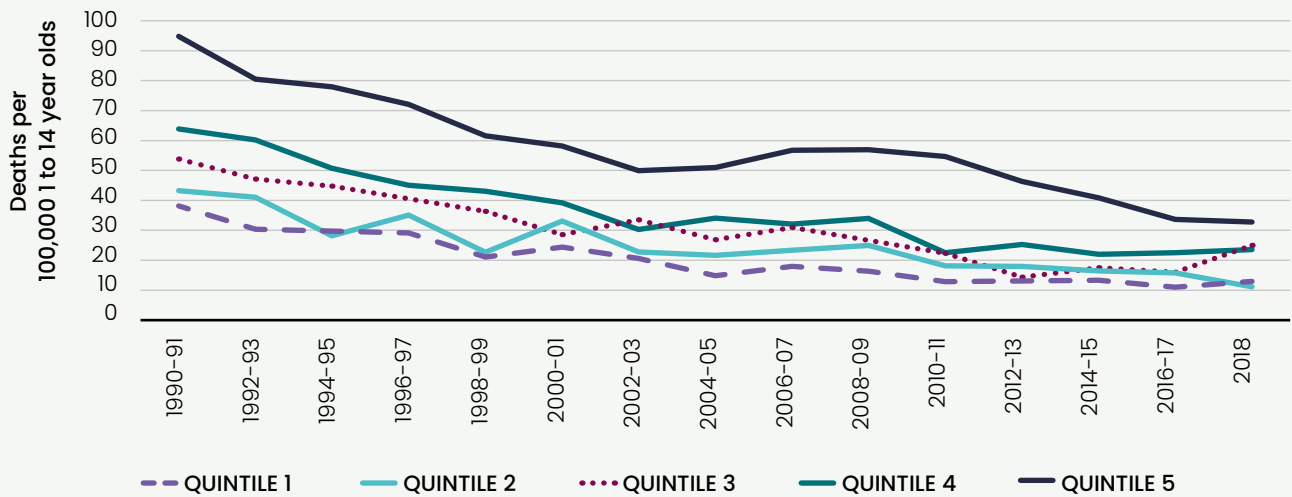
Source: Indicators of Child and Youth Health Status in Aotearoa 2021

**Figure 67: Mortality rates of 1 to 14 year olds, 1996–2018**

**by ethnicity**



**by NZDep2013 quintile**



Numerator: National Mortality Collection; Denominator: NZCYES Estimated Resident Population. Ethnicity is level 1 prioritised; Quintile is NZDep2013 Index of deprivation (1= least deprived; 5 = most deprived); 2018 is one year of data. Source: Indicators of Child and Youth Health Status in Aotearoa 2021

The social gradient in all-cause mortality rates in 1 to 14 year olds was present throughout 1990-91 to 2018. The highest mortality rates were observed for children living in areas with the highest deprivation scores (NZDep2013 quintile 5). Although mortality rates have declined in all quintiles, the mortality rates for

children living in areas with the most socio-economically deprived NZDep scores (quintile 5) have been consistently around three times higher than those for children in areas that have the least socio-economically deprived NZDep scores (quintile 1).

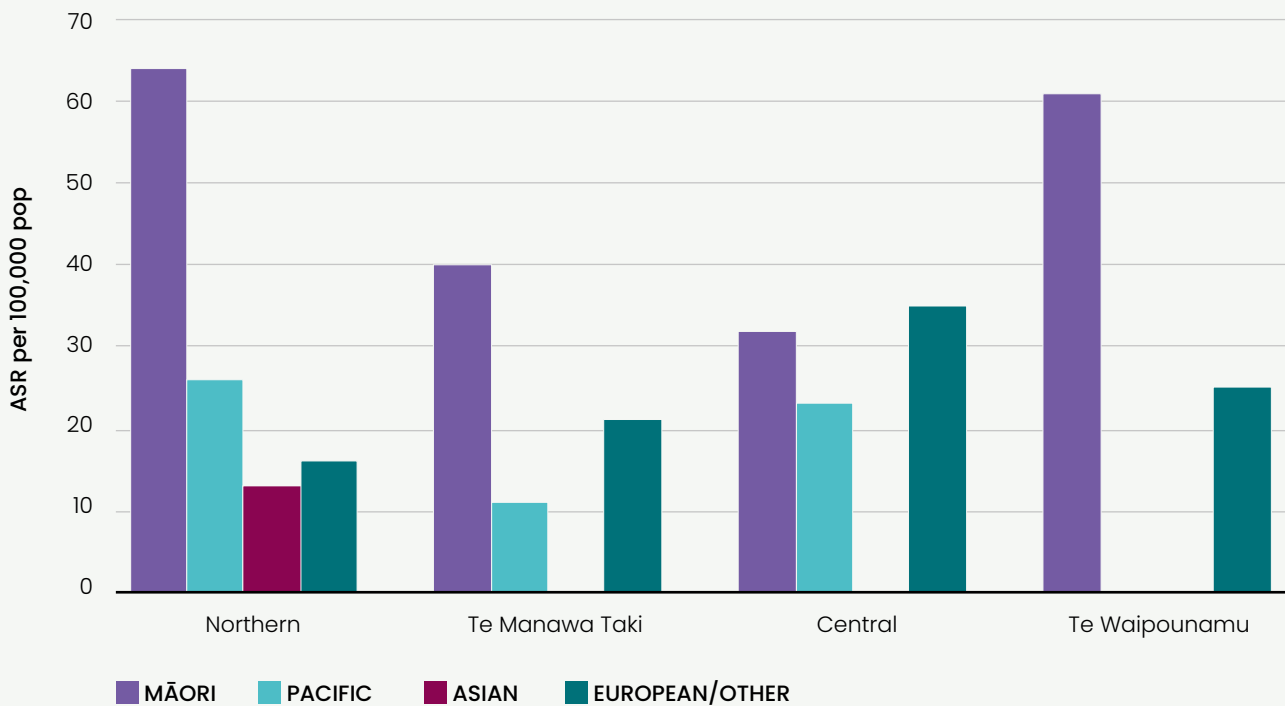
## Morbidity

As noted above, hospitalisation data are used to help understand the burden of disease in childhood. There were 176 admissions to hospital in 2022 for every 1,000 New Zealand children aged 0-14 years. The most common acute admissions were for respiratory diseases, injury, premature birth, viral infections and intestinal infectious diseases.

In 2022, there were 28 admissions per 100,000 population aged 0-14 years for injuries resulting from domestic assault, neglect

or maltreatment of children (261 hospital admissions). This rate declined steadily over time but rose again in 2022 back to 2010 levels. Rates are highest in the Northern region, more than double that of the rate in the Central region (which was the lowest). Age standardised rates are highest for Māori at 48 per 100,000 population and lowest for Asian at 7 per 100,000 population. Northern region rates dominate for all ethnicities except European/Other – rates for this group being the lowest in the north compared to other regions.

**Figure 68: Age standardised hospitalisation rate for domestic violence 0 to 14 year olds by region, 2022**



Source: NMDS



Potentially avoidable hospitalisations (PAH) are hospitalisations due to illnesses and injuries that could potentially be prevented by more effective primary healthcare services or by broader social policy and public health interventions addressing the underlying determinants of health, such as income, education, and housing. In 2019, almost 68,000 hospitalisations of 0 to 14 year olds in Aotearoa New Zealand were

classified as potentially avoidable. In 2020, this number dropped to around 46,000 due to a marked reduction in the number of PAH for medical conditions. This is likely to have been associated with closed borders and community-wide public health measures implemented during the national response to the COVID-19 pandemic. There has been an increase in hospitalisation numbers in 2021 for children in this age group.<sup>93</sup>

**Table 8. Potentially avoidable hospitalisations for medical conditions in 0 to 24 year olds by main diagnostic category, 2016–2020**

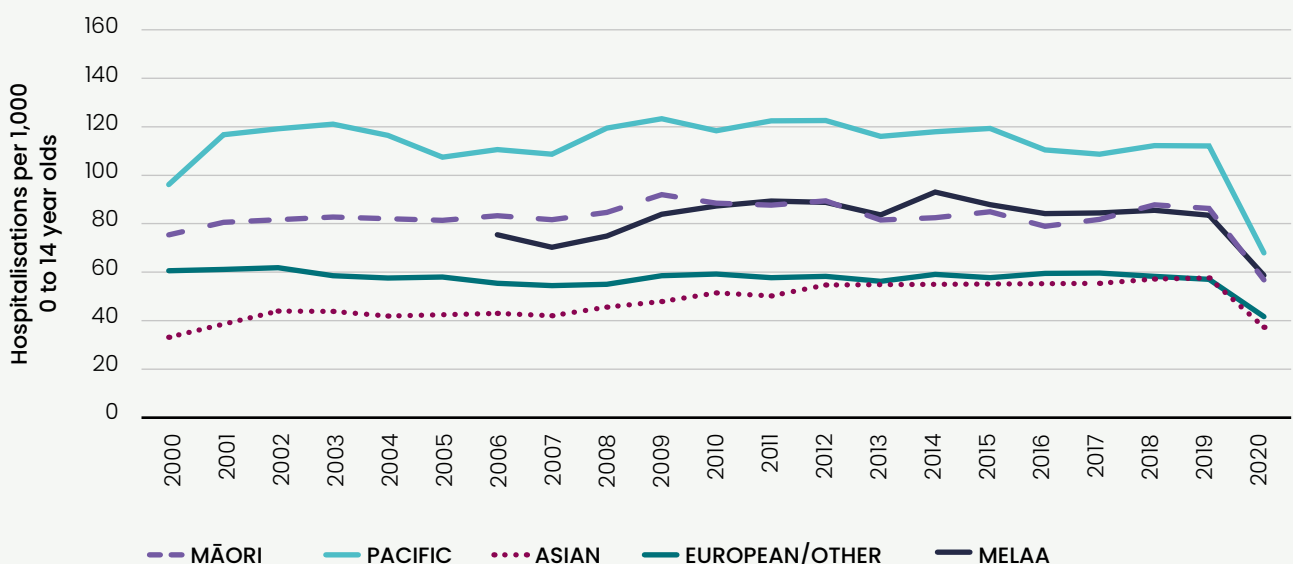
MAIN DIAGNOSTIC CATEGORY	NUMBER	ANNUAL AVERAGE	RATE PER 1,000	95% CI	PERCENT
Respiratory conditions	125,311	25,062	15.63	15.54-15.71	37.4
Gastrointestinal diseases	43,086	8,617	5.37	5.32-5.42	12.8
Dental conditions*	39,847	7,969	4.97	4.92-5.02	11.9
Dermatological conditions	29,141	5,828	3.63	3.59-3.68	8.7
Otitis media	21,937	4,387	2.74	2.70-2.77	6.5
Kidney, urinary tract infection	14,674	2,935	1.83	1.80-1.86	4.4
Epilepsy	13,423	2,685	1.67	1.65-1.70	4.0
Vaccine-preventable diseases	7,471	1,494	0.93	0.91-0.95	2.2
Diabetes (including hypoglycaemia)	6,513	1,303	0.81	0.79-0.83	1.9
Nutrition deficiency and anaemia	2,417	483	0.30	0.29-0.31	0.7
Cardiovascular diseases	1,256	251	0.16	0.15-0.17	0.4
Sexually transmitted infections	584	117	0.07	0.07-0.08	0.2
Other medical conditions	29,779	5,956	3.71	3.67-3.76	8.9
<b>Total</b>	<b>335,439</b>	<b>67,088</b>	<b>41.83</b>	<b>41.69-41.97</b>	<b>100.0</b>

Numerator: NMDS (excludes neonates); Denominator: NZYCES Estimated Resident Population. Rates are per 1,000 age-specific population. \*Excluding gingivitis and periodontal diseases. Source: Indicators of Child and Youth Health Status in Aotearoa 2021

There are significant ethnic and socio-economic inequities in hospital admission rates for children. The chart shows the time trend for PAH 2000–2020 by NZDep quintile. From 2000 to 2019, there was a clear social gradient in PAH rates for 0 to 14 year olds, with the highest PAH rates for children living in areas with the highest deprivation scores (quintile 5). The gap in PAH rates between NZDep2013 quintile 1 (the least deprived NZDep score) and quintile 5 (the most deprived NZDep score)

areas increased between 2007 and 2009 and remained large until 2019, although it has been gradually decreasing. The PAH rate in the 0 to 14-year-old sub-group fell for quintile 5 but rose for quintile 4 from 2013 onwards, eliminating the difference between these two quintiles. The abrupt decline in PAH rates in 2020, resulting from the public health restrictions imposed during the COVID-19 pandemic, narrowed the gaps compared to the NZDep2013 quintiles.<sup>93</sup>

**Figure 69: Potentially avoidable hospitalisations in 0 to 14 year olds by ethnicity, 2000–2020**

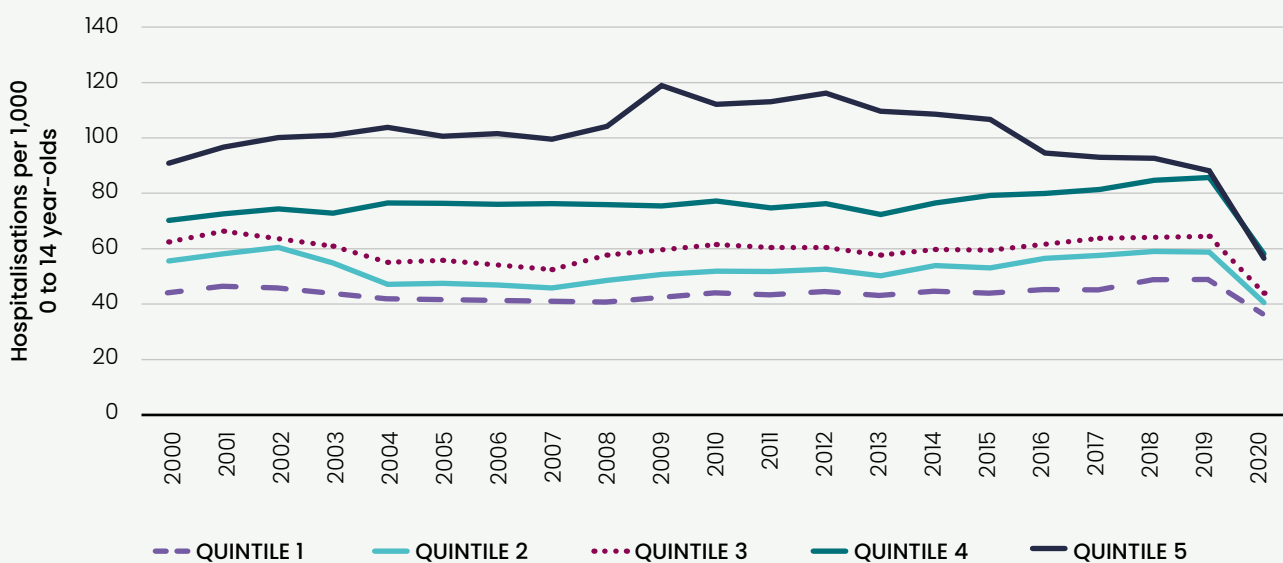


Numerator: NMDS (excludes neonates); Denominator: NZCYES Estimated Resident Population. Ethnicity is level 1 prioritised. Source: Indicators of Child and Youth Health Status in Aotearoa 2021

Over this same time period, rates of PAH have consistently been highest for the Pacific people, followed by Māori and MELAA people, then European/Other, and lastly Asian people as shown in the chart below.

As noted above, the 2020 data reflect the impact of the public health mitigation strategies implemented during the COVID-19 pandemic.

**Figure 70: Potentially avoidable hospitalisations in 0 to 14 year olds by NZ Dep2013 quintile, 2000–2020**

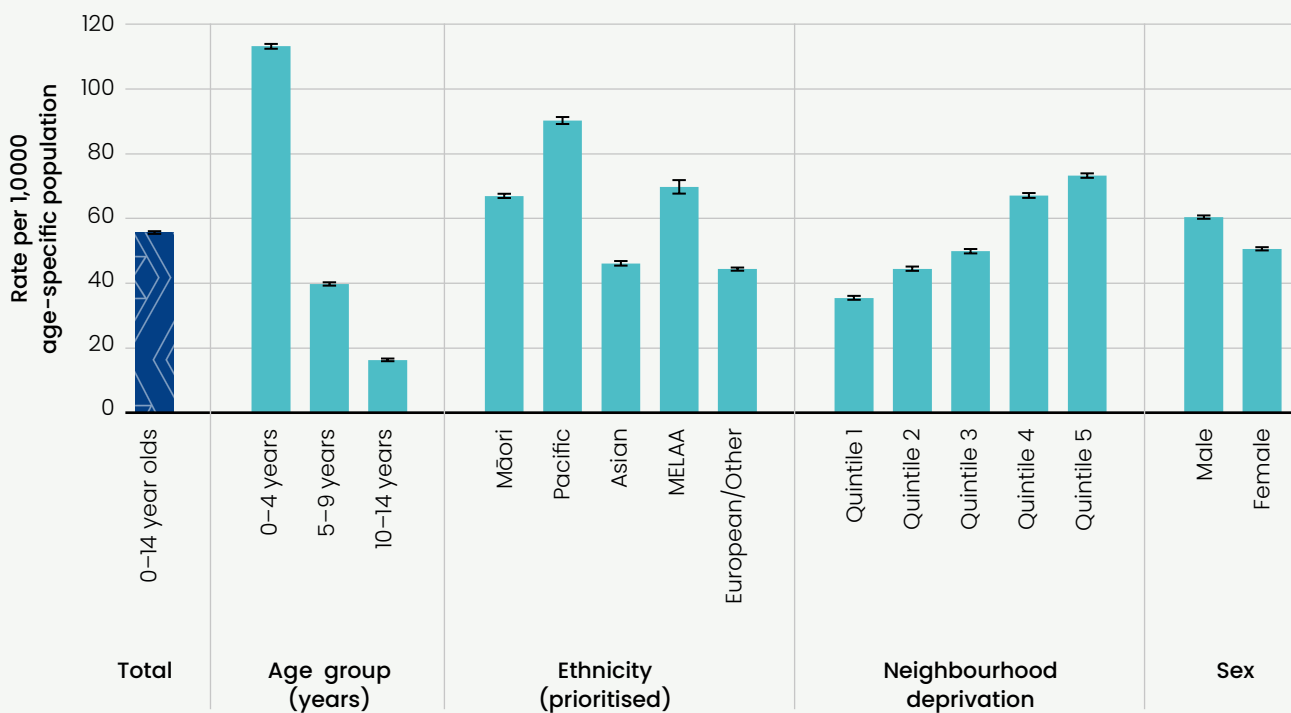


Numerator: National Minimum Dataset (excludes neonates); Denominator: NZCYES Estimated Resident Population. Quintile: NZDep2013 Index of deprivation (1= least deprived; 5 = most deprived). Source: Indicators of Child and Youth Health Status in Aotearoa 2021

In 2019, medical conditions accounted for 85% of PAH in 0 to 14 year olds and the remaining 15% were the result of injuries. From 2009 to 2019, the PAH rate for medical conditions was stable at around 60 hospitalisations per 1,000 0 to 14 year olds.

In 2020, the rate of medical PAH dropped to 38 hospitalisations per 1,000 0 to 14 year olds for the reasons described above.

**Figure 71: Potentially avoidable hospitalisations for medical conditions in 0 to 14 year olds by demographic factor, 2016–2020**

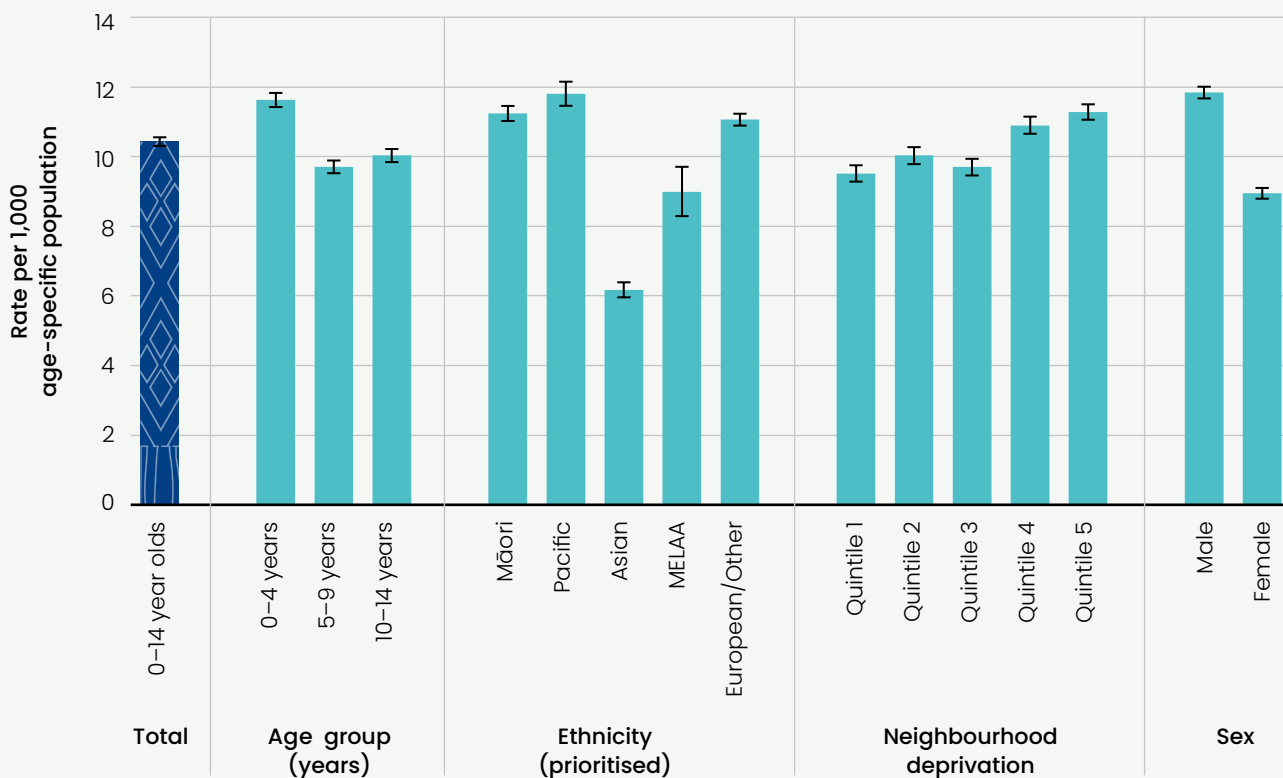


Numerator: NMDS (excludes neonates); Denominator: NZCYES Estimated Resident Population.  
 Ethnicity: Level 1 prioritised. Neighbourhood deprivation: NZDep2013 Index of deprivation (1 = least deprived; 5 = most deprived).  
 Source: Indicators of Child and Youth Health Status in Aotearoa 2021

There has been a small but steady decline in the rate of PAH for injuries in 0 to 14 year olds over the past 20 years. Males are significantly more likely to be hospitalised than females with potentially avoidable injury in the 0 to 14 year age group. Rates of PAH for injury were lowest for Asian children and young people, followed by MELAA and then European/Other children, and were highest for Māori and Pacific children and young

people. In the 0 to 14-year-old groups, all differences between ethnic groups were statistically significant, except between Māori and European/Other people. Rates of PAH for injury varied by NZDep2013 deprivation quintile. In the 0 to 14-year-old group, all differences between deprivation quintiles were statistically significant, except for the differences between quintiles 2 and 3 and between quintiles 1 and 3.<sup>93</sup>

**Figure 72: Potentially avoidable national hospitalisations for injuries in 0 to 14 year olds by demographic factor, 2016–2020**



Numerator: NMDS (excludes neonates); Denominator: NZCYES Estimated Resident Population.  
 Injuries: Excludes ED and waiting list cases. Ethnicity: Level 1 prioritised. Neighbourhood deprivation: NZDep2013 Index of deprivation (1 = least deprived; 5 = most deprived).  
 Source: Indicators of Child and Youth Health Status in Aotearoa 2021

### Intentional self-harm

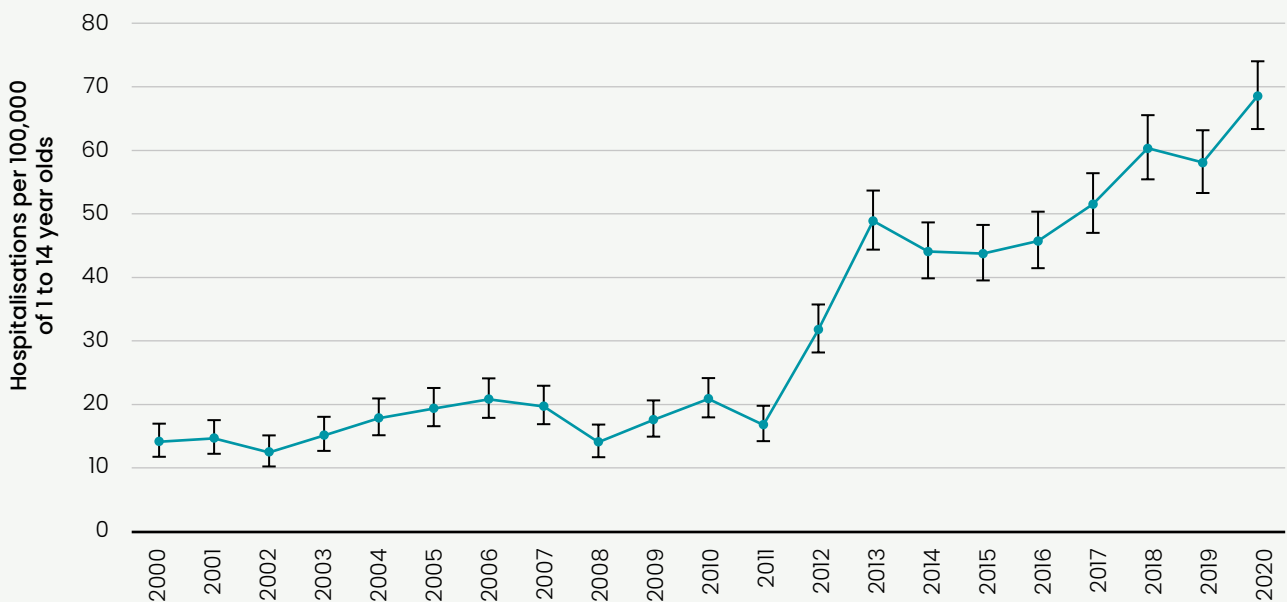
Rates of hospitalisation for self-harm among those under 15 years increased from around 14 per 100,000 age-specific population in 2000 to almost 70 per 100,000 in 2020. There were marked increases in hospitalisations for self-harm in this age group from 2011 to 2013, at least in part explained by classification and recording changes.

In 2000, rates of hospitalisation for self-harm among those under 15 years were highest (by a small margin) for Europeans, although by 2020, Māori tamariki (children) had slightly higher rates of hospitalisation for self-harm than those in the European/Other group. Rates of hospitalisation for self-harm for MELAA children under 15 years (only available from 2006 onwards) are difficult to interpret

due to low numbers, but from 2017 onward were lower than for Pacific children and higher than for Asian children. From 2008 onwards, Pacific children had higher rates of hospitalisations for self-harm than Asian children but lower rates than European/Other and Māori children for the entire period 2000–2020. Note that rates of hospitalisation for self-harm increased for all ethnicities over this time.<sup>93</sup>

The increase over time in rates of hospitalisation for self-harm among those under 15 years was observed for all deprivation quintiles. The marked increases in hospitalisations for self-harm between 2011 and 2013 were also observed for all quintiles, with no consistent pattern of highest or lowest rates present in any particular quintile.<sup>93</sup>

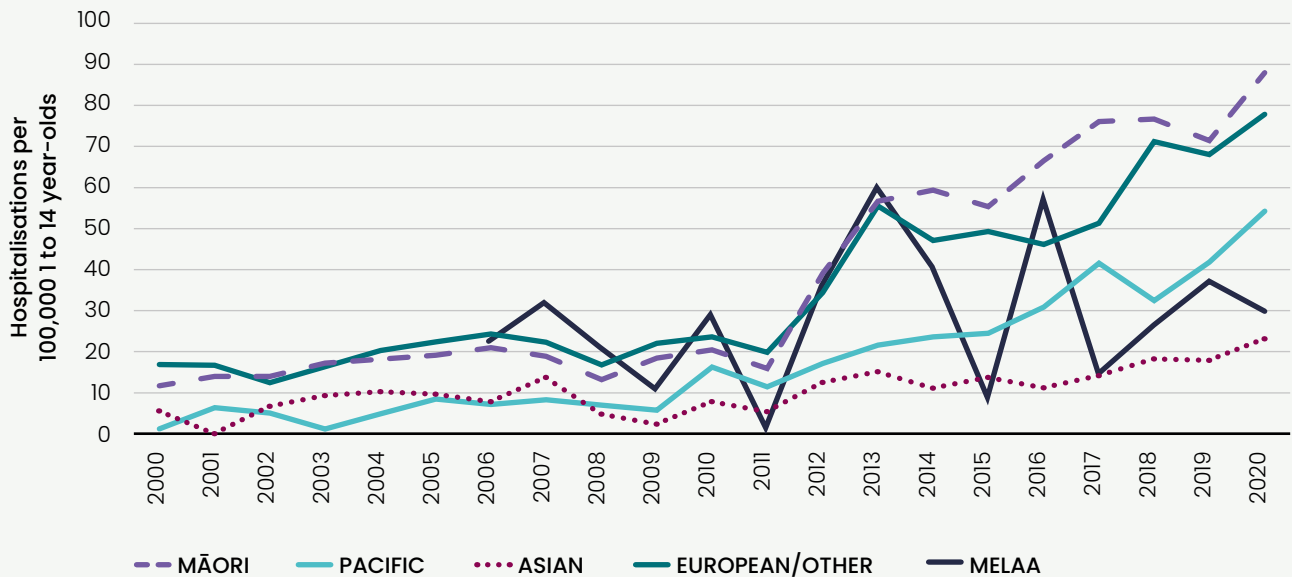
**Figure 73: Rates of hospitalisation per 100,000 for intentional self-harm in 1 to 14 year olds, 2000–2020**



Numerator: NMDS; Denominator: NZCYES Estimated Resident Population.  
Source: Indicators of Child and Youth Health Status in Aotearoa 2021

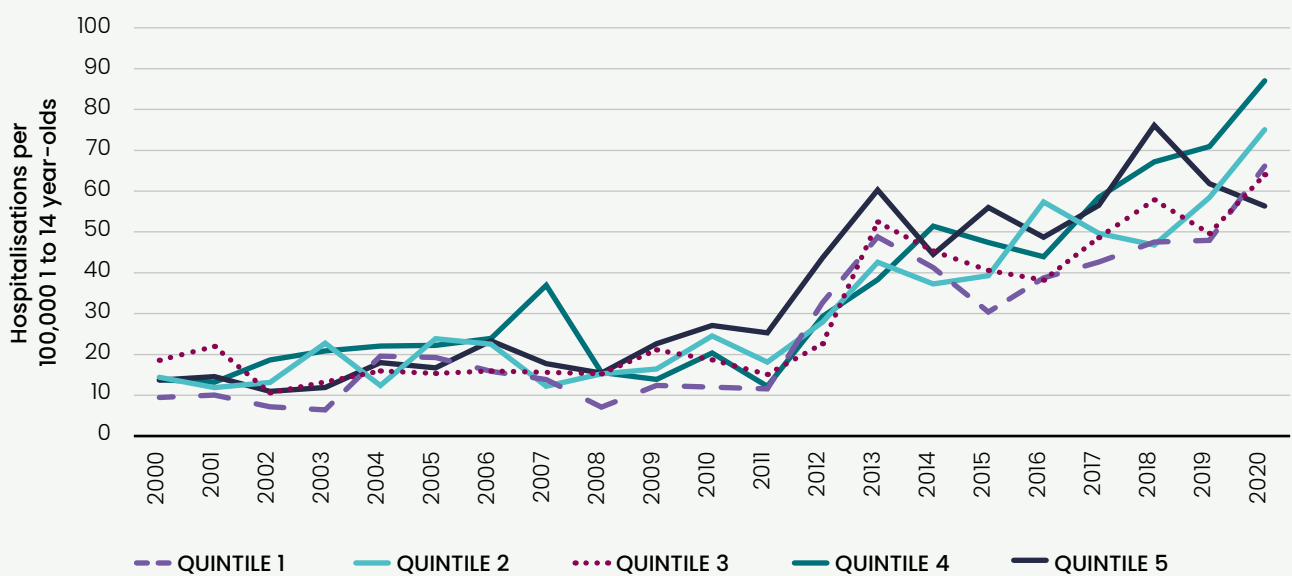


**Figure 74: Rates of hospitalisation per 100,000 for intentional self-harm in 1 to 14 year olds by ethnicity, 2000–2020**



Numerator: NMDS; Denominator: NZCYES Estimated resident population. Ethnicity is prioritised. Prior to 2006 MELAA was not a separately recorded ethnicity grouping, rates for MELAA based on small numbers. Source: Indicators of Child and Youth Health Status in Aotearoa 2021

**Figure 75: Rates of hospitalisation per 100,000 for intentional self-harm in 1 to 14 year olds, by NZDep2013 index of deprivation quintile, 2000–2020**



Numerator: NMDS; Denominator: NZCYES Estimated resident population. Source: Indicators of Child and Youth Health Status in Aotearoa 2021

### Acute rheumatic fever

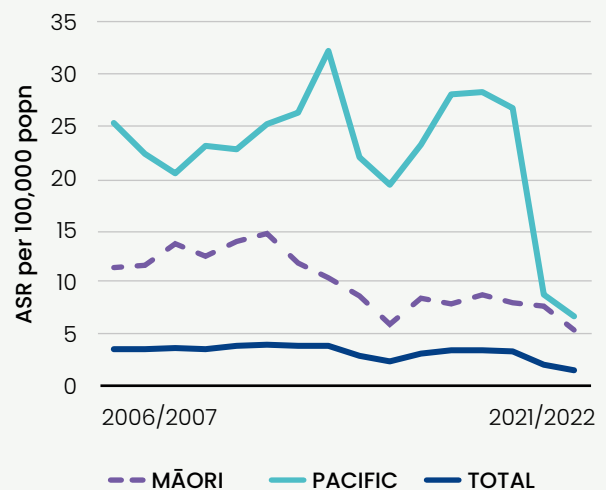
Acute rheumatic fever (ARF) and rheumatic heart disease (RHD) are potentially preventable conditions that remain at unacceptably high levels in Aotearoa New Zealand – some of the highest of any developed country.

ARF occurs most commonly in children and young people aged 5–14 years and disproportionately affects Māori and Pacific children and young people. ARF and RHD can result in long-term conditions that cause a considerable burden to the health system.<sup>96</sup> ARF/RHD rates act as a key indicator of child health. There was significant government investment into ARF primary prevention between 2013 and 2017 and, while there was some temporally associated decrease in ARF numbers in some parts of the country, this was variable. Rates of ARF decreased during the pandemic response period but appear to be returning to pre-pandemic levels.

### Access to universal child health services

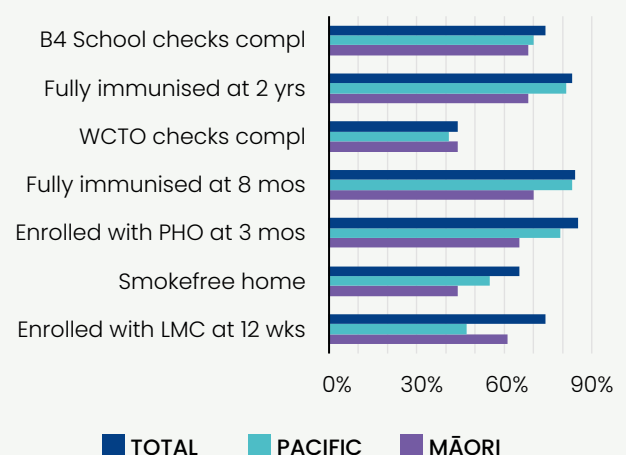
There are a number of services universally offered to all babies, children, young people and their parents in Aotearoa New Zealand. These include maternity care, immunisations, and physical health and developmental surveillance offered through the Well Child Tamariki Ora (WCTO) services (including Before School Checks (B4SC)). Figure 77 shows that a lower percentage of Māori and Pacific māmā, pēpi and tamariki access these services compared to the total population. A Kaupapa Māori approach is about providing services that facilitate access and enhance Māori wellbeing, seeking to mitigate the disparities faced by whānau as well as facilitate whānau aspirations.<sup>97</sup> Evidence highlights the importance of ‘by Māori, for Māori’ health services to improve access.

**Figure 76: First episode rheumatic fever hospitalisation rates, age standardised per 100,000 population all ages, 2006/07–2021/22**



Source: NMDS in Te Whatu Ora Rheumatic Fever Report 2022

**Figure 77: Proportion of children receiving recommended healthcare**



Sources: WCTO Quality Improvement Framework indicators September 2022, Maternity clinical indicators 2020, National Immunisation Register 2022

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## Primary care enrolment

Primary health organisations (PHOs) ensure the provision of essential primary healthcare services, mostly through general practices. A general practitioner (GP) is often the first point of contact when a child becomes unwell.

Enrolling with a PHO reduces fees and ensures that the GP has a history of the child's health. While PHO enrolment has other benefits, such as reminders regarding routine health checks and upcoming vaccination events, some population groups do not have positive experiences with their primary care provider (see results from the NZ Primary Care patient experience survey in section 7.1 Community healthcare).

The national percentage of children enrolled with a PHO by the age of three months was reported as 85% in the WCTO quality indicator report for September 2022. This varies by ethnicity and geographical location. Māori infant enrolment was significantly lower at 65%, whereas the Te Waipounamu rate was higher at 91%.

## Enrolment in WCTO programme

Well Child Tamariki Ora (WCTO) is a free service that supports whānau with the health and development of children between 6 weeks and 5 years of age. The rate of referral by a lead maternity carer (LMC) to a WCTO provider was 74% in September 2022, against a target of 95%. Completion of core WCTO contacts within the first year of life was reported as 44% for both Māori and total infants, which was well below the target of 90%. However, these data covered June 2020–July 2022 and therefore were likely to reflect service disruptions during the COVID-19 response.

For the year to 7 July 2022, Ministry of Health B4SC reporting showed that nationally 73% of all eligible children had received their B4SC, while 69.5% of eligible children living in quintile 5 received a B4SC. Overall, 71% of eligible Māori children and 65.3% of Pacific children received their B4SC, compared to 74.8% of non-Māori/non-Pacific children.

## Immunisation coverage

Immunisation is a public health preventative measure that can protect the population from a number of infectious diseases.

Our national childhood immunisation target is to get 95% of children immunised at 8 and 24 months. In 2022, 84% of children were fully immunised at 8 months and 83% of children were fully immunised at 24 months. Māori rates were lowest at 70% at 8 months and 68% at 24 months, with Pacific people also lower than overall at 83% at 8 months and 81% at 24 months. Māori and Pacific child immunisation rates started to decline in 2017, and this gap has been more pronounced since the start of the COVID-19 pandemic.

A study undertaken prior to the COVID-19 pandemic found that almost all Pacific, Asian, European and Māori mothers intended to fully immunise their babies. This suggests that barriers to accessing immunisation services contribute to the ethnic inequities seen in immunisation coverage.<sup>98</sup>

**Table 9. Childhood 8 and 24-month immunisation rates by ethnicity, 2022**

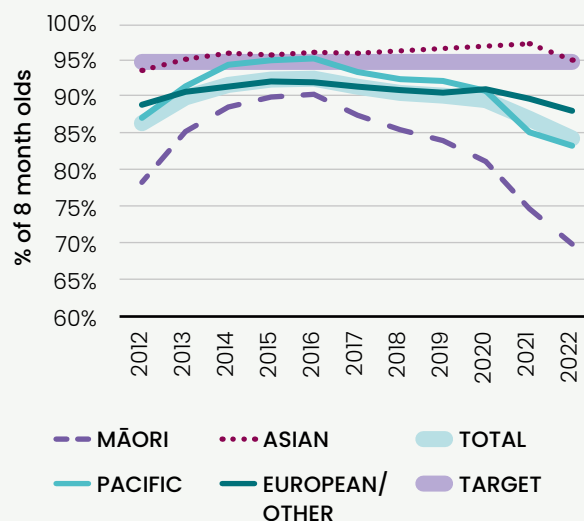
	8-MONTH VACCINATIONS – ON TIME	8-MONTH VACCINATIONS – REGARDLESS OF AGE AT VACCINATION	24 MONTHS – ALL VACCINATIONS ON TIME	24 MONTHS – ALL VACCINATIONS REGARDLESS OF AGE AT VACCINATION
Māori	76.4%	82.4%	68.0%	74.1%
Pacific	86.0%	91.2%	81.0%	85.4%
<b>Overall</b>	<b>87.0%</b>	<b>90.2%</b>	<b>82.3%</b>	<b>85.5%</b>

At a national level, Aotearoa New Zealand is well below the 95% immunisation coverage needed for herd immunity. Some vaccine-preventable diseases such as measles and pertussis are highly infectious and spread quickly in under-vaccinated populations. Growing inequities in immunisation coverage, particularly for Māori children and hapū māmā, mean that any outbreak of a vaccine-preventable disease is more likely to impact Māori whānau.

Childhood immunisation targets measure the percentage of children who have received their scheduled vaccination ‘on time’. However, vaccination coverage by milestone age tends to underreport overall vaccination coverage in the population. The vaccination information below relates to children born within the 2020 calendar year.

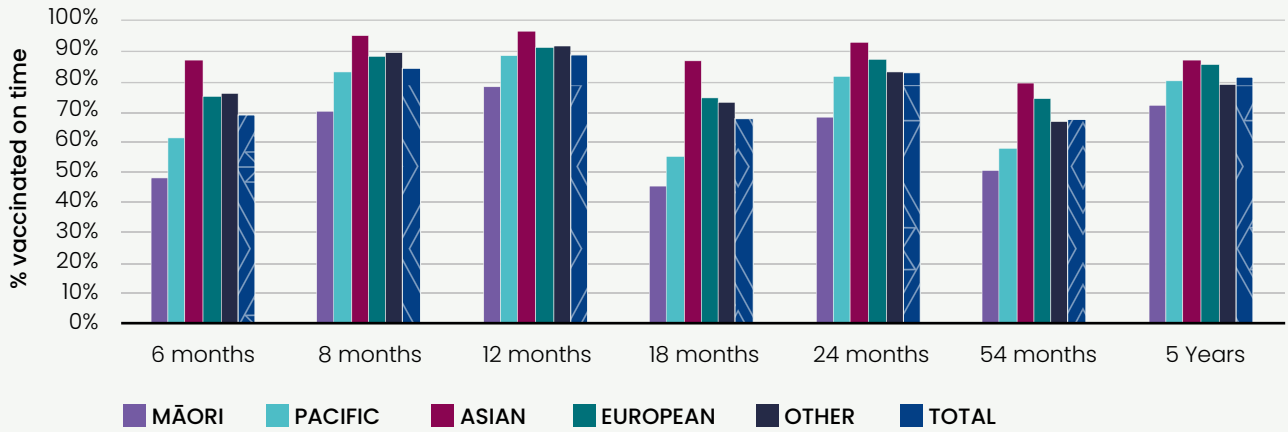
Across the districts, Lakes and Te Tai Tokerau Northland had the lowest 8-month coverage rates at 72% and 74% respectively, with Southern, Canterbury and South Canterbury all at 91-92%.

**Figure 78: Childhood 8-month immunisation rate (completed on time) by ethnicity, 2012–22**

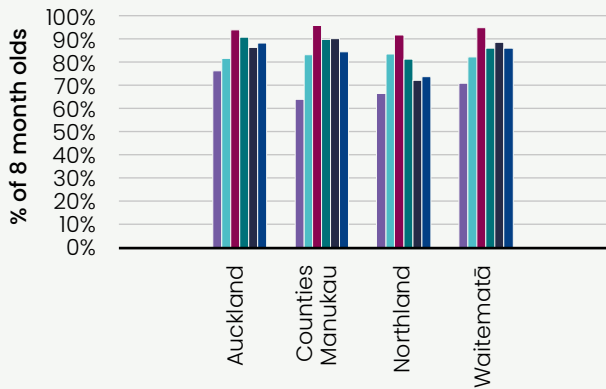


Source: National Immunisation Register

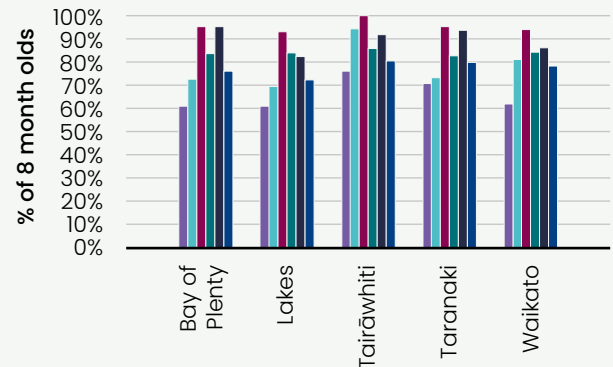
Figure 79: Childhood immunisation rates by age and ethnicity, 2022



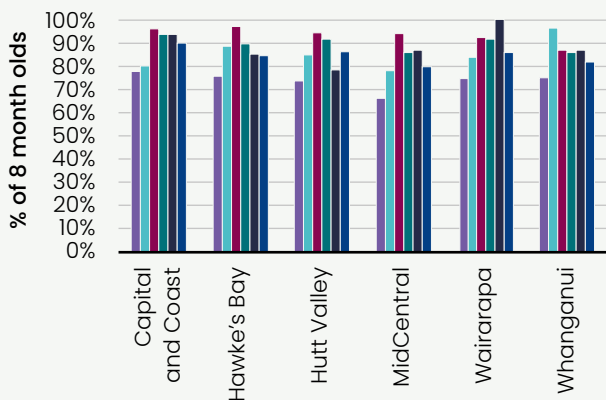
Northern



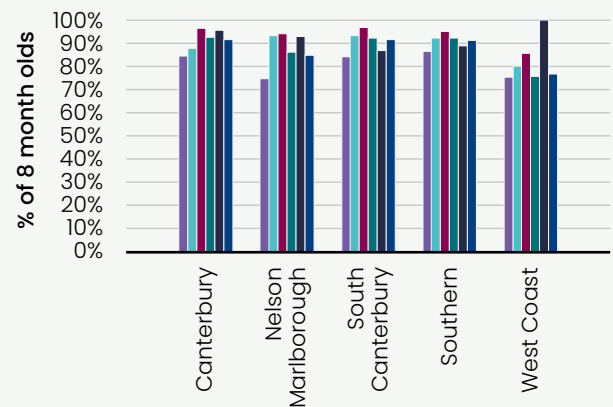
Te Manawa Taki



Central



Te Waipounamu



Source: National Immunisation Register

## 6.2.3 Young people

In 2023, there were an estimated 642,780 young people aged 15 to 24 years living in Aotearoa New Zealand. This included 162,800 Māori, 68,670 Pacific, 93,180 Asian and 318,130 European/Other young people. Around 37% of this age group lived in the Northern region. Nearly 56% of Asian young people in this age group and 69% of Pacific young people lived in the Northern region.

The overall mortality rate was almost twice as high for 15 to 24 year olds in 2014–2018, as it was for 1 to 14 year olds. The leading causes of death in this age group were unintentional injury and intentional self-harm.<sup>93</sup>

**Table 10. Deaths of 15 to 24 year olds by main underlying cause of death, 2014–2018**

MAIN UNDERLYING CAUSE OF DEATH	NUMBER	ANNUAL AVERAGE	RATE PER 100,000 15 TO 24 YEAR OLDS	95% CI	PERCENT
<b>Injuries</b>					
Unintentional injury	594	119	18.41	16.96–19.95	36.7
Intentional self-harm	573	115	17.76	16.33–19.27	35.4
Assault	37	7	1.15	0.81–1.58	2.3
<b>Medical causes</b>					
Neoplasms	125	25	3.87	3.22–4.62	7.7
Congenital anomalies	41	8	1.27	0.91–1.72	2.5
Epilepsy or status epilepticus	38	8	1.18	0.83–1.62	2.3
Cerebral palsy	16	3	0.50	0.28–0.81	1.0
Metabolic disorders	14	3	0.43	0.24–0.73	0.9
Pneumonia	6	1	0.19	0.07–0.40	0.4
Asthma and wheeze	5	1	0.15	0.05–0.36	0.3
Other diagnoses	170	34	5.27	4.51–6.12	10.5
<b>Total</b>	<b>1,619</b>	<b>324</b>	<b>50.17</b>	<b>47.75–52.67</b>	<b>100.0</b>

Numerator: National Mortality Collection; Denominator: NZCYES Estimated Resident Population  
Source: Indicators of Child and Youth Health Status in Aotearoa 2021



Mortality rates vary by ethnicity and socio-economic status. Overall mortality rates have been decreasing in the 15 to 24 year age group over the period 1996/1997 to 2018 across all ethnic groups. Māori had the highest mortality rate during this period, followed by Pacific people, European/Other people and then Asian people.

From 1990–91 to 2018 there was a persistent social gradient in all-cause mortality rates for 15 to 24 year olds (see chart below). The highest mortality rates were observed for

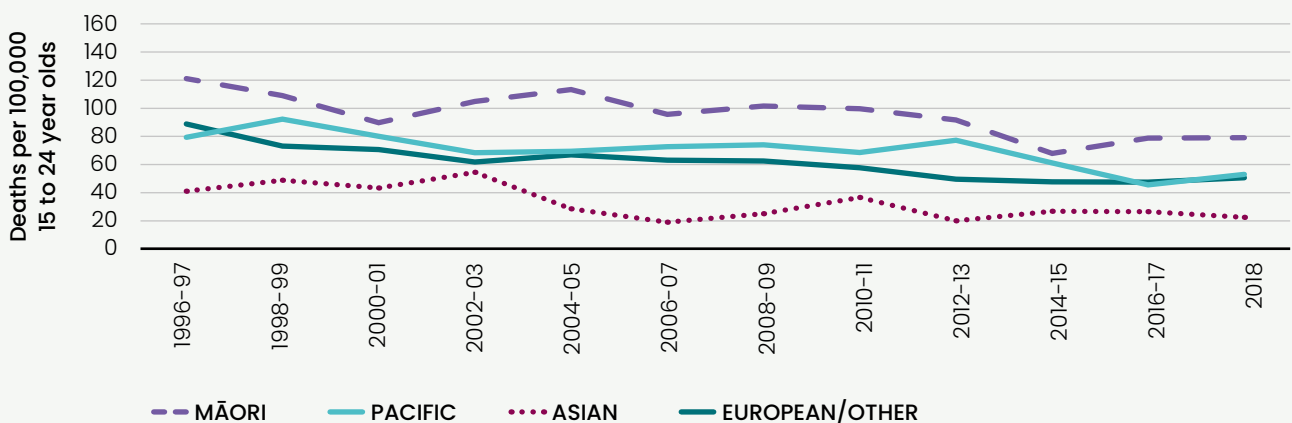
young people living in areas with the most socio-economically deprived NZDep scores (NZDep2013 quintile 5).

Mortality rates declined in all quintiles.

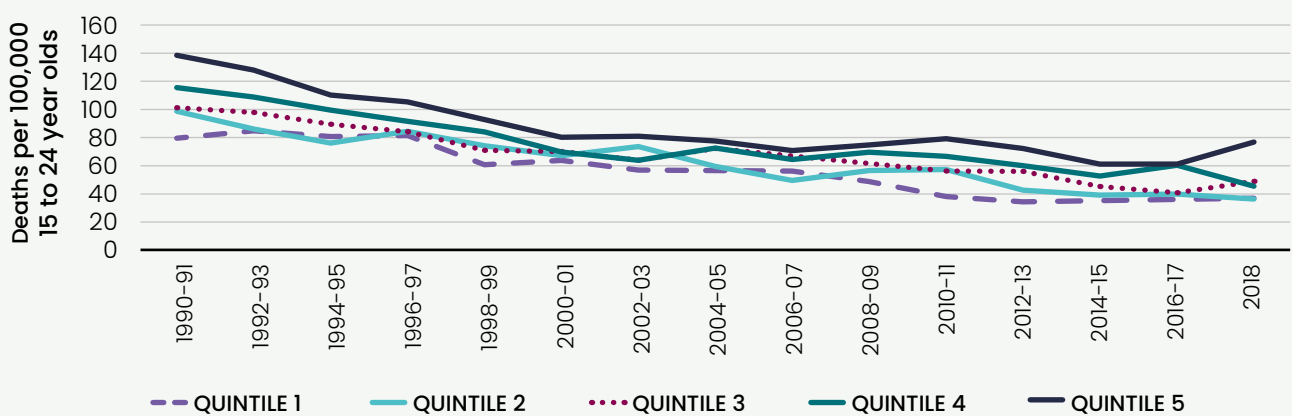
Mortality rates for young people living in areas with the most socio-economically deprived NZDep scores (quintile 5), however, were around 60% higher, on average, than were rates for young people living in areas with the least socio-economically deprived NZDep scores (quintile 1).

**Figure 80: Mortality rates of 15 to 24 year olds, 1996–2018**

**by ethnicity**

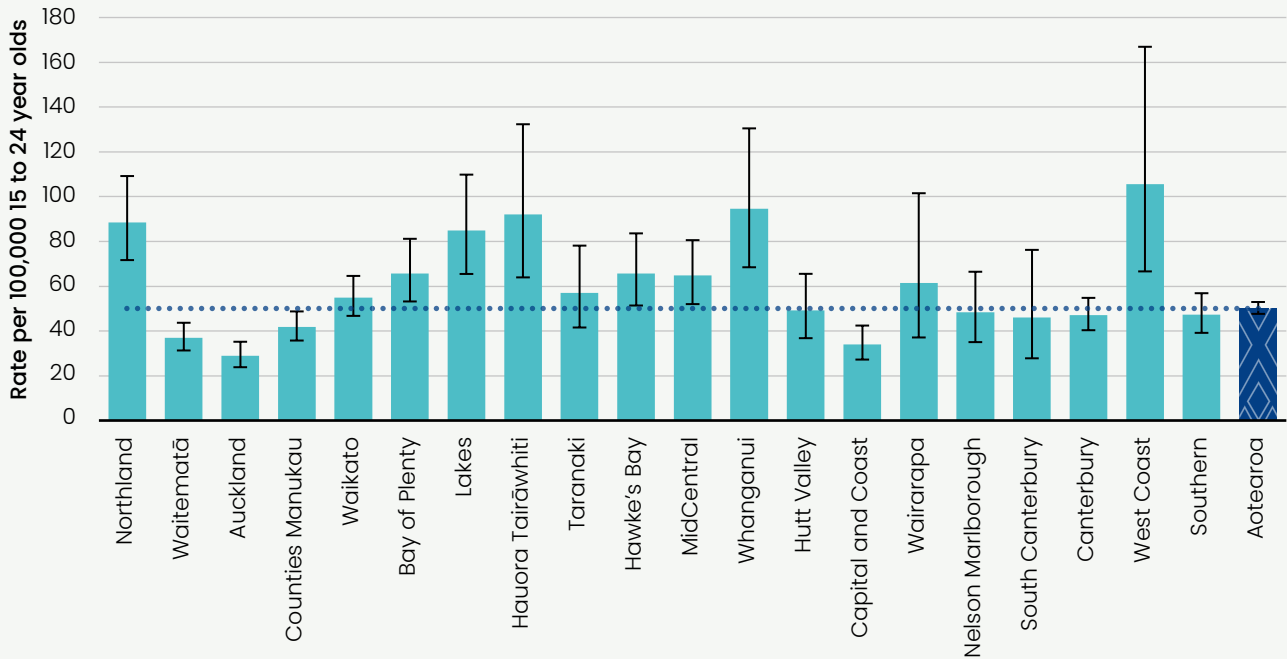


**by NZ Dep2013 quintile**



Numerator: National Mortality Collection, Denominator: NZCYES Estimated Resident Population. Ethnicity is level 1 prioritised Quintile is NZDep Index of deprivation (1= least deprived; 5 = most deprived); 2018 is one year of data. Source: Indicators of Child and Youth Health Status in Aotearoa 2021

**Figure 81: Deaths of 15 to 24 year olds by district, 2014–2018**



Numerator: National Mortality Collection; Denominator: NZCYES Estimated resident population. Deaths per 100,000 age-specific population. Source: Indicators of Child and Youth Health Status in Aotearoa 2021

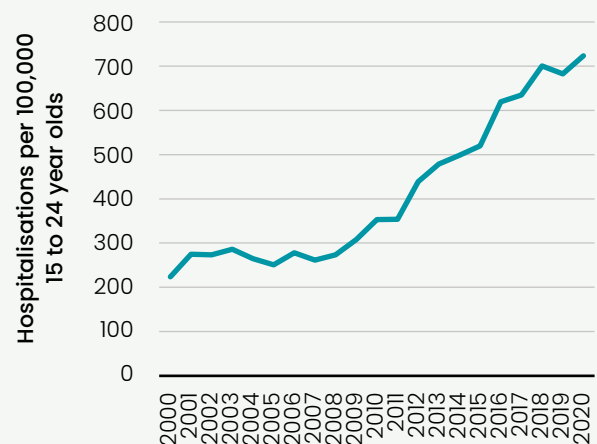
Mortality rates in the 15 to 24-year age group varied by district, with the highest mortality rates seen in West Coast, Hauora Tairāwhiti, Lakes and Bay of Plenty.<sup>93</sup>

### Intentional self-harm

Intentional self-harm (self-harm) encompasses actions and exposures that are deliberately inflicted with the aim of causing oneself injury or poisoning. These data include all intentional self-harm behaviours that resulted in hospitalisation (regardless of suicidal intent). Even in cases where the self-harm injury was not intended to result in death, engaging in self-harm is associated with an increased risk of future suicidal ideation and behaviours.

Between 2000 and 2020, rates of hospitalisation for self-harm increased among 15 to 24 year olds from around 220 to over 720 per 100,000 age-specific population from 2000 to 2020.<sup>93</sup>

**Figure 82: Rates of hospitalisation per 100,000 for intentional self-harm in 15 to 24 year olds, 2000–2020**

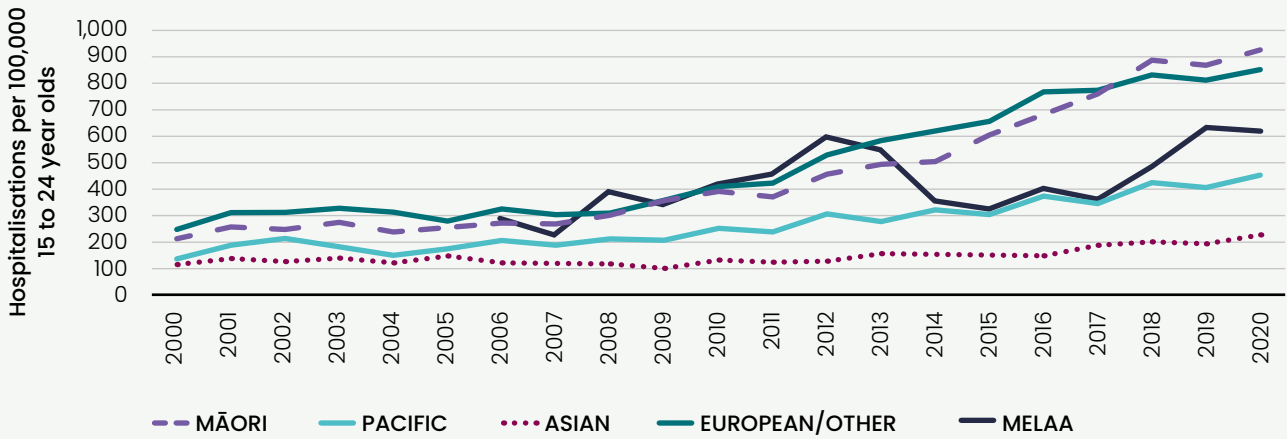


Numerator: NMDS; Denominator: NZCYES Estimated Resident Population. Source: Indicators of Child and Youth Health Status in Aotearoa 2021

Rates of hospitalisation for self-harm were highest for European/Other and Māori young people, with an over fourfold increase in rates of hospitalisation for self-harm from 2000 to 2020 for Māori young people. There was a marked increase in hospitalisations for self-harm among this ethnic group from 2017 to 2019. Asian young people consistently had the

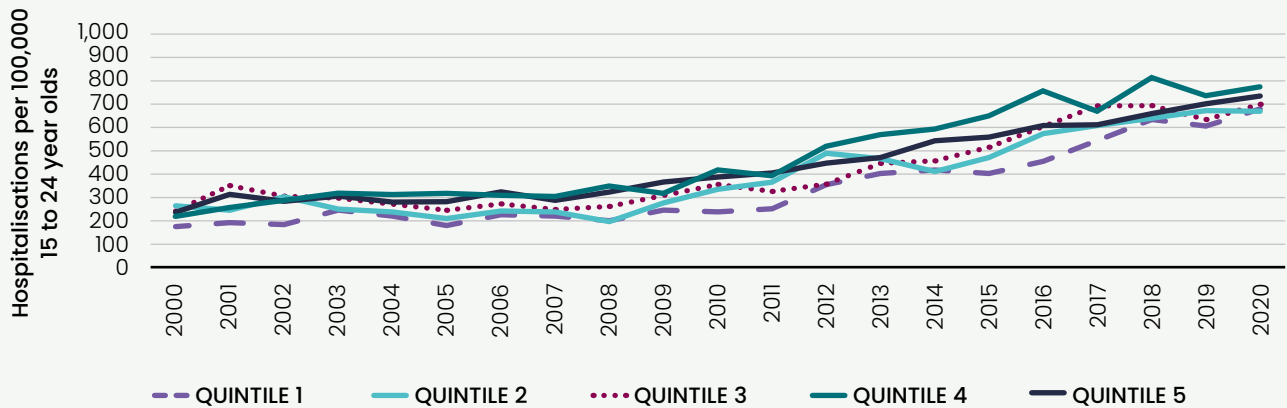
lowest rates of hospitalisation for self-harm for the entire period observed, but rates in this group still more than doubled from 2000 (113 per 100,000) to 2020 (235 per 100,000). There was also an increase over time in rates of hospitalisation for self-harm among 15 to 24 year olds for all deprivation quintiles.

**Figure 83: Rates of hospitalisation per 100,000 for intentional self-harm in 15 to 24 year olds by ethnicity, 2000–2020**



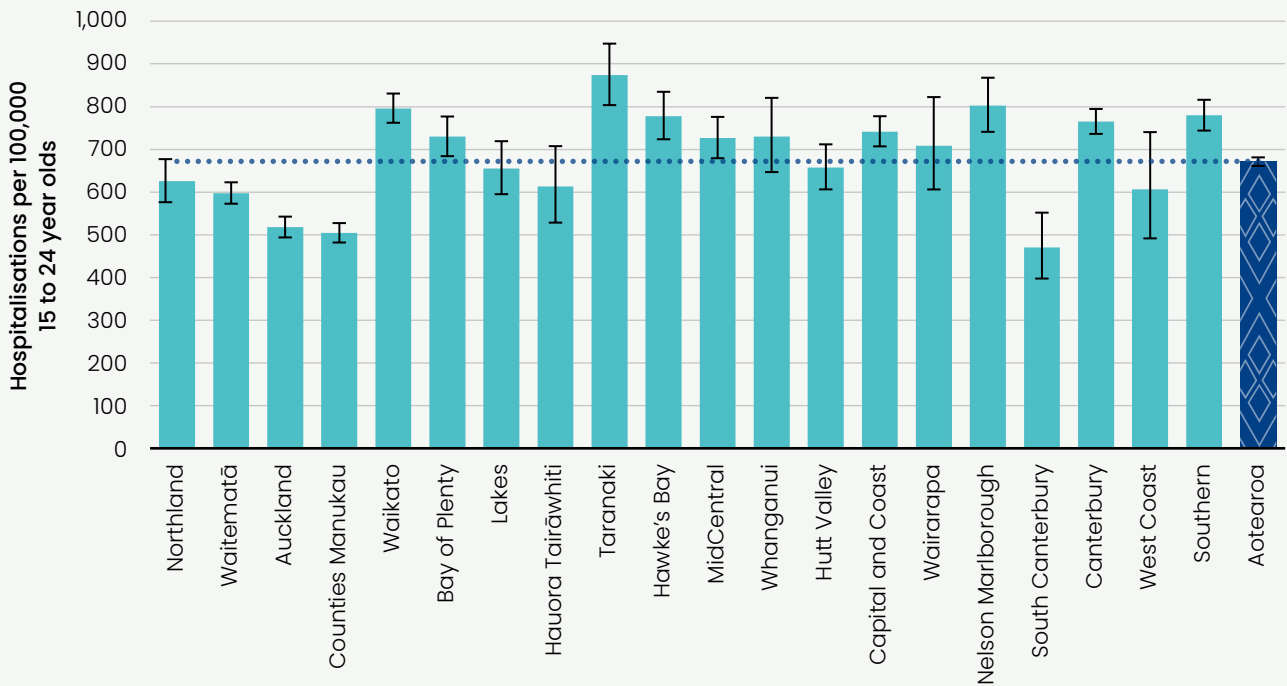
Numerator: NMDS; Denominator: NZCYES Estimated resident population. Ethnicity is prioritised. Prior to 2006 MELAA was not a separately recorded ethnicity grouping, rates for MELAA based on small numbers. Source: Indicators of Child and Youth Health Status in Aotearoa 2021

**Figure 84: Rates of hospitalisation per 100,000 for intentional self-harm in 15 to 24 year olds by NZDep2013 index of deprivation quintile, 2000–2020**



Numerator: NMDS; Denominator: NZCYES Estimated Resident Population. Source: Indicators of Child and Youth Health Status in Aotearoa 2021

**Figure 85: Rates of hospitalisation per 100,000 for intentional self-harm in 15 to 24 year olds by district, 2016–2020**



Numerator: NMDS (excludes infants) Denominator: NZCYES Estimated resident population. Rates are unadjusted. Source: Indicators of Child and Youth Health Status in Aotearoa 2021

Among 15 to 24 year olds, three northern districts (Waitematā, Auckland, and Counties Manukau) had rates of hospitalisation for self-harm that were lower than the overall rate for Aotearoa New Zealand, as did one South Island district (South Canterbury). Rates of hospitalisation for self-harm were significantly higher than the national average in Waikato, Bay of Plenty, Taranaki, Hawke's Bay, MidCentral, Capital and Coast, Nelson Marlborough, Canterbury, and Southern.<sup>93</sup>

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## 6.3 People living with chronic health conditions

There is a reduction in the causes of chronic diseases, lowering rates of premature mortality and ill-health burden. The main exception is diabetes which is on the increase.

### 6.3.1 Cardiovascular disease (CVD)

Cardiovascular diseases (CVD) are diseases affecting the heart and circulatory system. They include ischaemic heart disease, cerebrovascular disease, peripheral vascular disease and other forms of vascular and heart disease. CVD is a leading cause of years lost to premature mortality and a leading cause of the difference in life expectancy between Māori and Pacific people and non-Māori/non-Pacific populations. The main risk factors for CVD are being male, high blood pressure, high body mass index, high cholesterol, tobacco use, low physical activity and diabetes.<sup>100</sup> These risk factors interact with each other, for example, low physical activity contributes to high body mass index, high blood pressure and high cholesterol. Around 70% of the burden of CVD is attributed to modifiable risk factors and is preventable through living in a healthy community, living a healthy life and manageable with healthy life changes, early intervention and effective management.<sup>101</sup>

Māori, Pacific and South Asian people are all considered to be at high risk of CVD in Aotearoa New Zealand, with younger age but more co-morbidity at first heart failure hospitalisation for Māori and Pacific people and a widening trend of inequity.<sup>102</sup> As such, risk assessment is recommended to begin for these three ethnic groups in men aged 30 years and in women aged 40 years (i.e. 15 years earlier than for other population groups).<sup>100</sup>

The main data sources used for this and the stroke sections use the Asian group as a whole. This should be interpreted with caution due to averaging of results for the high-risk South Asian group and the lower risk non-South Asian groups. For example, the mortality data presented below indicate that the Asian group had the lowest mortality of the four ethnic groups over time and by region. However, an Aotearoa New Zealand study published in 2018 examined ethnic-specific trends in age standardised ischaemic heart disease mortality over 2006–2015 for 35 to 84 year olds where data were presented separately for the Indian and Other Asian groups. Other Asians had the lowest ischaemic heart disease mortality rate of all ethnic groups over time in both men and women, but Indian men and women had consistently higher mortality rates than the European group, although generally lower rates than Māori and Pacific men and women.<sup>99</sup>

Improving the uptake of CVD risk assessment and primary prevention of CVD is critical in impacting not only mortality rates, but also quality of life. Overall, Māori and Pacific people, followed by Indian people, have the greatest burden of CVD and exposure to its risk factors in Aotearoa New Zealand. Māori have the highest blood pressure and rates of smoking, atrial fibrillation, heart failure and prior CVD, while Pacific people have the highest rates of obesity and, together with Indian people, the highest prevalence of diabetes.<sup>103</sup> While heart disease is, in part, a consequence of poverty, it is also a contributor to poverty – Māori and Pacific people are eight times more likely to receive jobseeker’s allowances than non-Māori as a result of disability caused by heart disease.<sup>104</sup>

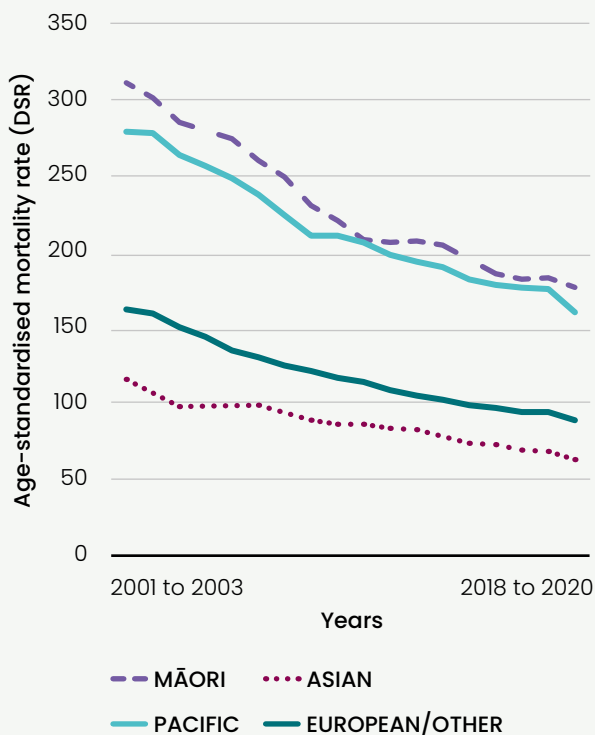
The mortality rate (DSR) from CVD for the Aotearoa New Zealand population is 99 per 100,000 population (2018–2020), but this is much higher, age-standardised, for Māori (177) and Pacific people (160) as compared to the European/Other population.

By region, Te Manawa Taki has the highest overall DSR for CVD mortality (105 per 100,000 population) and for Māori (196).

The Central region has the highest rates for Pacific people (171 per 100,000 population). The lowest overall DSR for CVD mortality was recorded for the Northern region at 91 per 100,000 population. The best rates for both Māori and Pacific people sit with Te Waipounamu at 129 and 120 per 100,000 population respectively.

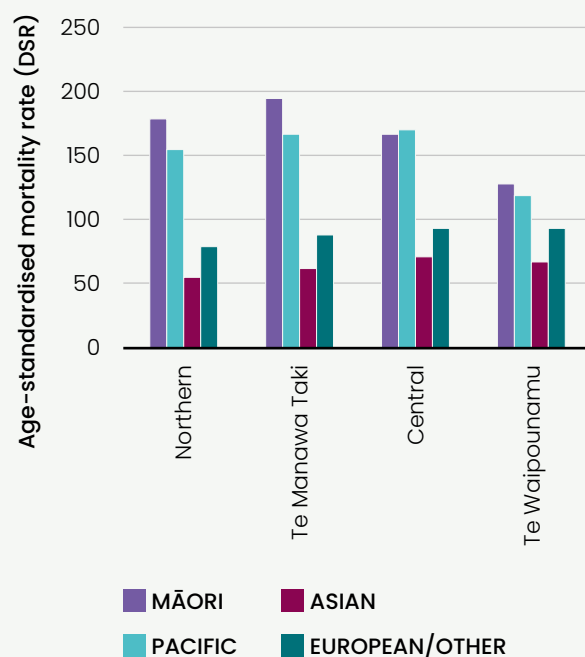
CVD mortality has been reducing significantly over time for all parts of Aotearoa New Zealand, a remarkable health success.

**Figure 86: Age-standardised mortality rate per 100,000 population for cardiovascular disease, all ages**



Analysed in 3-year blocks.  
Source: Ministry of Health Mortality data collection

**Figure 87: Age-standardised mortality rate by region for cardiovascular disease, all ages (2018–2020 combined)**



Source: Ministry of Health Mortality data collection



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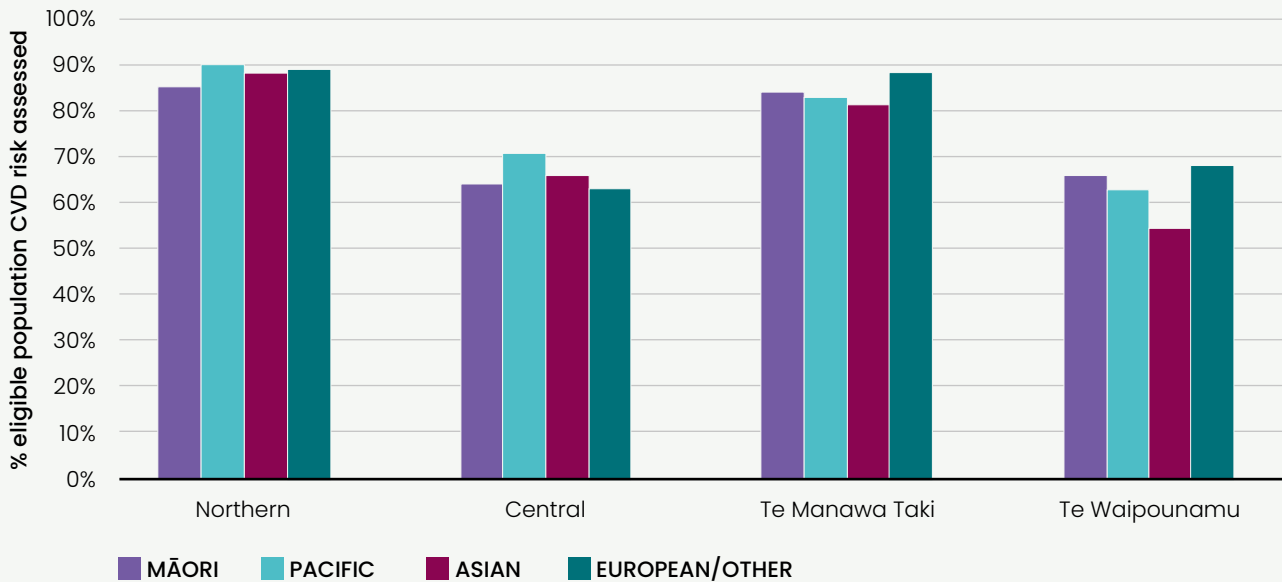
A key tool in managing CVD is CVD risk assessment, allowing patients and clinicians to improve the accuracy of prediction and therefore to decide on appropriate targeted care.

The most recent CVD risk assessment data provided by the Ministry of Health | Manatū Hauora were for the first quarter of 2020/21. While this should be interpreted with caution as it will include data captured during the transition period of the new CVD algorithm (and is also missing some data for Waitaha Canterbury), this showed that, overall, around 78% of Aotearoa New Zealand's eligible population had had a CVD risk assessment at that time, including 77% of Māori, and 84% of Pacific people. There was substantial regional variation however, with the highest rates for both Māori and Pacific people recorded for the Northern region at 84.7% and 89.4% respectively. The lowest rate for Māori was recorded for the Central region at 63.6%, and the lowest for Pacific people in Te Waipounamu at 62.5%.



The updated CVD risk assessment method includes a range of new predictors, including areas of residence deprivation (using NZDep), CVD preventive medications, body mass index (BMI) and a diagnosis of atrial fibrillation (Ministry of Health, 2018, Cardiovascular Disease Risk Assessment and Management for Primary Care). These add to the already well-established factors such as previous CV disease, smoking status, blood pressure, lipid levels, diabetes status, ethnicity and age.

**Figure 88: Proportion of eligible population CVD risk assessed, as at quarter one 2020/21**



Source: Ministry of Health

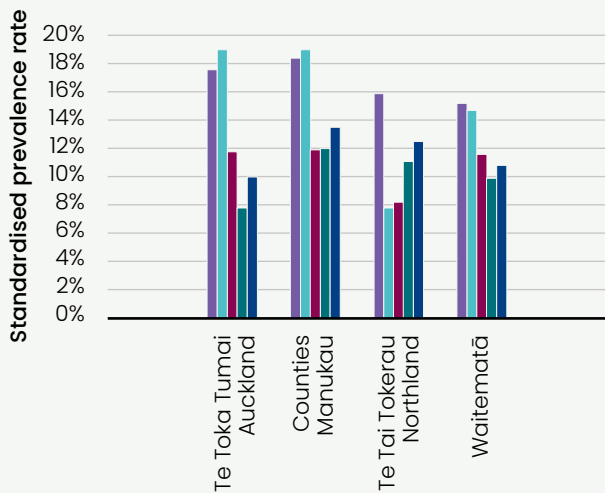
Management of cholesterol and high blood pressure is key in the management of cardiovascular disease. 11% of New Zealand adults (aged 15 or older) are dispensed medication for high blood pressure, and around 8% are dispensed medication for high cholesterol (NZHS 2017-20). By region, for both, percentages are slightly higher in Te Manawa Taki. A higher proportion of Māori and Pacific people (standardised for age) are dispensed these medications than European/Other people, reflecting higher rates of CVD. For Māori, by district, the dispensing of blood pressure medications was highest in Counties Manukau (18% of adults), and of cholesterol lowering medications highest in Taranaki (14%). For Pacific people, dispensing of blood pressure medications was highest in Hauora a Toi Bay of Plenty (21%), and of cholesterol lowering medications highest in Counties

Manukau (14%). However, the results shown here for blood pressure and cholesterol-lowering medications are for all adults rather than for the age range eligible for CVD risk assessment. The data below also do not consider history of CVD, CVD risk if treatment is for primary prevention, whether combinations of medications (e.g. dual or triple therapy) are dispensed, frequency of dispensing over a specified time period (i.e. adherence), or adequacy of dispensed dosages.

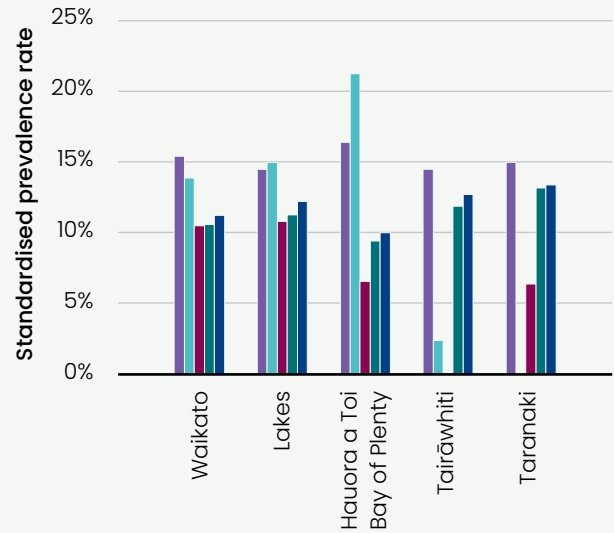
Figure 89: Standardised prevalence rate – dispensing of blood pressure lowering medications, adults, aged 15 years and over, male and female by district, 2017-20

■ MĀORI   
 ■ PACIFIC   
 ■ ASIAN   
 ■ EUROPEAN/OTHER   
 ■ TOTAL

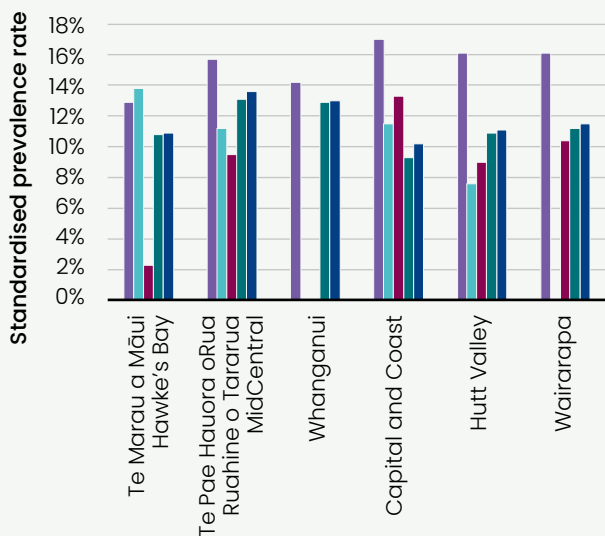
**Northern**



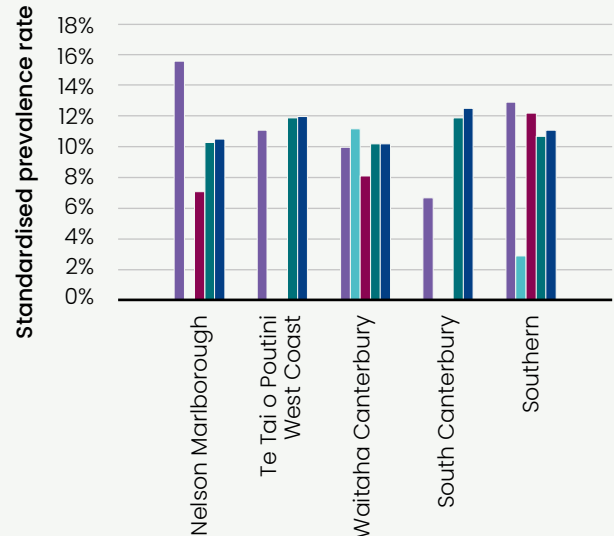
**Te Manawa Taki**



**Central**



**Te Waipounamu**

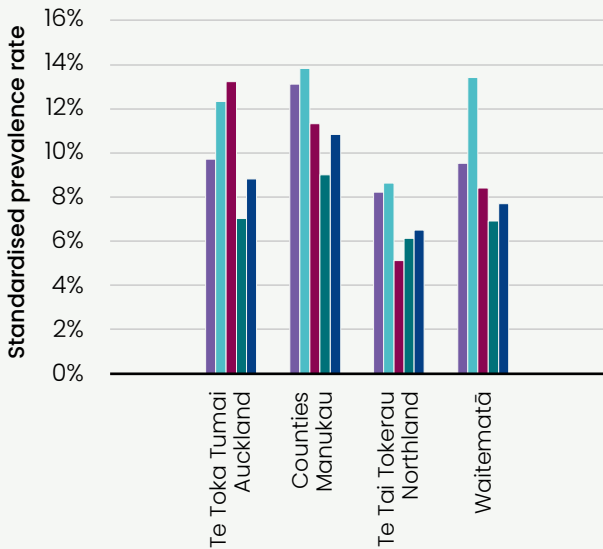


Source: New Zealand Health Survey 2017-20

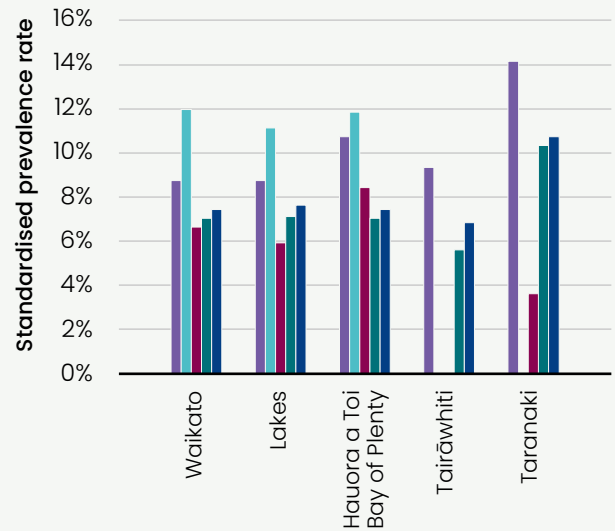
Figure 90: Standardised prevalence rate - dispensing of cholesterol lowering medications, adults, 15 years and over, male and female by district, 2017-2020

■ MĀORI   
 ■ PACIFIC   
 ■ ASIAN   
 ■ EUROPEAN/OTHER   
 ■ TOTAL

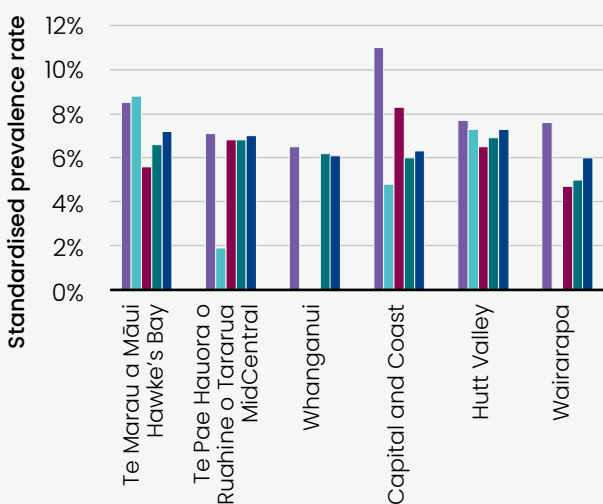
**Northern**



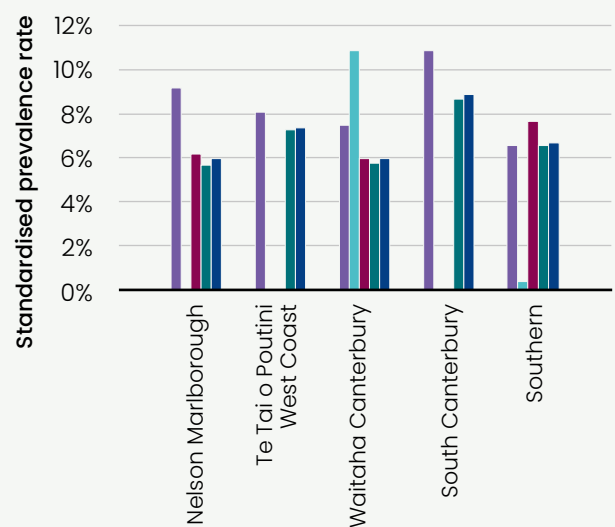
**Te Manawa Taki**



**Central**



**Te Waipounamu**



Source: New Zealand Health Survey 2017-20

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Hospital admission rates for Aotearoa New Zealand for CVD are 975 per 100,000 population, a small reduction on the previous 12 years, which have been largely stable.

Rates are similar between regions, with the highest rate in Te Manawa Taki and the lowest in Te Waipounamu. Age standardised hospital admission rates are highest for Pacific people at 1,630 per 100,000 population and lowest for Asian people at 610. By region, age standardised rates are highest for Māori in the Northern region (1,580 per 100,000) and lowest in Te Waipounamu (1,110). The same regions are significant for Pacific people – 1,750 per 100,000 population in the Northern region and 1,270 in Te Waipounamu (noting a much small Pacific population in Te Waipounamu).

While hospitalisation rates for heart failure have remained largely static, ischaemic heart disease hospitalisation rates have reduced over time, particularly first admissions, in line with the significant decline in ischaemic heart disease mortality noted above.

Age standardised angiography procedure rates are gradually declining in Aotearoa New Zealand, consistent with the declining disease rates. The decline is across all ethnicities, though more steeply for European/Other people. Pacific people's rates are highest, followed by Māori. Rates are highest in Te Manawa Taki and lowest equal in Te Waipounamu and the Central region.



Angiography or coronary angiogram is a diagnostic tool which uses x-ray imaging to show the extent and severity of any heart disease a patient may have. A catheter is inserted into an artery in the groin, arm or neck and threaded through the blood vessels to the heart to reveal any blocked or narrowed blood vessels. Angiography is often used in conjunction with cardiac intervention to guide the procedure.

There are a range of cardiac procedures, as well as surgery, that can be undertaken to improve blood flow to the heart, to reduce symptoms, improve quality of life, minimise the risk of a heart attack and prolong life. These vary depending on the type of cardiac disease being treated, but include:

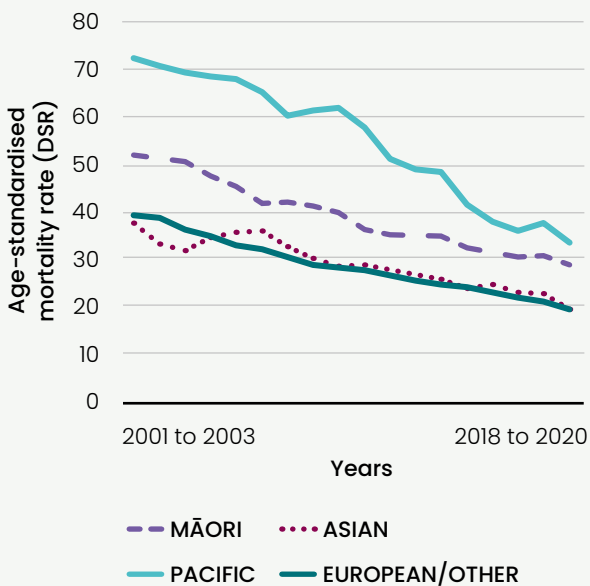
- Angioplasty
- Heart valve replacement
- Revascularisation
- Coronary artery bypass graft (CABG) surgery
- Percutaneous coronary intervention (PCI).

Rates are declining for all these procedures and for cardiac surgery across Aotearoa New Zealand, broadly consistent with the declining indicators for interventions. However, this is not true for all ethnicities. Pacific people's rates for cardiac surgery and all cardiac procedures are persistently higher than those of any other ethnicity and in some cases are not declining.

### 6.3.2 Stroke

Stroke or cerebrovascular disease is a sudden interruption of blood flow to a part of the brain, causing damage to the brain cells. The impact of stroke and transient ischaemic attack (TIA) can be catastrophic for the individual and whānau, and is resource-intensive for health services. Most strokes are related to underlying atherosclerosis (i.e. ischaemic) causing a blockage, but around 10-20% of strokes are caused by haemorrhage of a cerebral artery. Management of risk factors such as high blood pressure, elevated cholesterol, diabetes and atrial fibrillation are important for prevention of stroke, as well as other types of CVD.<sup>105</sup> As mentioned previously, one limitation of the ethnic-specific stroke data below is presentation of results for the entire Asian group, which ‘averages’ results for the high-risk South Asian and lower risk non-South Asian sub-populations.

**Figure 91: Age-standardised mortality rate per 100,000 population for stroke all ages, 2001-2020**

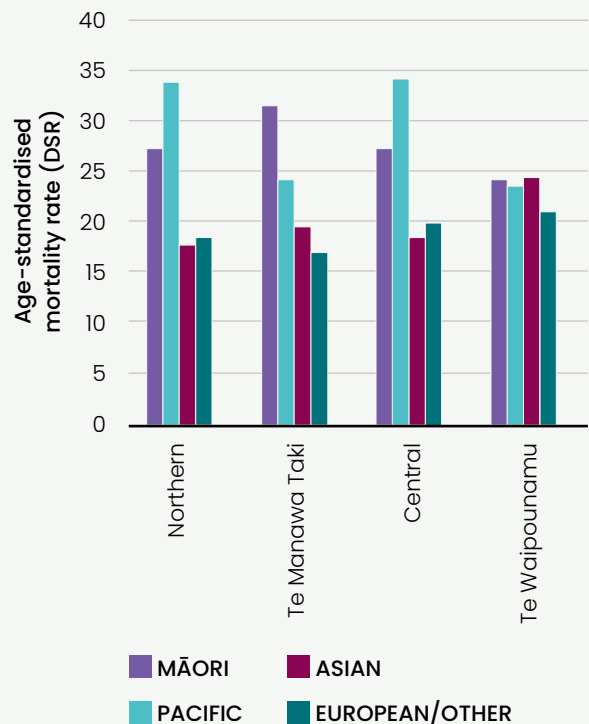


Analysed in 3 year blocks.  
Source: Ministry of Health Mortality data collection

The mortality rate (DSR) from stroke for the Aotearoa New Zealand population is 21 per 100,000 population (2018-2020), but is much higher, age-standardised, for Pacific people (33.3) and for Māori (28.6).

By region, Te Waipounamu has the highest overall DSR for stroke mortality (21.7 per 100,000 population) followed closely by the Northern region. Te Manawa Taki has the highest rate for Māori (31.8) and Central has the highest rate for Pacific people (34.4). The lowest rates for both Māori and Pacific people are in the Te Waipounamu region (24.4 and 23.8 per 100,000 population respectively). While this region also has the highest rate for the Asian group across all regions, the very small Asian population and few deaths in this region are an additional reason for interpreting this data cautiously.

**Figure 92: Age-standardised mortality rate per 100,000 by region for stroke all ages (2018-2020)**



Source: Ministry of Health Mortality data collection



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Over time, mortality from stroke in Aotearoa New Zealand has declined for all ethnic groups, with the sharpest decline being for Pacific people where dramatic reductions in the gap between Pacific people's stroke mortality and that of European/Other people has been observed in the last 20 years. The gap has also reduced for Māori, but to a lesser extent.

Around 1% of New Zealand adults aged 15 years or older indicated that they had had a stroke (NZHS 2017–20). Age standardised rates for Māori at 1.9% were almost double the European/Other people rate (1.0%). Pacific people were also higher at 1.4%. By district, Tairāwhiti had the highest rate for Māori at 2.9% and Te Pae Hauora o Ruahine o Tararua MidCentral had the highest Pacific people's rate at 2.4%.

Treatment for acute ischaemic stroke can include reperfusion therapy.

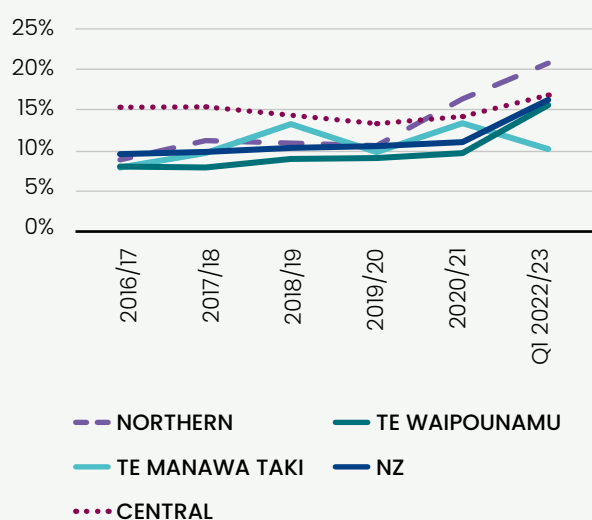
Against a target of 12%, latest reperfusion rates show that 16.5% of ischaemic stroke patients are being thrombolysed and/or treated with clot retrieval across the country. For the 2022/23 period, this is highest in the Northern region (21%) and lowest in Te Manawa Taki at 10.2%. A recent paper noted the increase in reperfusion therapy rates approvingly, with increasing rates of stroke clot removal.<sup>106</sup> The study also noted longer door-to-needle time in Māori and lower reperfusion rates in women requiring further exploration and attention.



Reperfusion refers to the restoration of blood flow to an organ or tissue after a period of ischaemia (lack of blood supply). In Aotearoa New Zealand this is usually a combination of thrombolysis and/or clot retrieval. Thrombolysis involves the administration of medications (thrombolytics or clot-busting drugs) to dissolve blood clots and restore blood flow. Stroke clot retrieval is the removal of the clot from the artery by an endovascular procedure. When used in clinically appropriate cases, reperfusion therapy promotes optimum recovery, improved independence and reduced complications from stroke.

A prospective observational study undertaken nationally in 2018 demonstrated that patients presenting to non-urban hospitals experience poorer stroke outcomes, higher recurrence and mortality rates, as well as reduced access to interventions.<sup>107</sup> Furthermore, non-Europeans, particularly Māori, had poorer stroke outcomes and greater mortality.<sup>108</sup>

**Figure 93: Percentage of eligible\* patients receiving reperfusion therapy following an ischaemic stroke by region, 2016/17 to 2020/21 and Q1 2022/23**



Source: Northern Stroke Network

Managing stroke events according to the Australian and New Zealand *Clinical Guidelines for Stroke Management* is essential for improving and maximising health outcomes for people at risk of stroke or after a stroke. These are living guidelines that are updated as new evidence emerges.<sup>109</sup> It is also important to commence rehabilitation promptly as delays may inhibit the crucial motor recovery process taking place shortly after a stroke.

Hospital admission rates for stroke are 189 per 100,000 in the 25 years plus population. There has been some fluctuation, but generally rates are stable over time (some decline in Te Waipounamu).

Rates are lowest for Te Waipounamu and highest for Te Manawa Taki. Age standardised rates are highest for Pacific people nationally at 342 per 100,000 population and highest in the Northern region at 367 per 100,000 population. Rates for both Asian and European/Other people are lowest and declining over time.

Note that despite the flat or falling rates, the absolute number of admissions is rising, given the increasing size and age of the population, so service growth will still be required.

### 6.3.3 Diabetes

Diabetes is a disease that affects the body's ability to control blood glucose.

Type 1 diabetes is primarily an auto-immune condition generally diagnosed in childhood or adolescence. It involves the immune system attacking the insulin-making cells in the pancreas.

Type 2 diabetes is usually thought of as an adult disease, but is increasingly being diagnosed in children.<sup>110</sup> Risk factors for type 2 diabetes include high body mass index (BMI), poor diet and lack of physical activity. Factors such as higher neighbourhood walkability and increased access to green spaces are also associated with a reduced burden of Type 2 diabetes.<sup>111</sup> Therefore, policies and planning to promote environments that support healthy food choices and physical activity are important for prevention of diabetes and other chronic conditions like cardiovascular diseases and cancers.

\*Unique patients with a primary diagnosis of stroke (ie. ICD codes I63 and I64)



While the causes of type 1 and type 2 diabetes are very distinct, data collection policies mean that most analyses presented here combine the two types. Type 1 makes up less than 10% of the cases in Aotearoa New Zealand and numbers are not increasing – the increase in cases is driven solely by type 2 diabetes.

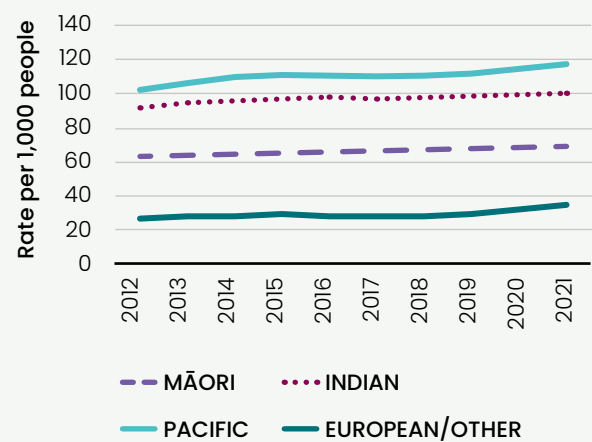
In 2020 there were 953 deaths with an underlying cause of diabetes in Aotearoa New Zealand. The age-standardised rate for Māori was 32.9 per 100,000 and for Pacific people it was 50.2 versus 6.8 for non-Māori/non-Pacific (MoH mortality data 2018–20).

The Ministry of Health releases annual estimates of the prevalence of diabetes, based on the Virtual Diabetes Register (VDR). The VDR uses an algorithm to identify people suspected of having diabetes, based on use of diabetes-related health services (e.g. diabetes-related inpatient and outpatient hospital services, laboratory test types and dispensing of medications). This algorithm omits people with diabetes who have not encountered specialist diabetes health services and have not attended for laboratory tests ordered by a GP, or have not collected medications prescribed by a GP.

Based on the VDR, the Ministry of Health estimated that 292,400 people in Aotearoa New Zealand have some form of diabetes (estimated rate of 41.5 per 1,000 population) as at 31 December 2021, with the highest rates in Pacific people (119 per 1,000; 40,700); followed closely by Indians (101 per 1,000; 22,400), with Māori also having elevated rates (70 per 1,000; 48,600) compared to European/Other people (30 per 1,000, 181,000) (Virtual Diabetes Register 2021).

Rates have gradually increased over time, more sharply for Pacific people. Of note however, the methodology for counting those with diabetes has improved over time which may also be contributing to the apparent increases.

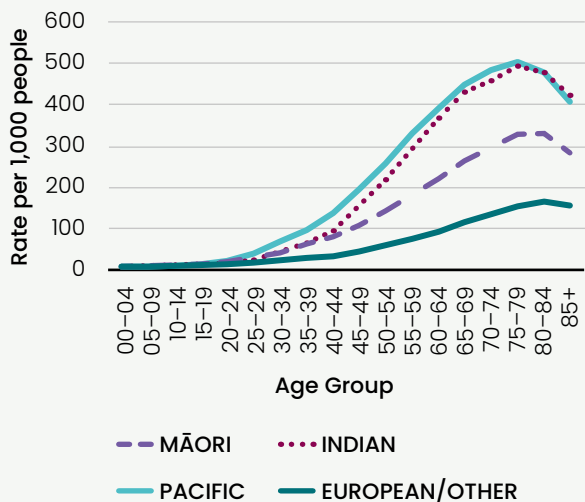
**Figure 94: Estimated rate of diabetes per 1,000 people by ethnicity, 2012–2021**



Source: Ministry of Health Virtual Diabetes Register

The estimated rate of diabetes increases dramatically with age, and peaks in 80 to 84 year olds (190 per 1,000) across the total population. Age-specific diabetes rates in different ethnic groups peak in 75 to 79 year olds among Pacific people (510 per 1,000) and Indians (500 per 1,000), and in 80 to 84 year olds among Māori (330 per 1,000) and European/Other people (170 per 1,000).

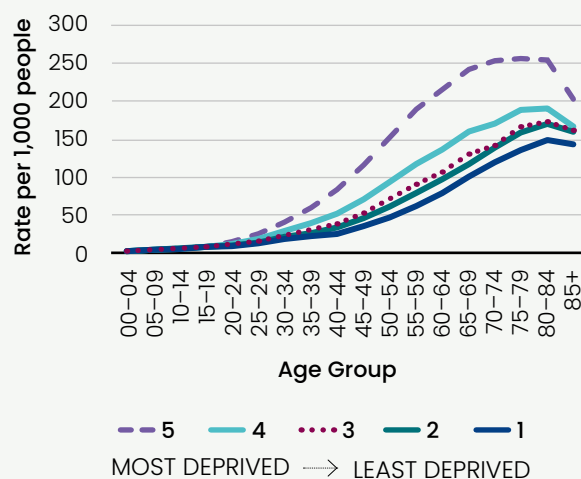
**Figure 95: Estimated rate of diabetes per 1,000 people by age group and ethnicity, 2021**



Source: Ministry of Health  
Virtual Diabetes Register, 2021

The estimated rate of diabetes also increases with increasing deprivation. When also considered by age group, the estimated rate of diabetes peaks in quintile 1 among 80 to 84 year olds at a rate of 150 per 1,000 people, and in quintile 5 among 75-79 year olds at a rate of 260 per 1,000 people.

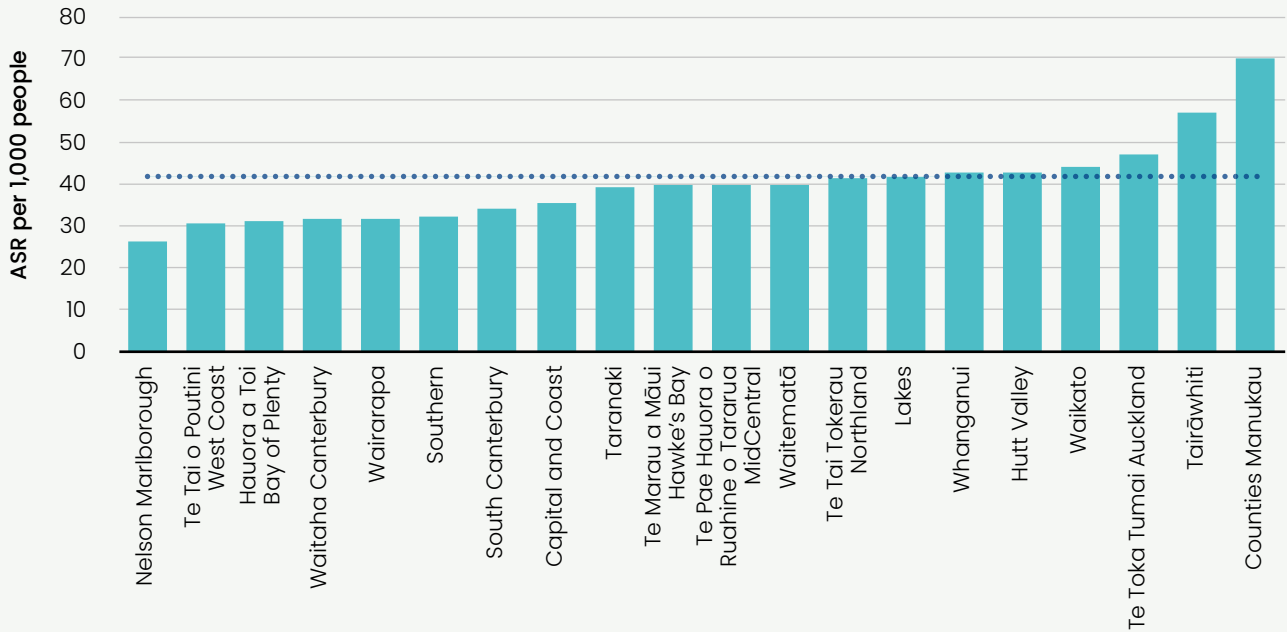
**Figure 96: Estimated rate of diabetes prevalence per 1,000 people by age group and deprivation quintile, 2021**



Source: Ministry of Health  
Virtual Diabetes Register, 2021

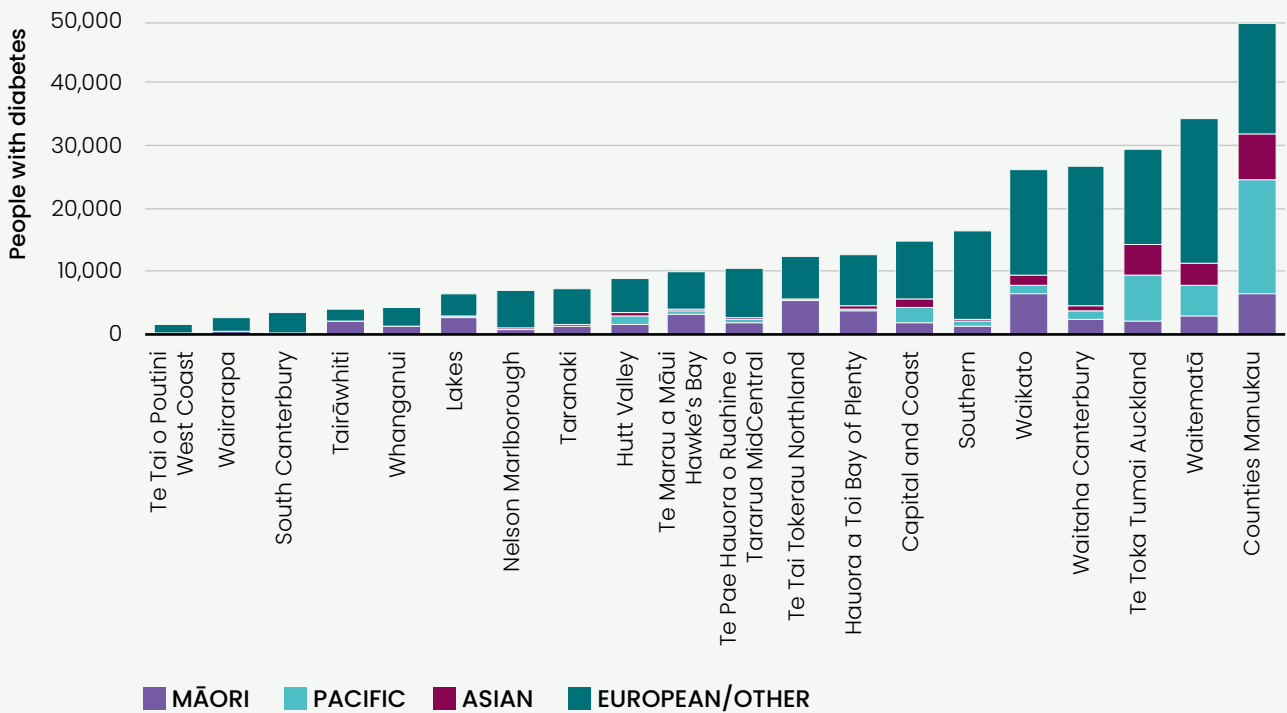
The rate of diabetes in the population varies across districts, with the age-standardised rate ranging from 26 to 70 per 1,000 people. Counties Manukau is home to 17% of the total people with diabetes in Aotearoa New Zealand (50,000 people), disproportionate to its share of total population (12%).

Figure 97: Age-standardised rate of diabetes per 1,000 people by district, 2021



Source: Ministry of Health Virtual Diabetes Register, 2021

Figure 98: Number of people with diabetes by district, 2021



Source: Ministry of Health Virtual Diabetes Register, 2021

The presence of diabetes can lead to cardiovascular disease, blindness, dementia, kidney disease, nerve damage and foot disease. Early detection and good management of blood sugar, blood pressure and lipids can delay or avoid the onset of these problems. It is estimated that around 13% of people with diabetes do not have regular HbA1c monitoring, but this rises to almost one in four of those aged under 45 years (Atlas of Healthcare Variation 2019). Although Aotearoa New Zealand has the VDR, international evidence indicates that countries with formal national diabetes registries of patients with confirmed diagnoses of diabetes have improved monitoring and quality of diabetes care such as retinal screening and other diabetes-related health checks.<sup>112</sup>

Type 2 diabetes, which makes up 90% of diabetes, can be managed by diet alone, oral medication, such as metformin, or an injectable medication (insulin). Prescribing rates are therefore only a partial indication of the quality of management. Among people suspected of having diabetes in 2019 who were aged 25 years or older, there was wide variation in the dispensing of metformin and/or insulin across health districts (46%-69%).

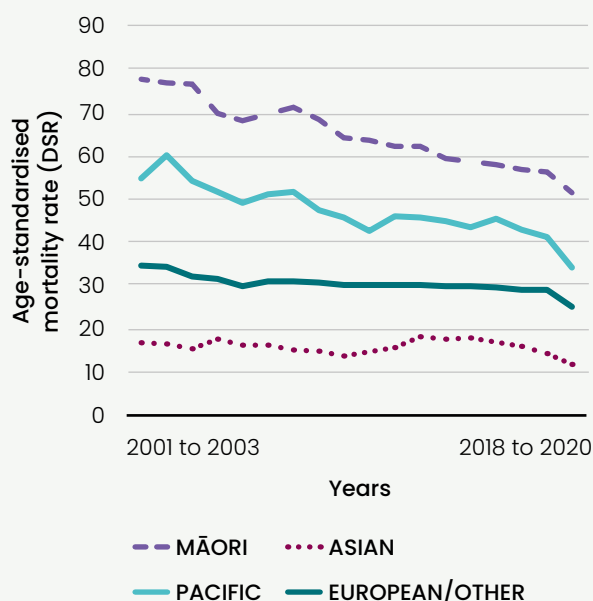
In 2019 there were around 800 admissions per year for diabetic ketoacidosis, 1,000 admissions for hypoglycaemia and 595 people had lower limb amputations as a result of diabetes (Atlas of Healthcare Variation 2019). Admission rates may be an indicator of the quality of management in primary care. Care patterns have been disrupted in the past few years with the COVID-19 pandemic and the ongoing recovery, so it is likely that figures will deteriorate in the short term.

### 6.3.4 Respiratory disease

Respiratory diseases are conditions that impact the lungs and airways. They range from acute infections, such as pneumonia and bronchitis, to chronic conditions, such as asthma and chronic obstructive pulmonary disease (COPD).<sup>113</sup>

The mortality rate (DSR) from respiratory conditions for the Aotearoa New Zealand population is 26.9 per 100,000 population (2018-2020). Age-standardised rates over the 2018-2020 period are higher among Māori (51.2 per 100,000 population) and Pacific people (33.9) and lower in Asian people (11.6) as compared to the European/Other group (25). Over time, mortality from respiratory conditions in Aotearoa New Zealand has decreased for Māori and Pacific people, with rates for Asian and European/Other people remaining largely static until recently.

**Figure 99: Age-standardised mortality rate for respiratory disease per 100,000 population all ages, 2001-03 to 2018-20**



Analysed in 3-year blocks.  
Source: Ministry of Health Mortality data collection



While rates for Māori and Pacific people remain significantly higher than for other ethnicities, the gap between these and European/Other people is reducing.

By region, Te Manawa Taki has the highest overall DSR in 2018–2020 for respiratory mortality (29.7 per 100,000 population). The Northern region has the highest rate for Māori (56.3 per 100,000 population) and Te Manawa Taki has the highest rate for Pacific people (40.6 per 100,000 population). The lowest rates for both Māori and Pacific people are in the Te Waipounamu region (35.2 and 24.8 per 100,000 population respectively). Rates for Asian people are much lower across all four regions.

Acute respiratory hospitalisation rates reduced significantly over the COVID-19 lockdown periods (2020 and 2021), but have risen again in 2022, though they have not returned to pre-COVID-19 levels. Age standardised rates per 1,000 population are highest for Pacific people (31) and Māori (24) with much lower rates for European/Other (8) and Asian (5) populations. Rates are similar

across Northern, Te Manawa Taki and Central regions, but slightly lower in Te Waipounamu. This is largely true by ethnicity also, though for Pacific people, rates are higher in the Northern and Central regions.

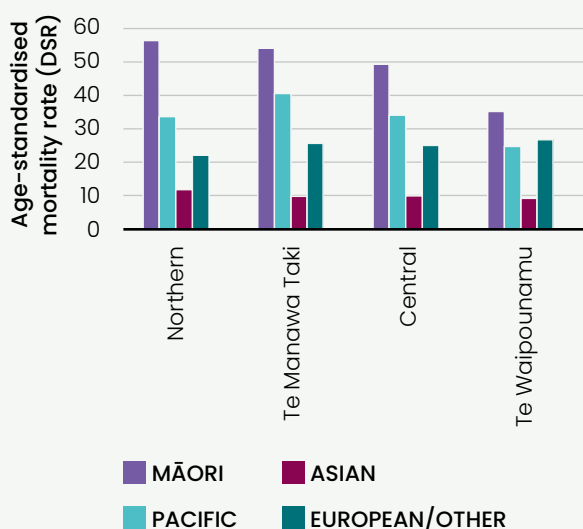
### Asthma

Asthma is a chronic condition of the small airways inside the lungs. The airways can become oversensitive and narrow, causing reversible airway blockage. This is usually managed through a combination of acute treatment 'reliever' medications, and longer-term prevention medications. Asthma affects an estimated 14.0% of New Zealand children aged 0 to 14, and 11.9% of adults aged 15 years and over (NZHS 2017–2020). For adults, Pacific people and European/Other people had similar rates, while Māori were higher at 17.3% and Asian people lower at 5.3%. For children a similar pattern held, with 20.3% of Māori children estimated to have asthma.

Medication dispensing for asthma among Māori in Aotearoa New Zealand (38%) is higher than the country's overall rate (26%) reported by the NZ Health Survey 2017–20. By district, South Canterbury has the highest dispensing proportion for Māori (59% of people with asthma), with the highest Pacific people's proportion observed in the Te Tai Tokerau Northland district (49%).

Across the country, age standardised rates (ASR) for asthma hospitalisation have declined over time. In 2022, ASRs for asthma hospitalisation among Māori and Pacific people (260 and 253 per 100,000 population respectively) are more than three times that of Asian people (80) and more than twice that of European/Other people (105). By region, asthma hospitalisation rates are highest in Te Manawa Taki and lowest in Te Waipounamu for all ethnic groups except Asian people where the lowest rates are observed in the Central region.

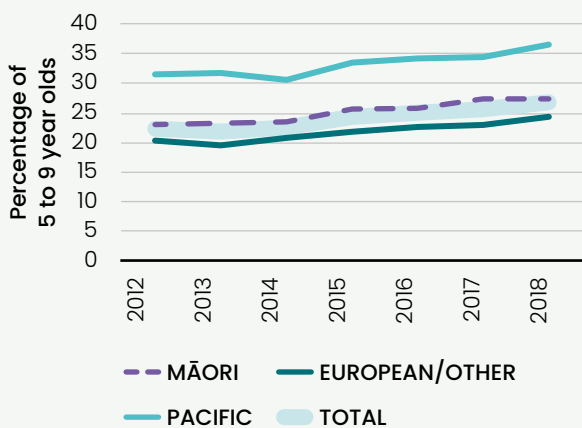
**Figure 100: Age-standardised respiratory mortality rate per 100,000 by region, all ages (2018–2020 combined)**



Source: Ministry of Health Mortality data collection

Among children aged 0–14 years admitted to hospital with a primary diagnosis of asthma or wheeze\* in 2018 (Atlas of Healthcare Variation), Pacific rates were the highest of all ethnic groups (11.8 per 1,000 people). By district, total rates (i.e. across all ethnic groups) and ethnic-specific rates were highest in the Te Toka Tumai Auckland district where rates were higher among Pacific children (19.2 per 1,000 population) and Māori children (11.3) as compared to European/Other children (7.3). Across the country, children aged 0 to 4 years are at least three times more likely to be admitted to hospital due to wheeze than all other age groups. Pacific children aged 5 to 9 years have higher rates over time of being regularly dispensed a short-acting beta agonist (reliever) medication (SABA – a bronchodilator) but not being dispensed a preventer than their Māori and European/Other counterparts. Rates of this marker of poor-quality prescribing have been progressively deteriorating since 2012 and, by district, are highest in Counties Manukau (across all ethnic groups).

**Figure 101: Proportion of 5 to 9 year-olds regularly dispensed SABA and not dispensed preventer in the year by ethnicity, 2012–2018**

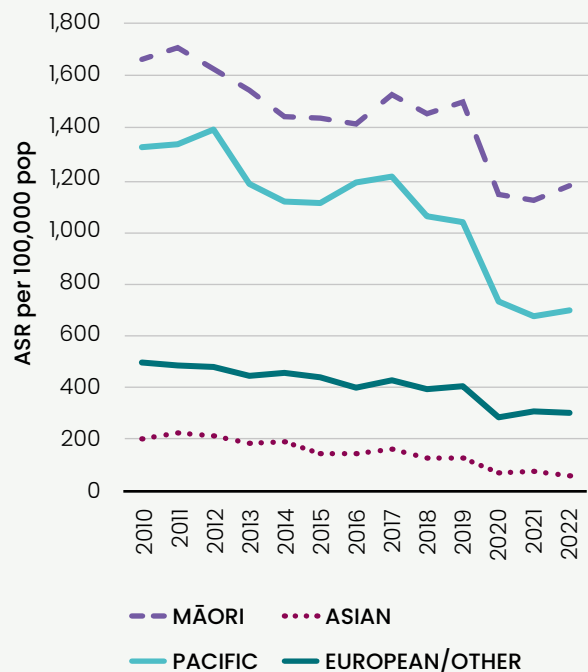


Source: Atlas of Healthcare Variation – HQSC 2018

## Chronic obstructive pulmonary disease (COPD)

Chronic obstructive pulmonary disease (COPD) refers to a group of diseases like bronchitis and emphysema that cause airflow blockage and breathing-related problems. The main cause of COPD is past tobacco smoking. The burden of COPD is inequitably borne by Māori and Pacific people across Aotearoa New Zealand. Age-standardised hospitalisation rates per 100,000 for Māori are 1,170, nearly four times as high as those of European/Other people (300 per 100,000 population). Age standardised rates are also high for Pacific people at 690 per 100,000, and low for Asian people at 54 per 100,000. By region, rates for Māori are highest in the Central and Te Manawa Taki regions and for Pacific people in the Northern region.

**Figure 102: COPD hospitalisations (ASR per 100,000) by ethnicity, 2010–2022**



Source: NMDS

\*Asthma is not generally diagnosed in those under 5 years old, primarily diagnosed as ‘wheeze’ in this age group and usually of viral origin. Treatment for pre-school wheeze differs from asthma treatment.

## 6.4 People with cancer

Cancer is an abnormal growth of cells that can result in the invasion of normal tissues, which may spread to other parts of the body (metastasis).

The main risk factors for cancer are tobacco use, high body mass index, physical inactivity, alcohol use, low fruit and vegetable intake, and unsafe sex. For melanoma, sun exposure is also important. Overall, around 30–35% of the burden of cancer is attributed to exposure to modifiable risk factors, and is preventable through adopting a healthier lifestyle, and manageable with healthy life changes, vaccination, early intervention and effective management.

In 2019, the people of Aotearoa New Zealand lost the equivalent of over 220,000 years of life in full health due to cancer, making it the leading cause of health loss. By addressing modifiable risk factor exposure, we could prevent:

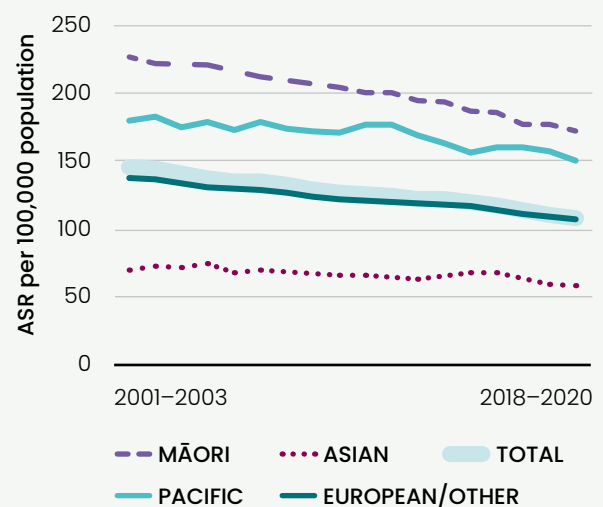
- around 75% of health loss from lung cancer, mainly from reducing smoking
- 50% of health loss from uterine cancer by reducing high body mass index (BMI)
- 65% of health loss from bowel cancer by reducing dietary risks, alcohol use, high BMI, smoking and physical inactivity.<sup>115</sup>

When looking at behaviours such as smoking, alcohol use and poor nutrition, it is important to consider the major role of environmental factors such as access to healthy/unhealthy food options, relative cost of fruit and vegetables, differential exposure to social determinants, advertising, or opportunity for physical activity, access to green space, all of which heavily shape actions and decisions. See [Pūrongo Ārai Mate Pukupuku- Cancer Prevention Report](#)<sup>115</sup> for more detail.

### 6.4.1 Cancer mortality

Cancer is the most common cause of death in Aotearoa New Zealand, accounting for 31% of deaths (10,100 deaths in 2020). The age-standardised mortality rate from cancer for 2020 is 110 per 100,000 population (women 97, men 125). The age-standardised mortality rates for Māori and Pacific people (165 and 146 per 100,000 population) are substantially higher than those for European/Other people (106), while Asian people have the lowest rate at 59 (Source: Health New Zealand | Te Whatu Ora Cancer web tool). There is some evidence that Pacific people's deaths are not all registered in Aotearoa New Zealand and the data shown in Figure 103 may be underestimating Pacific people's mortality.

**Figure 103: Age-standardised mortality rate per 100,000 population for all cancers by ethnicity, three-year rolling average, 2001-03 to 2018-20**

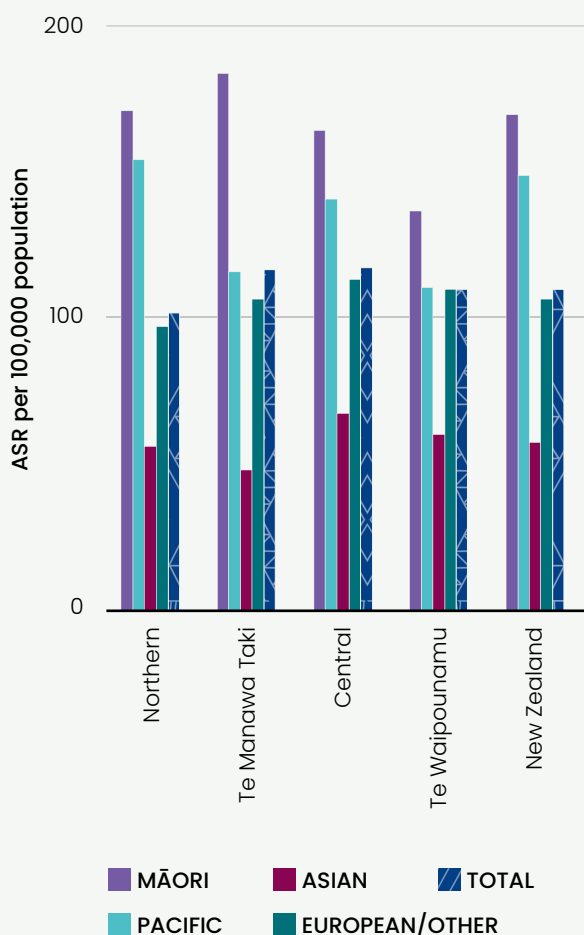


Source: Ministry of Health Mortality data collection; ICD codes C00-C96, D45-D47

Mortality rates from cancer are higher in Te Manawa Taki and Central regions (118 per 100,000 population) than in Te Waipounamu (111), with the lowest rate being in Northern region (103).

Almost half (47%) of cancer deaths are caused by lung, colorectal, breast, prostate cancer and melanoma. Half of all cancer deaths (49%) occur in people under 75 years of age; almost two in three (63%) of those dying of breast cancer are under 75 years of age, and 75% of those dying of brain cancer are under 75 years of age.

**Figure 104: Age-standardised mortality rate per 100,000 population for all cancers by region and ethnicity, 2018-2020 combined**



Source: Ministry of Health Mortality data collection; ICD codes C00-C96, D45-D47

The most significant causes of cancer deaths are trachea, bronchus and lung cancer (19.7 per 100,000 population), colon, rectal and sigmoidal junction cancer (13.6 per 100,000), breast cancer (14.6 per 100,000 women) and prostate cancer (15 per 100,000 men). The lung cancer mortality rates for Māori women and men (57 and 54 per 100,000 population) are more than double the European/Other people rates (19 and 16 respectively; 2016-2020). Māori develop lung cancer 6-8 years earlier than non-Māori potentially due to higher exposure to smoking. While smoking rates in Māori women are reducing, there will likely be a higher death rate from the disease for some time due to the historical exposure to tobacco.

**Table 11: Most common cancer deaths, number and age-standardised mortality rate by ethnicity, 2016-2020**

CANCER TYPE	AVERAGE DEATHS PER YEAR 2016-2020				
	MĀORI	PACIFIC	ASIAN	EURO/OTHER	TOTAL
Lung	372	88	74	1,252	1,786
Colorectal	85	33	40	1,077	1,234
Prostate	55	23	13	591	681
Breast	81	37	30	527	675
Pancreas	63	21	27	450	561
Other	492	201	192	3,923	4,809
<b>Total</b>	<b>1,148</b>	<b>403</b>	<b>377</b>	<b>7,819</b>	<b>9,747</b>
	<b>AGE-STANDARDISED MORTALITY RATE PER 100,000 POPULATION 2016-2020</b>				
Lung	55.8	33.1	11.8	17.5	
Colorectal	13.0	12.1	6.3	14.8	
Prostate	9.7	9.4	2.3	6.8	
Breast	11.8	13.2	4.3	8.5	
Pancreas	9.8	7.8	4.3	6.4	

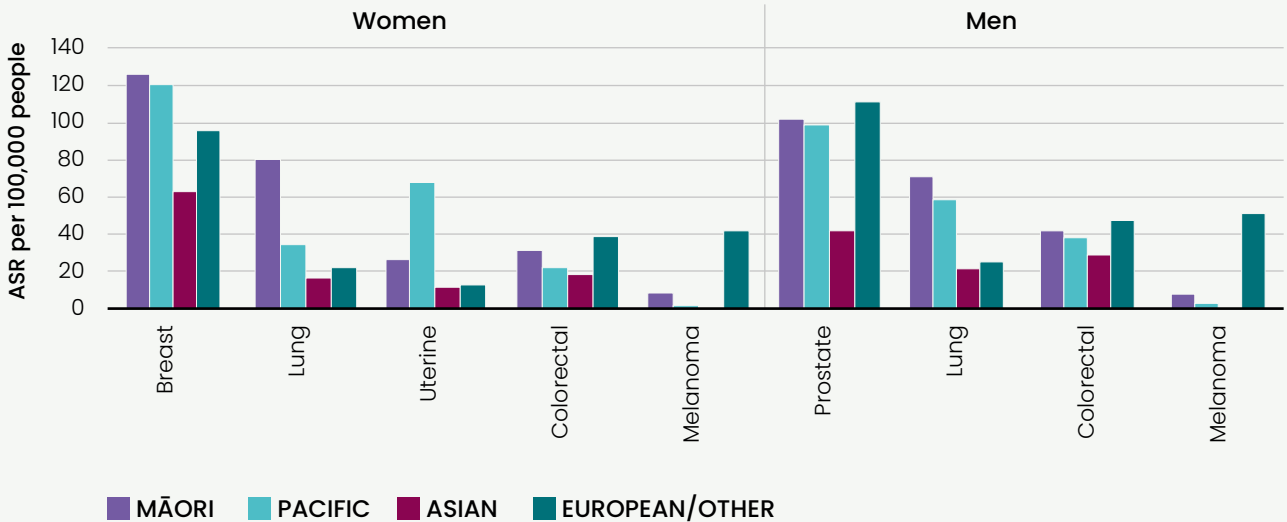
Source: Ministry of Health Mortality data collection

## 6.4.2 Cancer registrations

In 2020, 27,000 people were diagnosed with cancer in Aotearoa New Zealand, some of whom had more than one cancer. The age-standardised rate of cancers registered in 2020 was 313 per year per 100,000 female population and 367 per 100,000 male population. The most commonly registered cancers were breast, prostate, colorectal, melanoma and lung. Within these total

figures, Māori and Pacific people have higher rates of lung and breast cancer but very low rates of melanoma, compared with European/Other people. Asian people have generally low rates of cancer registration except for lung cancer, where the rate is similar to European/Other people. Pacific women have high rates of uterine cancer. Cancer hospitalisation rates tend to mirror the pattern for mortality.

**Figure 105: Most common cancers: registration rates per 100,000 population by ethnicity, 2016–20 combined**



Source: NZ Cancer Registry

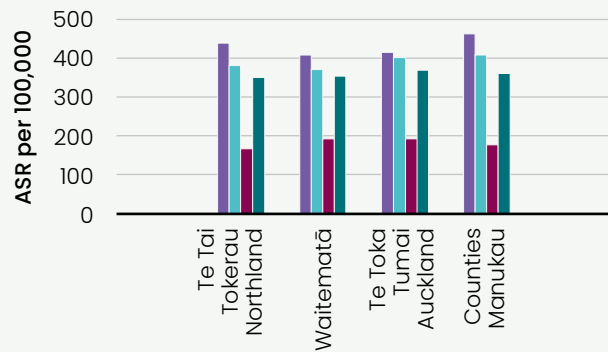
## Cancer diagnosis/registration by region

Overall, the rate of cancer registration is similar across the North Island regions with the South Island/Te Waipounamu on average lower than that of the north. Generally, we see that cancer registration rates are consistently higher among Māori when compared to European/Other people.

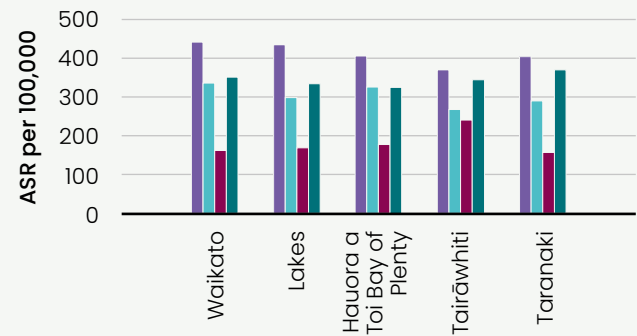
**Figure 106: Cancer registration rates 2016–20 by ethnicity and district (age-standardised rate per 100,000 population)**

■ MĀORI ■ PACIFIC ■ ASIAN ■ EUROPEAN/OTHER

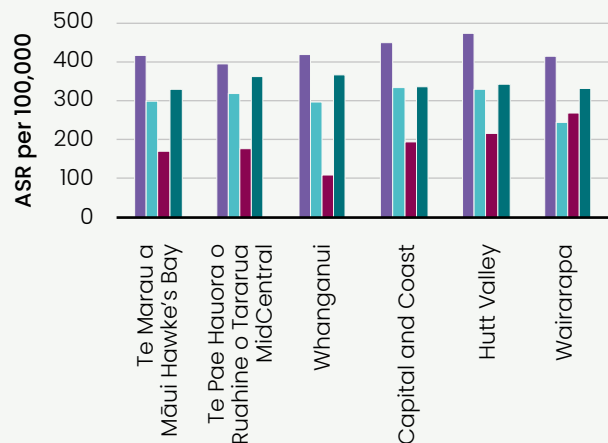
### Northern



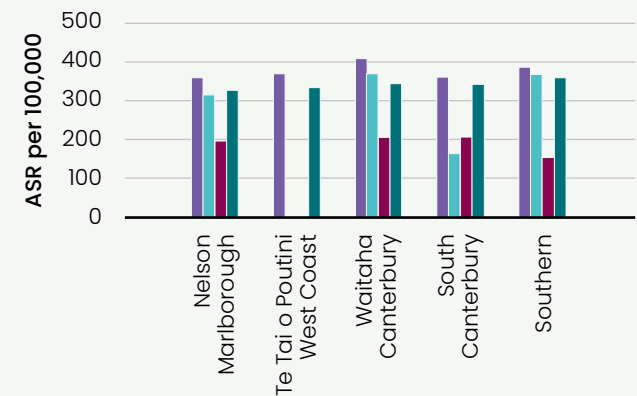
### Te Manawa Taki



### Central



### Te Waipounamu



Source: NZ Cancer Registry



### 6.4.3 Cancer survival

The five-year net survival rate for cancer is 61% but this varies from 90% for melanoma to 12% for lung cancer. Across most cancers, Māori have a lower five-year survival rate than non-Māori.

### 6.4.4 Cancer screening

Rapid diagnosis and treatment of cancer increases the options for treatment and the chances of survival. In Aotearoa New Zealand we undertake routine screening for cervical, breast and bowel cancers.

Cervical screening is offered every three years. The coverage target is for 80% of the eligible population to be screened. Current total population coverage is 68% of eligible women (25 to 69 year olds). Coverage varies by ethnicity: 55% for Māori, 56% for Pacific, 59% for Asian and 75% for European/Other women.

Breast screening is offered every two years with a coverage target of 70%. Current total population coverage is 64% of eligible women (45 to 69 year olds). Māori women have a lower rate at 59% (National Screening Unit (NSU), March 2023).

Bowel screening is offered every two years with a coverage target of 60%. Current total population coverage is 57% of eligible people (60 to 74 year olds). Coverage is lower for Pacific people (38%), Māori (48%) and Asian (47%) than for European/Other people (57%) (NSU, March 2023). Programme pauses, reduced healthcare access and restrictions due to COVID-19 over the past three years have meant that screening rates are down slightly on pre-COVID-19 levels.

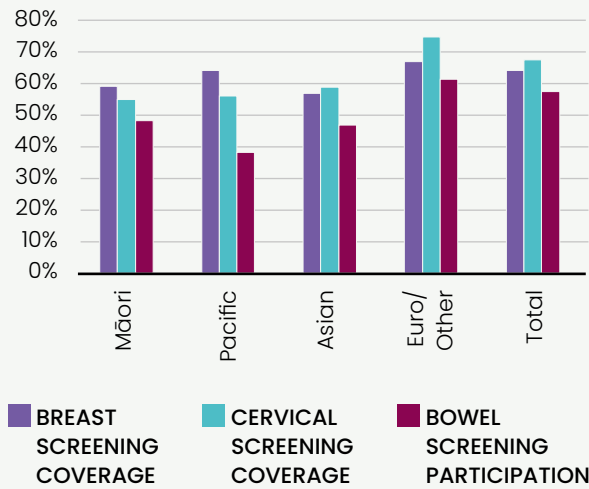
Screening rates vary between districts with Counties Manukau, Northland and Whanganui having the lowest cervical screening rates (60-63%), and Waikato, Auckland and Tairāwhiti having the lowest breast screening rates (55-58%). Auckland and Counties Manukau districts have the lowest bowel screening rates (48% in each), while Nelson Marlborough, South Canterbury and Southern districts had 68% participation. The bowel screening programme rolled out to districts over several years with the final district commencing screening in June 2022. Those districts starting later will have lower screening rates and this may impact on overall figures.

**Table 12: Most common causes of cancer registrations by ethnicity, five years 2016–2020 and five-year net survival rates for 2013/14 registrations**

CANCER TYPE	AVERAGE REGISTRATIONS PER YEAR 2016–2020				FIVE-YEAR NET SURVIVAL RATE			AVERAGE DEATHS PER YEAR 2016–2020
	ALL	MĀORI	PACIFIC	NON-MĀORI NON-PACIFIC	ALL	MĀORI	NON-MĀORI	ALL
Prostate	3,961	322	128	3,511	87%	85%	87%	681
Breast	3,441	481	186	2,774	85%	83%	85%	675
Colorectal	3,229	246	84	2,898	61%	53%	61%	1,234
Melanoma	2,648	57	7	2,585	90%	89%	90%	320
Lung	2,384	511	122	1,751	12%	9%	13%	1,786
Other	10,163	1,292	563	8,308				5,051
<b>Total</b>	<b>25,826</b>	<b>2,909</b>	<b>1,090</b>	<b>21,827</b>	<b>61%</b>	<b>51%</b>	<b>62%</b>	<b>9,747</b>

Source: NZ Cancer Registry, NZ Mortality data collection using the cohort method, ethnic specific life tables and Pohar Perme

Figure 107: Women up-to-date with breast and cervical screening and proportion of people participating in bowel screening by ethnicity, as at March 2023



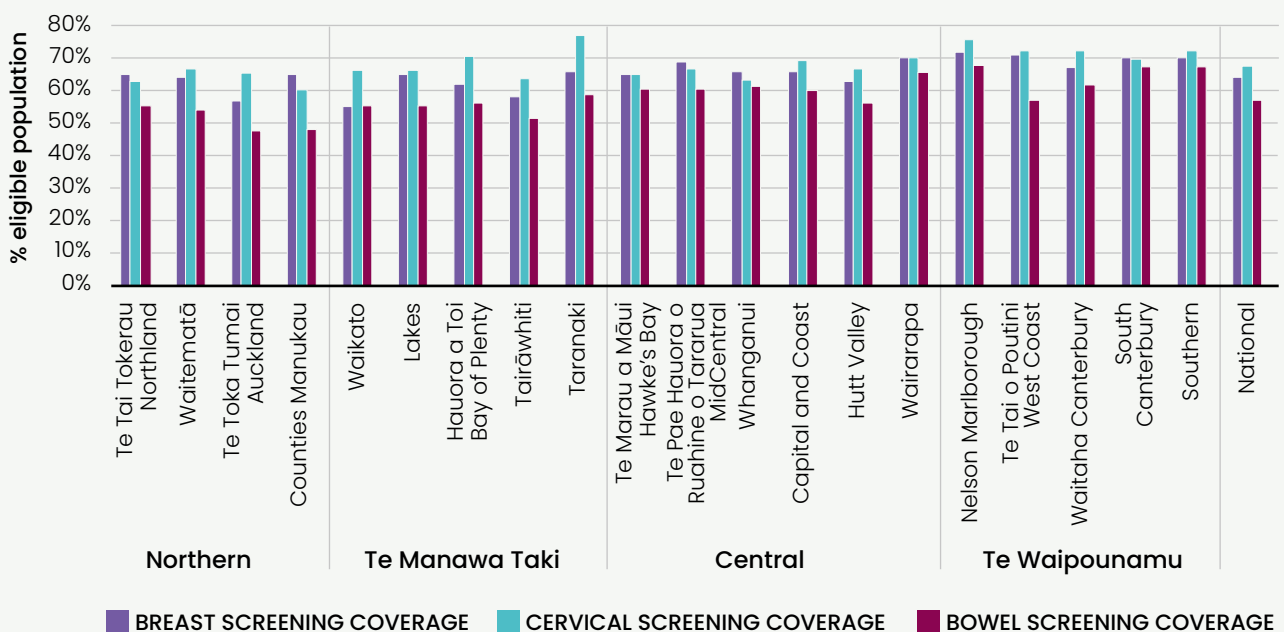
Source: NSU

### 6.4.5 Cancer hospitalisations and treatment

There has been some decline in age standardised hospitalisation rates for cancer over the last 12 years for all ethnicities except Asian people – who have the lowest rates. This is most pronounced for European/Other ethnicities. Rates for Pacific people and Māori remain the highest and the gap has widened over the last few years between Māori and Pacific people and European/Other ethnicities. Age standardised rates are highest in Te Manawa Taki (700 per 100,000 population) and lowest in Te Waipounamu (620 per 100,000 population).

To support continued improvement in services and waiting times for people with cancer, accessing faster cancer treatment is a key priority. As at June 2022, 84% of cancer patients had waited less than 62 days for treatment or other care to commence, compared with the target of 90% ([Faster cancer treatment and shorter stays in emergency department | Ministry of Health NZ](#)).

Figure 108: % coverage for breast, cervical and bowel screening by district, as at March 2023



Source: NSU

## 6.4.6 Infections and cancer

Globally it is estimated that infections cause at least 12% of all cancers.

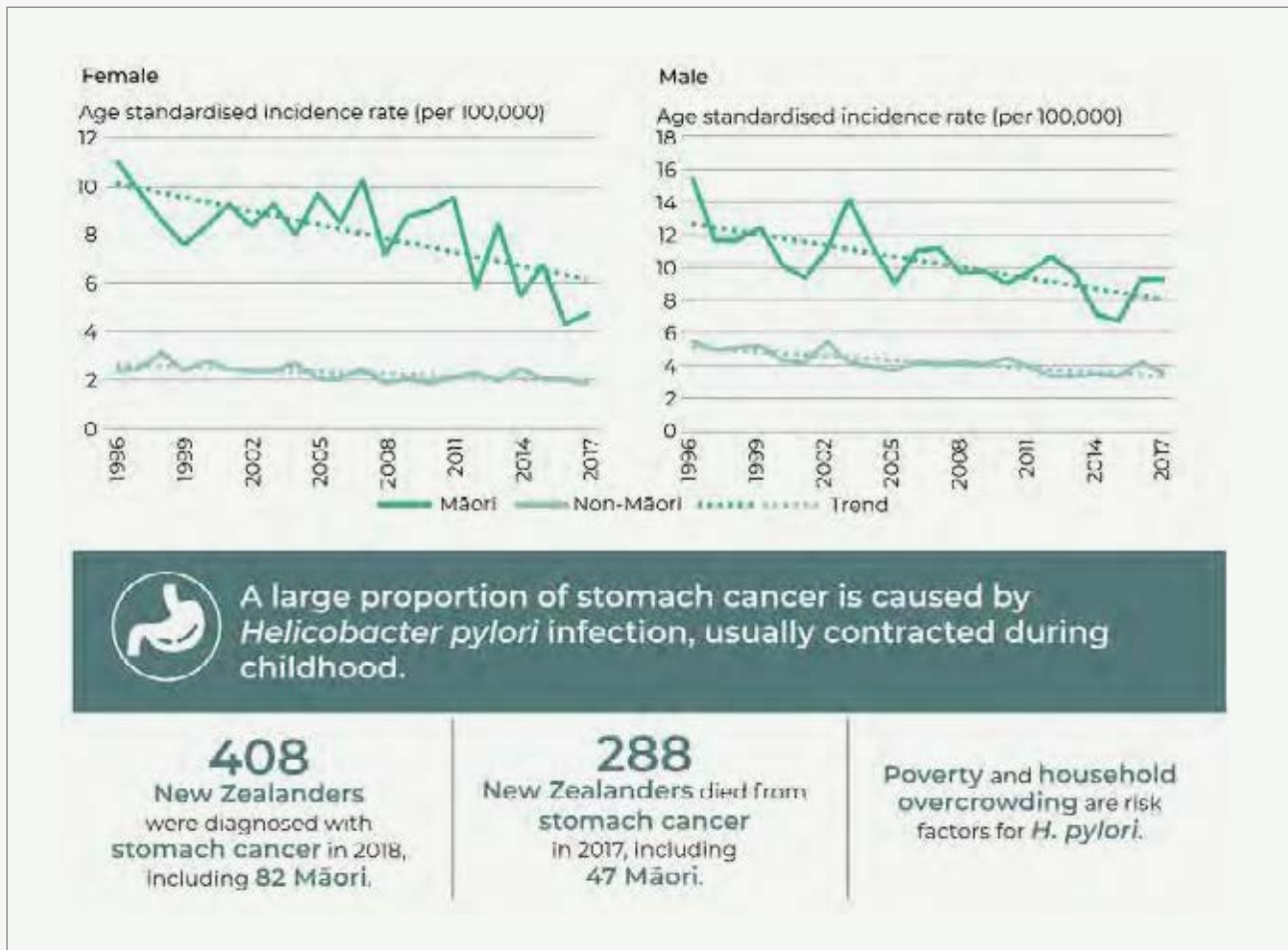
Four types of infections in particular – *Helicobacter pylori* (*H. pylori*), human papillomavirus (HPV), and hepatitis B and hepatitis C viruses – account for 90% of all infection-related cancers. Most people who get these infections do not develop cancer. However, cancer can develop if the infection remains in the body for a long period of

time (chronic infections) and is not cleared by the immune system or if exposure to other risk factors such as alcohol and smoking are present.

Infection with human immunodeficiency virus (HIV) also increases the risk of several cancers (including Kaposi sarcoma, certain lymphomas, cervical cancer, lung cancer, liver cancer and non-melanoma skin cancer). Cancers associated with HIV are also linked to co-infection with HPV, hepatitis B and hepatitis C.<sup>15</sup>

### H pylori

Figure 109: Incidence of stomach cancer for Māori and non-Māori females and males, 1996–2017\*

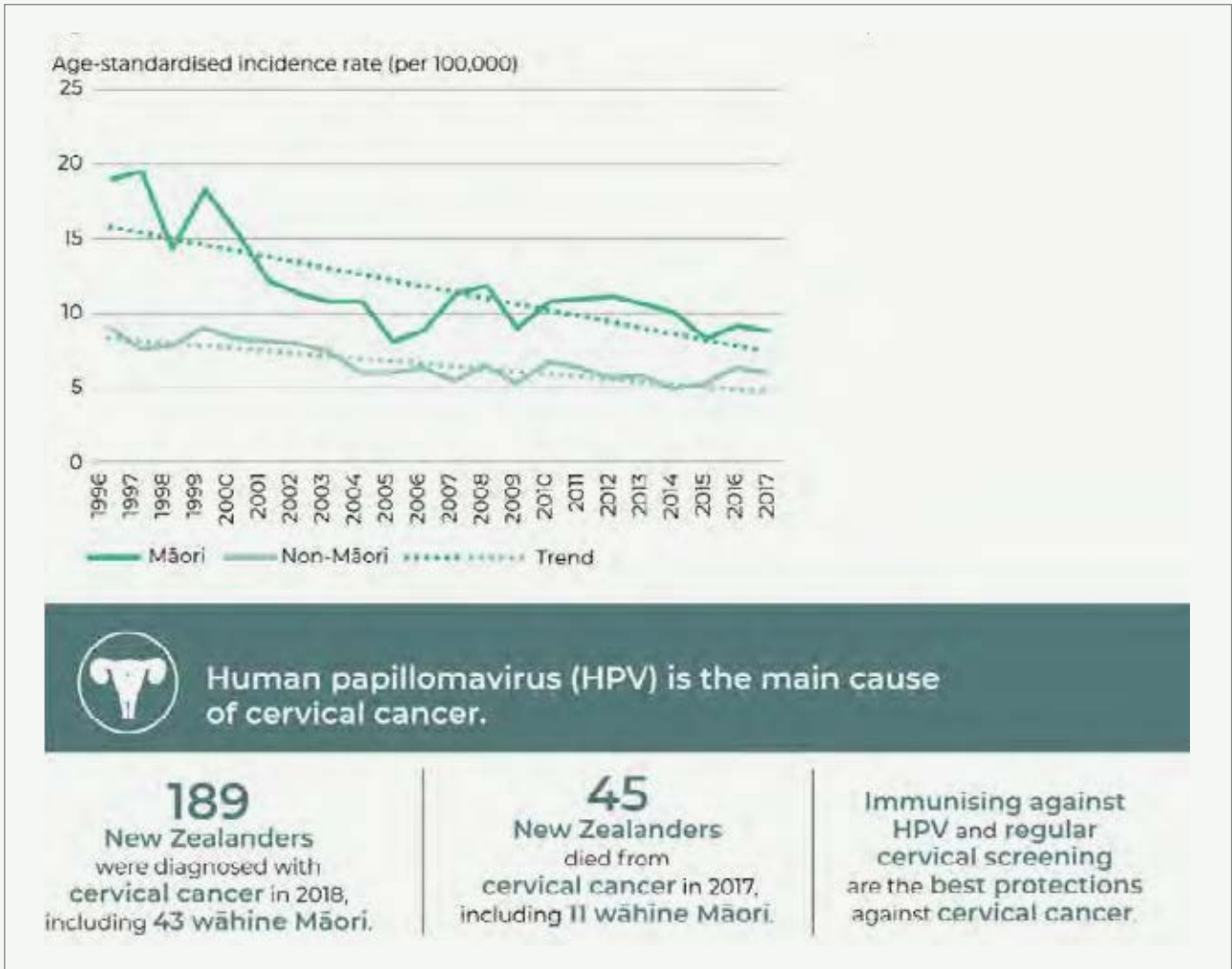


\*Age- and gender-standardised to 2001 Māori census population

Source: <https://teaho.govt.nz/reports/prevention-report>

## Human papillomavirus

Figure 110: Incidence of cervical cancer for Māori and non-Māori, 1996-2017\*



\*Age- and gender-standardised to 2001 Māori census population

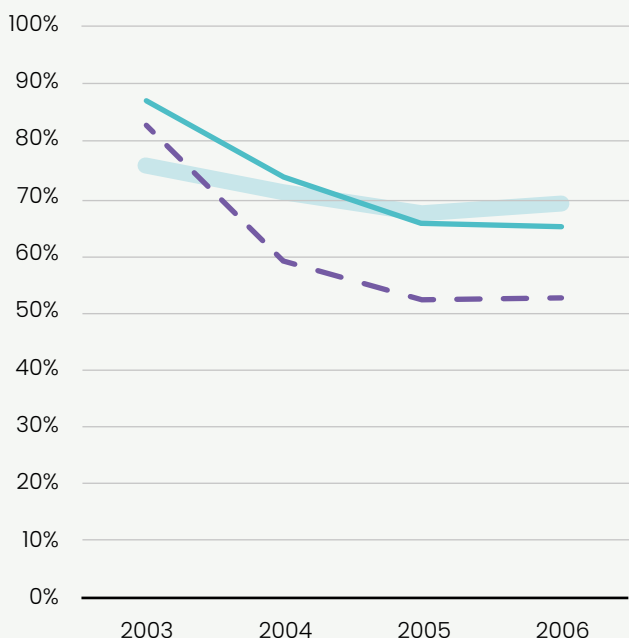
Source: <https://teaho.govt.nz/reports/prevention-report>

HPV immunisation has been available for girls since 2008 and for boys since 2017. Currently, recommended levels of vaccine coverage (75%) have not been achieved for any ethnic group. 69% of girls and 70% of boys born in 2006 have completed their course of HPV vaccines.

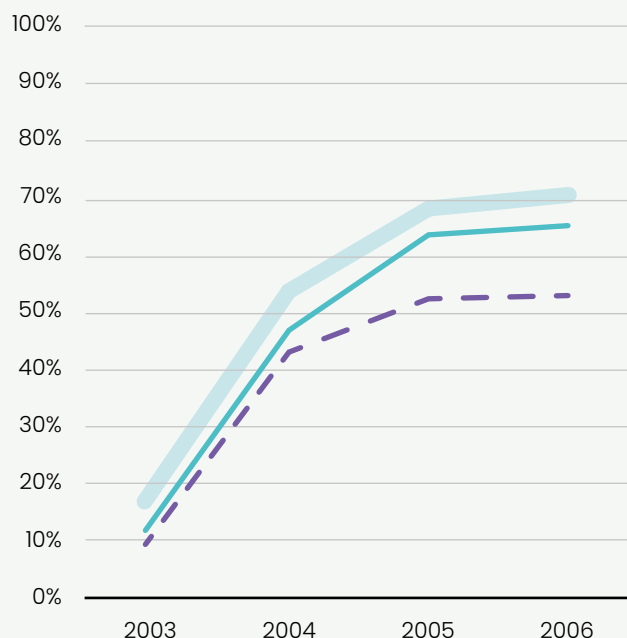
Note: the recommended course of treatment has changed over time – initially a course of three doses was recommended; this has now reduced to two doses and may reduce to one dose in future.

**Figure III: HPV coverage of girls and boys**  
by 2003–2006 birth cohorts and ethnicity, as at July 2020

**Females**



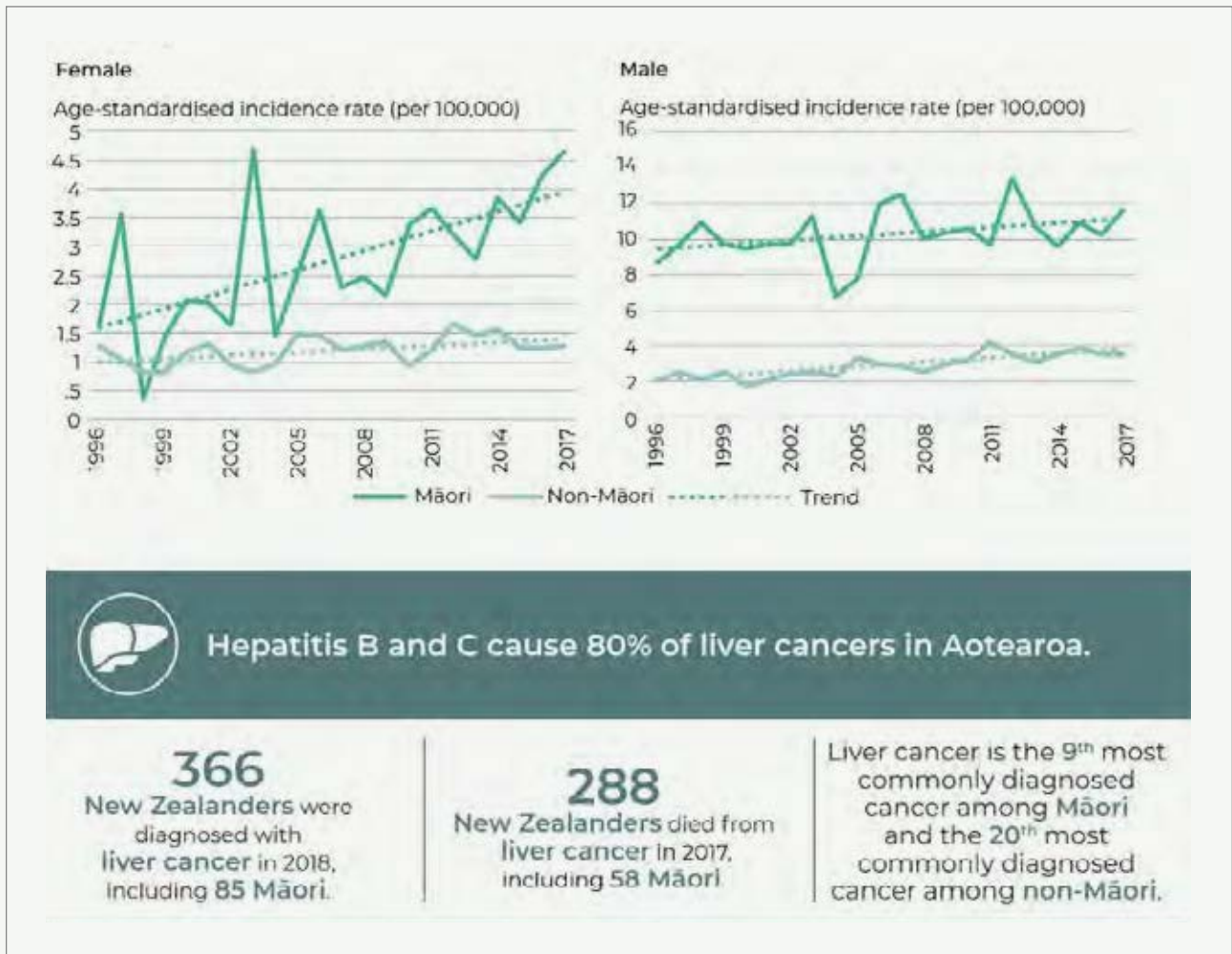
**Males**



--- MĀORI    — PACIFIC    — TOTAL

Source: <https://techo.govt.nz/reports/prevention-report>

Figure 112: Incidence of liver cancer for Māori and non-Māori females and males, 1996–2017\*



\*Age- and gender-standardised to 2001 Māori census population. Note the female and male graphs have different axis scales

Source: <https://techo.govt.nz/reports/prevention-report>

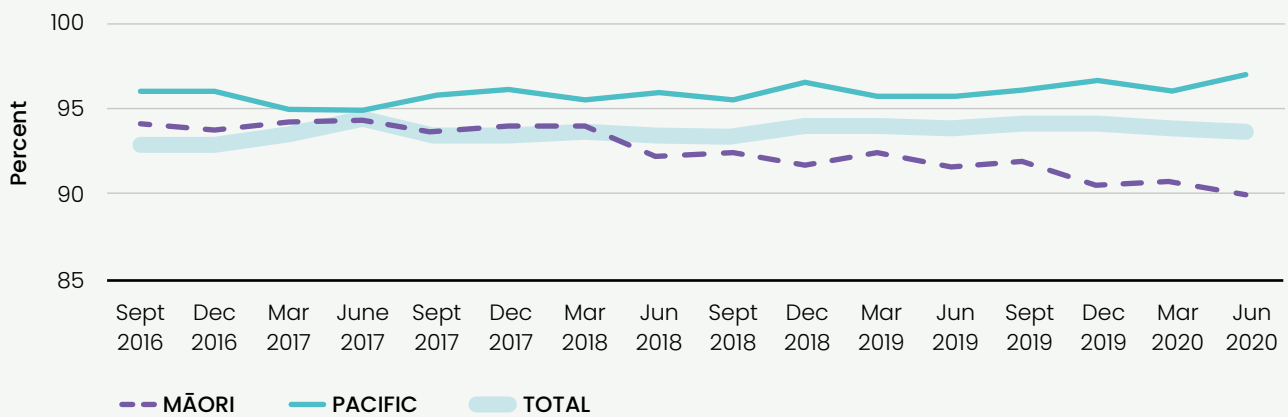


## Hepatitis B and C

Not everyone who is infected with hepatitis B or hepatitis C will develop a chronic infection. For hepatitis B, the younger people are when they are infected, the higher the risk that it will become chronic. For example, more than 30% of infected babies and young children develop chronic hepatitis B but only 5% of adults do. There is an effective vaccine for hepatitis B (providing lifelong immunity in 95% of people), but no vaccine for hepatitis C. In Aotearoa New Zealand, hepatitis B vaccination coverage is highest for Pacific people at 97%, compared with 93% for the total population and 90% for Māori. Coverage has been declining steadily for Māori since 2018.

Acute hepatitis B and C are notifiable; however, there is no active population surveillance for chronic hepatitis B and hepatitis C infections. Chronic hepatitis C can result in liver cancer if untreated. An estimated 100,000 people in Aotearoa New Zealand are living with chronic hepatitis B and 45,000 with chronic hepatitis C. As many infections are asymptomatic, it is estimated that at least 40% of people with chronic hepatitis B or C do not know they are infected. This equates to approximately 40,000 people with chronic hepatitis B and 18,000 people with chronic hepatitis C. There are currently highly effective treatments available for hepatitis C which can potentially cure 98% of people with chronic hepatitis C.<sup>115</sup>

**Figure 113: Hepatitis B vaccination coverage at two years of age by ethnicity, September 2016–June 2020<sup>38</sup>**



Source: <https://teaho.govt.nz/reports/prevention-report>

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## 6.5 People living with mental distress, illness and addictions

Mental illness and addictions are leading causes of disability and overall health loss both globally and nationally, and it is likely that the COVID-19 pandemic is further impacting this burden.

In Aotearoa New Zealand growing levels of mental distress and need observed prior to the pandemic led to a Governmental Inquiry into Mental Health and Addiction, undertaken in 2018 (He Ara Oranga Report<sup>116</sup>). Oranga Hinengaro now has been identified as a priority area in the Te Pae Tata interim New Zealand Health Plan 2022.<sup>4</sup>

A mental disorder, according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), is a syndrome characterised by clinically significant disturbance in cognition, emotional regulation or behaviour reflecting an impairment in mental functioning. This encompasses an array of mental health conditions, including depression, anxiety disorders, schizophrenia and psychosis, dementia, intellectual disabilities and developmental disorders, including autism.

The term 'addiction' refers to a wide range of harms arising from alcohol or other substance use, or from gambling.

The term mental distress refers to the experience of thoughts, feelings and behaviours that may have similar symptoms to that of a mental disorder, whether they are medically diagnosed or not. Traditional labels such as depression, anxiety and mental illness may not capture the true extent of mental distress and poor wellbeing experienced by people. Moving beyond such terminology may also help reduce stigma and make it easier for people experiencing distress to talk about their difficulties.<sup>117</sup>

Following the 2018 Government Inquiry into Mental Health and Addiction and the 2021 publication of 'Kia Manawa Aotearoa: Long-term pathway to mental wellbeing'<sup>118</sup> there is a shift in focus from mental disorders towards one of attaining mental health or wellbeing, defined by the World Health

Organization (WHO) as more than the absence of mental disorders, and rather a state of mental wellbeing that enables people to cope with the stresses of life, realise their abilities, learn and work well, and contribute to their community.

### 6.5.1 The burden of mental distress, illness and addictions

Mental and addictive disorders cause significant burden – 11.1% of all burden of disease in 2019 as measured in disability-adjusted life years (DALYs), and 21% of all years lived with disability in Aotearoa New Zealand, with depressive and anxiety disorders among the leading causes of DALYs worldwide.<sup>119</sup> While mental illness already imposed a substantial burden before the COVID-19 pandemic, data are emerging post-pandemic to suggest a synergistic global mental illness epidemic.

According to the WHO, the global prevalence of anxiety and depression grew by 25% during the first year of the pandemic. Women, young people and those with pre-existing physical health conditions appear to have been most severely impacted. The direct psychological effects of the pandemic and the long-term impacts on the economic and social circumstances of a population might increase the prevalence of common mental disorders beyond the end of the COVID-19 pandemic itself.

Over half of the people living in Aotearoa New Zealand will experience mental distress and addiction challenges at some point in their lives.<sup>117</sup> Nationally, one in five people experienced some kind of mental illness in the last year and 3% experienced a serious mental illness. Half of those who develop mental health disorders have problems evident by the age of 15 years.

Three out of four people who develop a substance use disorder do so by the age of 24 years.

People diagnosed with a mental disorder have a reduction of life expectancy of approximately 15 years, rising to 20 years for those diagnosed with substance-use disorders. This reduction in life expectancy is attributed to both unnatural causes, particularly suicide, and a wide range of physical conditions including diabetes and cardiovascular disease.<sup>119a</sup> Even when these disorders are recognised, rates of intervention are lower for this population compared with people without mental illness.<sup>120,121</sup>

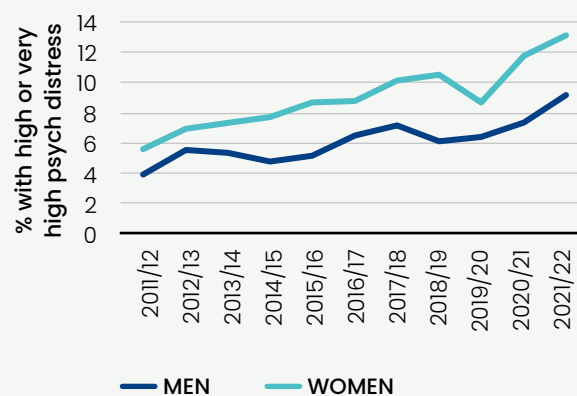
## 6.5.2 Oranga hinengaro in adults

According to the NZ Health Survey 2021/22 almost one in four (24%) adults report that they have ever been diagnosed with a mood or anxiety disorder, with a steady increase from 16.2% in 2011/12. Women reported these conditions at higher rates than men (28% versus 20%). Among disabled people I tangata whaikaha, 39% reported being diagnosed with a mood or anxiety disorder at some time in their lives. The survey found that 11% of adults had high or very high levels of psychological distress (a score of 12 or more on the Kessler Psychological Distress Scale K10). In adults the rate was highest for people aged 25–34, at 15%. The proportion fell with age to 3.1% of those aged 75 years and over. Women were more likely than men to experience high or very high psychological distress (13% versus 9%) and Māori more likely than European/Other people (18% versus 11%). Rates were also higher among disabled people I tangata whaikaha at 33% compared with 9% for non-disabled people, and those living in neighbourhoods that have the most socio-economically deprived NZDep scores.

A further 18% of adults had a moderate level of psychological distress. The proportion of people with psychological distress has been steadily increasing since 2011/12, with a more marked increase in 2020/21 and 2021/22, possibly reflecting the impact of COVID-19.

According to the 2020 New Zealand Health and Lifestyles survey<sup>43</sup> 30.9% of

**Figure 114: Proportion of population with high or very high psychological distress by gender, 2011/12 to 2021/22**



Source: NZHS

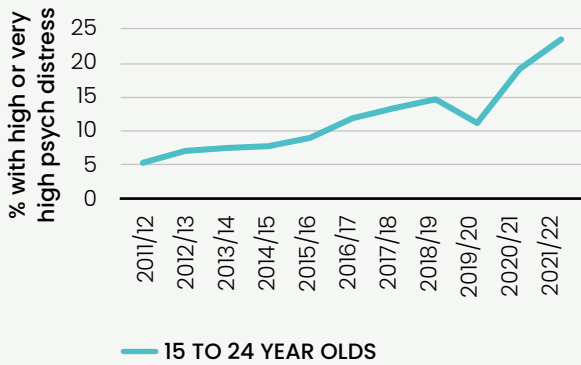
those 16 years and over reported having ever had a personal experience of mental illness, up from a prevalence of 25.9% in 2018. For Māori this was 41.9%, Pacific people 26.6%, Asian 13% and European/Other people 35.3%. The adjusted ratio for women versus men was 1.27, and Māori versus non-Māori was 1.36. One in eight (13%) reported high to very high levels of mental distress.

## 6.5.3 Oranga hinengaro in youth

Rates of mental distress among children and youth are high and increasing.<sup>122</sup> The 2021/22 NZ Health Survey reported almost one in four (23.6%) young people aged 15–24 years experienced high or very high levels of psychological distress in 2021/22, up from 5.1% in 2011/12. The survey found that rates of high or very high psychological distress (a score of 12 or more on the Kessler Psychological Distress Scale K10) were highest in people aged 15–24 years at 24%. Among children aged 2–14 years, 6.3% had been diagnosed with emotional and/or behavioural problems, with boys being more likely to have problems than girls (8.6% versus 3.8%).

The Youth19 Survey conducted in 2019 also reported large declines in adolescent mental health in Aotearoa New Zealand, from relative stability during the period 2001 to 2012.

**Figure 115: Proportion of 15 to 24 year olds with high or very high psychological distress by gender, 2011/12 to 2021/22**



Source: NZHS

This was observed among all demographic groups, especially females, Māori, Pacific people and Asian students, and those from high-deprivation neighbourhoods.

Ethnic and socio-economic disparities have widened.

In 2019 22.8% reported clinically significant depression symptoms (up from 13% in 2012) and 41.8% reported possible anxiety symptoms. Past-year prevalence of periods of low mood was 38.3%, deliberate self-harm 24.1%, suicide thoughts 20.8% and suicide attempts 6.3% (7.3% in females versus 5.0% in males, and 13% in same- or multiple-sex attracted students). 53% of same- or multiple-sex attracted students reported significant depressive symptoms and half of this group reported they had self-harmed in the past year.

Rangatahi Māori experience higher rates of mental health distress and addictions compared with young European/Other people. There are growing numbers of rangatahi Māori who report depressive symptoms (28% in 2019 versus 14% in 2012). Māori are more likely to be hospitalised for intentional self-harm and more likely to use substances than European/Other people. The younger age structure of Māori and Pacific populations compared

with European/Other populations means worsening youth mental health creates a disproportionately high burden overall on these populations.<sup>123</sup>

### 6.5.4 Oranga hinengaro and population risk groups

The most at-risk populations in Aotearoa New Zealand include Māori, Pacific people, refugees and migrants, prisoners, those in neighbourhoods that have the most socio-economically deprived NZDep scores, youth, children experiencing adverse childhood events, the rainbow communities and those living with disability. While females tend to have higher rates of mental distress and illness, males have higher rates of suicide. Poorer mental health outcomes in Māori need to be viewed within the context of historical and ongoing negative impacts of differential exposure to the social determinants of mental health and healthcare. Note that while reported rates of mental illness are higher in Māori and Pacific people's communities, potential underreporting due to stigma may mask the issue in some ethnic communities. For example, a survey by Asian Family Services in 2021 found 98.7% of Asians have expressions of stigma surrounding mental illness, and while 44.4% show symptoms of depression, on average they perceive 4-5 barriers to seeking mental health support.<sup>124</sup> A survey of Pacific people found that stigma and judgement around mental health stopped people from seeking support.<sup>125</sup>

### 6.5.5 Suicide and self-harm

Suicide affects all population groups. Those at higher risk include Māori (particularly young Māori), youth, males, people who use mental health and addiction services and members of the rainbow community. Other risk factors for suicide include bereavement by suicide, access to means, sense of isolation, history of mental illness or addiction, previous self-harm or suicide attempt, experience of trauma, and exposure to bullying, unemployment and relationship breakdowns.<sup>126</sup>

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In Aotearoa New Zealand, suicide data are reported both by Health NZ (official confirmed suicide data) and the Chief Coroner (provisional suspected suicide data).

In the 2021/22 financial year, there were 538 suspected suicides in Aotearoa New Zealand, 10.2 per 100,000 population. Though the rate of suspected suicides in the 2021/22 financial year was 14.5% lower than the average rate of suspected suicides over the last 13 financial years (statistically significant), suicide rates are highly variable, so a statistically significant change in one year compared with an average over time may not mean that the overall trend has changed. Furthermore, the decrease was driven by European/Other people's suicide rates with the rates for Māori, Pacific people and Asian people not changing significantly over the period.

Ministry of Health suicide trend data show that between 1996 and 2016, suicide rates were significantly higher for Māori than for other ethnic groups. The age-standardised rate of suspected suicides per 100,000 Māori population in the 2021/22 financial year was 15.9, while the rates for European/Other people and Pacific people were respectively 9.0 and 9.9, which in turn were higher than the rate for Asian people at 3.8 per 100,000 population.

For much of the period 1996–2016 suicide rates for Māori tended to be highest for males, those aged 15 to 44 years and those living in areas that have the most socio-economically deprived NZDep scores. From the 2008/09 financial year to the 2020/21 financial year, Māori males had the highest rates of suspected suicides. The rate of suspected suicides per 100,000 Pacific population in the 2021/22 financial year was 9.9. For Pacific people the suicide rate was significantly higher in youth (15 to 24 years) than older age groups. The rate of suspected suicides per 100,000 Asian population in the 2021/22 financial year was 3.8.

In the 2021/22 financial year, the five-year age group with the highest rate of suspected suicides in Aotearoa New Zealand was the 20 to 24 age group, which had a rate of 21 per 100,000 population.

Aotearoa New Zealand's suicide rate for adolescents aged 15 to 19 years was reported to be the highest of 41 OECD/European Union countries (based on data from 2010). In the 2021/22 financial year, the rate of suspected suicides for males was 14.9 per 100,000 males, and the rate of suspected suicides for females was 5.5 per 100,000 females.

According to Stats NZ, fatality rates from self-harm have been relatively steady since the report series began in 2000, but serious non-fatal injury rates have risen since 2013. Serious non-fatal injuries from self-harm in 2018 occurred at a rate of 5.9 injuries per 100,000 population. This is an increase of 2.4 injuries per 100,000 people, from 3.5 in 2013. In 2016, young adults – those aged 15–29 years old – had the highest rate of serious injuries from intentional self-harm at 27.8 serious injuries per 100,000 population. This age group reported less than 15% of all serious injuries, but over one-third of all serious injuries caused by intentional self-harm.<sup>127</sup> The Youth19 Survey reported a past year prevalence of self-harm of 24.1% in youth. For information on self-harm for those under 15 years, see section 6.2.2 Infants and children.

### 6.5.6 Mental health impacts of the COVID-19 pandemic

A report by the Health Quality and Safety Commission A Window on Quality 2022: COVID-19 and the impacts on our broader health system concluded that the pandemic has had a profound impact on people's mental health across all population groups, in particular for children and young people.<sup>128,129</sup>

This is evidenced in prescribing rates, calls to the Whakarongorau/1737 helpline and self-harm and eating disorder statistics. For example, the number of antidepressants and antipsychotics dispensed to those aged 0 to 17 years increased at the start of the pandemic.



Calls to 1737 in those aged 13 to 19 years and the volume of contacts with a significant risk element doubled from the first quarter of 2020 compared to the last quarter of 2021 and as a proportion of total contacts, contacts from this group rose from 5% to nearly 10% of total contacts in the last quarter of 2021. A marked rise in contacts with suicide as a significant risk element is evident from March 2020.

More children aged 0 to 15 years were admitted to hospital for mental health reasons than would be expected from June 2020 to the August 2021 lockdown. Among children aged 10 to 14 years intentional self-harm admissions have risen since March 2020.

The Eating Disorders Association of New Zealand reports a 58% increase in requests for assistance through its helpline for 2020/21 compared with 2019/20. New community referrals of those aged under 19 years to Auckland's Tupu Ora community-based specialist eating disorder service rose from around 100 per year to a new high of 180 in 2020/21.

A survey of people who contracted COVID-19 during the pandemic found that Māori, Pacific people and disabled people I tangata whaikaha were more likely to report poorer mental health, with 75% of Pacific people and 62% of Māori reporting anxiety or depression, compared with 56% of other participants<sup>130</sup>. Rates of psychological distress were already higher in Māori and Pacific people before the pandemic.

### 6.5.7 Service utilisation

According to Te Huringa Tuarua: Mental Health Service and Addiction Service Monitoring Report 2023<sup>131</sup> (a report issued by the New Zealand Mental Health and Wellbeing Commission that provides data on performance of mental health and addictions services from 2017/18 to 2021/22 financial years), 3.4% of the population (approximately 176,000 people) accessed specialist mental health services or addiction services.

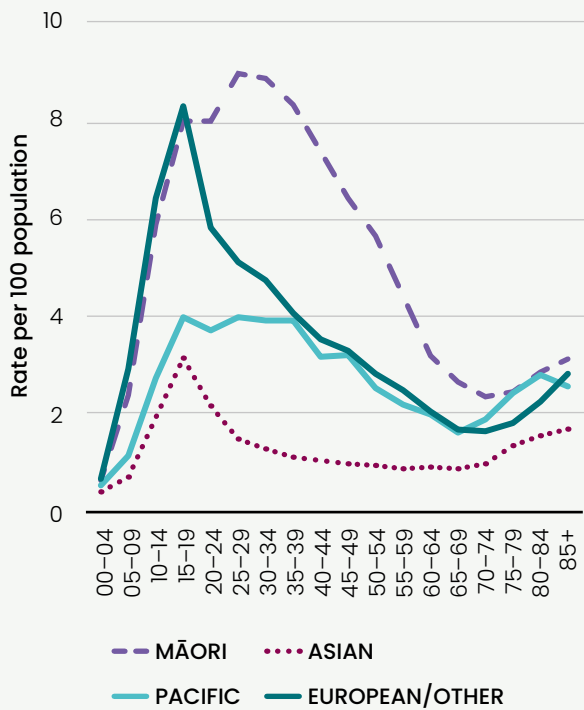
Utilisation rates were higher among young people (aged 10 to 24 years), although rates remained high in later adulthood (aged 25 to 64 years) for Māori. From the age of 25 years until 64 years, Māori have double the utilisation rates of Pacific people and European/Other people. Asian people have very low utilisation rates, which may in part be explained by stigma-related barriers to seeking care. Primary mental health services were accessed by 2.7% of the population in 2020/21. This represents a decrease in service use of 8.6% from the previous year. The exception to this trend is the increased use of Access and Choice programme services, and initial dispensing of mental health medications.

The Access and Choice programme is a priority initiative from the 2019 Wellbeing Budget, with its rollout occurring over a five-year period from 2019/20 to 2023/24. The programme comprises four new service types: Integrated Primary Mental Health and Addiction (IPMHA), Kaupapa Māori, Pacific people, and Youth services.

In the year 2021/22 95,250 people accessed Integrated Primary Mental Health and Addiction (IPMHA) services (38% of the 248,000 people expected to access per year by 30 June 2024) and 19,250 people accessed Kaupapa Māori, Pacific people, and Youth services (25% of the 77,000 people expected to access per year by 30 June 2024). Young people aged 12 to 24 years make up 21% of people seen by all Access and Choice services. As of 30 June 2022, there were 364 IPMHA services across 19 districts, 29 Kaupapa Māori services across 19 districts, nine Pacific people's services across seven districts and 23 Youth services across 18 districts. IPMHA services are available at 35% of GP sites and available to just under 50% of the population who are enrolled with a GP.<sup>132</sup> A recent survey by the Royal New Zealand College of General Practitioners estimated that mental health and addiction makes up around a third of all general practice consultations.<sup>133</sup>



**Figure 116: Rate per 100 population seen by secondary Mental Health and Addiction services by age and ethnicity, 2021/22**

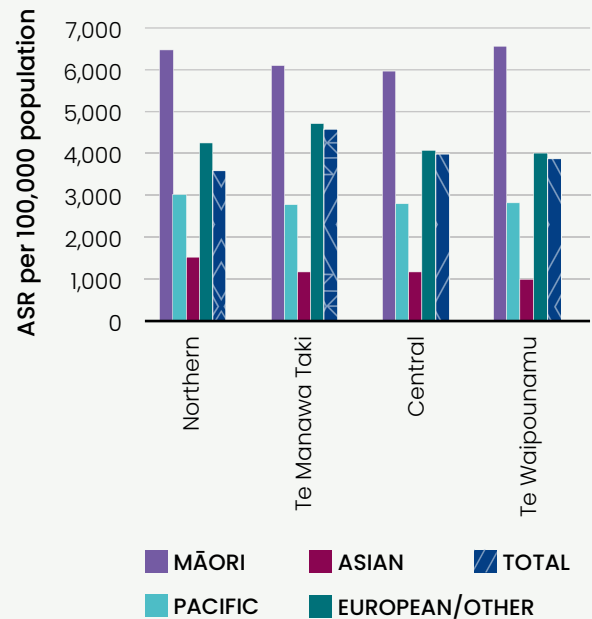


Source: Programme for the Integration of Mental Health Data (PRIMHD); DHB and NGO services included

Pacific and Asian people use secondary mental health and addictions services at much lower rates than Māori or European/Other people. Central region and Te Waipounamu have similar utilisation rates while the rate in Te Manawa Taki is higher, and that in Northern region is lower.

To estimate combined primary and secondary service use, we combine the number of people who accessed secondary services and/or had a community prescription relating to mental health and addiction needs. This suggests that

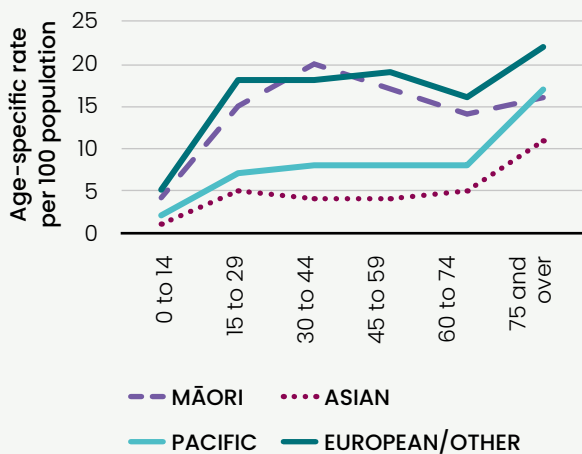
**Figure 117: Utilisation of secondary Mental Health and Addictions services, age-standardised rate per 100,000 population by ethnicity and region, 2021/22**



Source: PRIMHD data collection; based on count of individuals accessing service; people treated in more than one district in the year are counted against each district

around 12% of people accessed primary or secondary services in 2021/22. The lowest rate was among 0 to 14 year olds (5.3%). Over a four-year period, from 2018/19 to 2021/22, around one in five (22.5%) people accessed secondary services or had a relevant prescription. Māori had lower rates of use at 12.2% versus 15.8% for European/Other people. Asian (3.9%) and Pacific people (6.1%) had much lower rates of service use (MoH QLIK Mental Health and Addictions app using the Pharmaceutical, PRIMHD and National Minimum Dataset (NMDS) datasets).

**Figure 118: Proportion of people with mental health or addictions event (dispensing or secondary care) by age group and ethnicity, 2021/22**



Source: Pharmaceutical, PRIMHD and NMDS collections combined in MoH QLIK app

For those aged under 25 years, 71% were able to access mental health services within three weeks.

Wait times for former District Health Board (DHB) mental health services have remained much the same. Services saw 80% of people in 2021/22 within three weeks, compared with 79% in 2020/21, and 94% of people in both years within eight weeks. Some groups continue to face barriers to timely service access. Young people aged 0 to 18 years have longer wait times than other age groups. In contrast to mental health services, wait times for addiction services (from former DHBs and non-government organisations (NGOs)) are getting longer. In 2021/22, 75% of people were seen within three weeks for addiction services, down from 80% in 2020/21, and 93% were seen within eight weeks, down from 95% in the previous year.<sup>131</sup>

### 6.5.8 Self-reported service utilisation and unmet need

According to the 2021/22 NZ Health Survey, 6.8% of adults accessed care from a mental health worker in the past 12 months (a rise from 4.9% in 2016/17), higher in Māori (marginally) and those living with disability. Nearly 13% of adults accessed mental healthcare from a GP or nurse in the past 12 months (up from 10.7% in 2016/17), with higher rates in youth (11.4% of 15 to 24 year olds), and those living with disability.

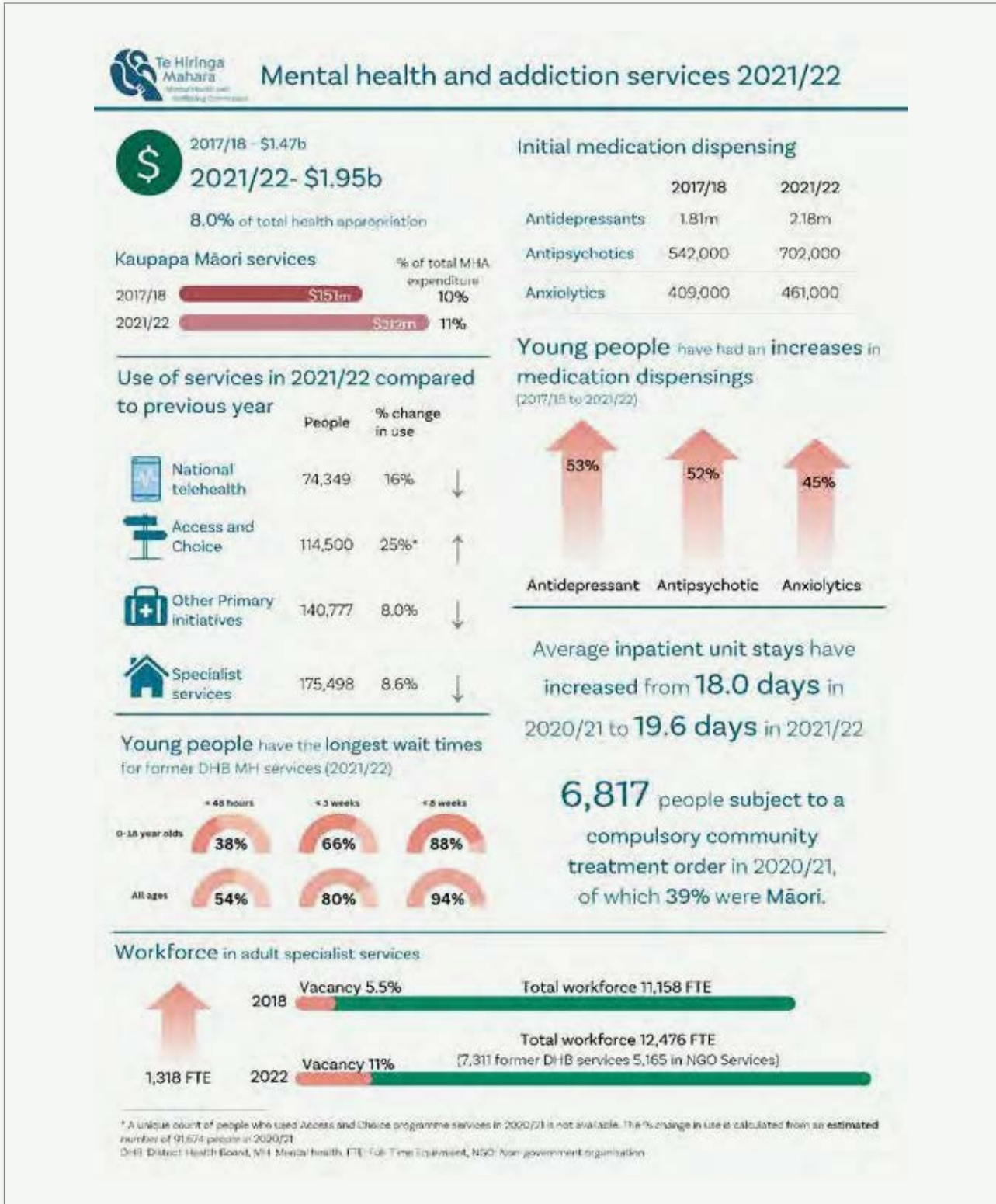
In the same survey 8.8% of adults reported an unmet need for professional help for their emotions, stress, mental health or substance use in 2021/22, compared to 4.9% in 2016/17. Prevalence of unmet need was higher in women, Māori, Pacific people, disabled people | tangata whaikaha, and in those with higher levels of neighbourhood deprivation. Young adults reported the highest rates of unmet need for this professional help (16.2% for 15–24 years and 15.6% for 25–34 years). Around 6% of children had an unmet need for professional help for their emotions, behaviour, stress, mental health or substance use in the year before being surveyed (according to their parents), up from 4.5% in 2016/17.

The Health Quality & Safety Commission’s patient experience survey data found that across all age groups, 70.5% of all respondents who attended primary care for any reason felt their healthcare professional recognised and/or understood their mental health needs. However, only 56.6% of those aged 15 to 24 years gave this response.

### 6.5.9 Seclusion and compulsory orders

There is inequity in the use of seclusion and compulsory orders, including solitary confinement and compulsory community treatment orders. Māori and Pacific people are more likely to be subject to solitary confinement (‘seclusion’) (see infographic). However, in its monthly monitoring of data, the Health Quality & Safety Commission has observed that the equity gap has narrowed in the few months before June 2022.

Figure 119: Mental health and addiction services 2021/22



Source: Te Hīringa Mahara New Zealand Mental Health and Wellbeing Commission (2023).  
Te Hīringa Tuarua 2023: Mental Health and Addiction Service Monitoring Report. Wellington, New Zealand. P9<sup>31</sup>

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## 6.6 Disabled people I tangata whaikaha

Whaikaha (Ministry of Disabled People) is a recently established Ministry that fosters partnership between the disability community, Māori and the Government to ‘transform the disability system’ and honour Te Tiriti o Waitangi.

Building meaningful partnerships with disabled people I tangata whaikaha, and a shared understanding and interpretation of relevant data and evidence insights, are pivotal to assessing and responding to the health needs of disabled people. Collecting and reporting disability data is a significant focus.<sup>134</sup>

Along with the lack of disability data, there has also been a failure to gather the voices, experiences and health outcomes of disabled people I tangata whaikaha. In the interim, the following are some relevant considerations.

Disability is a term that acknowledges interactions between a broad range of health conditions with the societal contexts and constraints in which these are experienced. This wider framing within the social model of disability is central to New Zealand’s Disability Strategy and enshrined in the principles of the United Nations Convention on the Rights of Persons with Disability. Acknowledging this, conditions that can be disabling are broadly grouped into categories that result from limitations in sensory (hearing and vision impairment), physical (mobility and agility), intellectual, cognitive, communication, psychological, and developmental difficulties, among others. These can result from a variety of causes including acute and chronic health conditions, congenital and acquired conditions, injuries and trauma.

All disabled people I tangata whaikaha experience inequities but those belonging to other marginalised groups experience particularly intensified inequities. Across almost all types of disability, Māori, Pacific people, low-income communities,

and those living in rural settings experience inequitably greater challenges and unmet health needs. Many challenges experienced by disabled people I tangata whaikaha, including unmet health needs, have been exacerbated by the COVID-19 pandemic and resulting economic impacts.

The 2018 Census asked questions about disabilities that limit people’s ability to carry out normal activities, for those aged 5 years and over. The quality of the data was poor with low response rates. The findings of the 2023 post-census Disability Survey (which includes the Household Disability Survey and Disability Survey of Residential Facilities) are not yet available. Consequently, the most recent nationally representative data about disability rates was collected in the 2013 New Zealand Disability Survey (NZDS). These (now dated) data provide some insights that indicate the substantial extents of the health needs of this population.

The survey estimated that one in four (24%) of the population has a disability and they belong to all age, ethnic and cultural groups, gender identities, sexualities, localities, socio-economic groups, and every whānau and community. Mobility, agility, hearing, sight and remembering were the most common disabilities in adults, while learning, speaking and psychological/psychiatric disabilities were the most common in children. In children, disabilities present at birth are the most common type. In middle age groups, disease, illness and injuries are important, with older people experiencing disabilities associated with the ageing process. Over half the people living with disabilities report more than one type of disability.

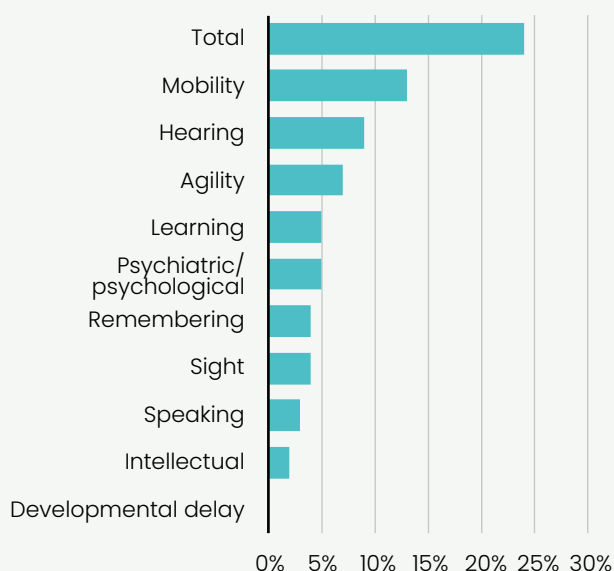
Nationally, among adults, the percentage with a disability increases with age, from 16% in young adults (aged 15-44 years) to 59% in older people (aged 65 years and older). Māori and Europeans have higher rates of disability than Asians (26% and 25% versus 13%). Pacific people also had higher rates of disability in the 65+ age group but a lower rate overall than the average.\*

Stats NZ noted that the true extent of differences between disability rates for ethnic groups is masked by the different age profile of ethnic populations.

Following adjustments for age distributions in the total population, the overall prevalence of disability in major ethnic groups was estimated as:

- Māori – 32%
- European/Other – 24%
- Pacific people – 26%
- Asian people – 17%.

**Figure 120: Prevalence of disability by type of impairment, 2013**



An individual may appear in more than one disability type.  
Source: NZ Disability Survey, 2013

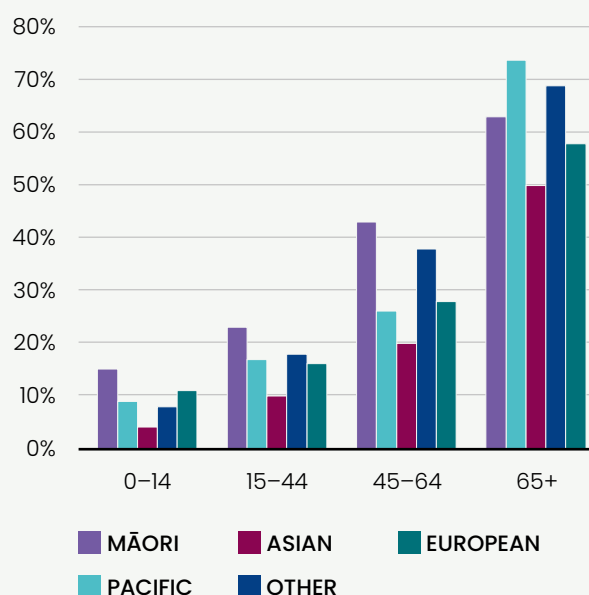
The age-adjusted rate is the disability rate the ethnic group would have if their population age profile was the same as that of the total population. The age adjustment increased disability rates for the Māori, Pacific people, and Asian ethnic groups, reflecting their younger age profile compared with the total population. The rate increase was smaller for Asian people due to their relatively low disability rates for older people (NZDS 2013).

The Māori disability rate was driven by four impairment types that were significantly more likely to be experienced by Māori than non-Māori. These types were:

- psychological/psychiatric impairments
- difficulty with learning
- difficulty with speaking
- intellectual disability.

Māori also had slightly higher rates of vision impairment and slightly lower rates of mobility impairment than non-Māori (Stats NZ 2014 Key facts, NZ Disability Survey 2013).

**Figure 121: Prevalence of disability by age group and ethnicity, 2013**



Source: NZ Disability Survey 2013

\*Ethnicity in the Disability Survey is reported as total response. See Appendix 1 for details.



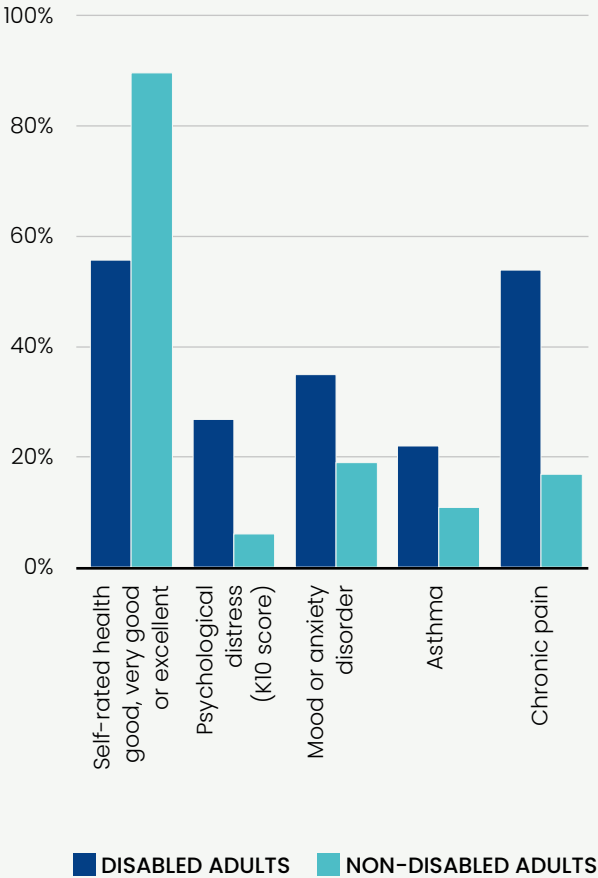
The 2019/20 NZ Health Survey asked about disability using the same questions as the 2018 Census, which are the Washington Group Short Set on Functions (see appendix 7). People reporting a lot of difficulty or complete inability to carry out any of six specific functions were counted as disabled people, and their survey responses were compared with responses from other people. Rates were adjusted for age and gender and presented for Aotearoa New Zealand as a whole.

Disabled adults were less likely than non-disabled adults to rate their health as excellent, very good or good (56% versus 90%); less likely to eat sufficient fruit and

vegetables (27% versus 34%); less likely to be physically active (30% versus 54%); and less likely to meet sleep duration recommendations (49% versus 71%).

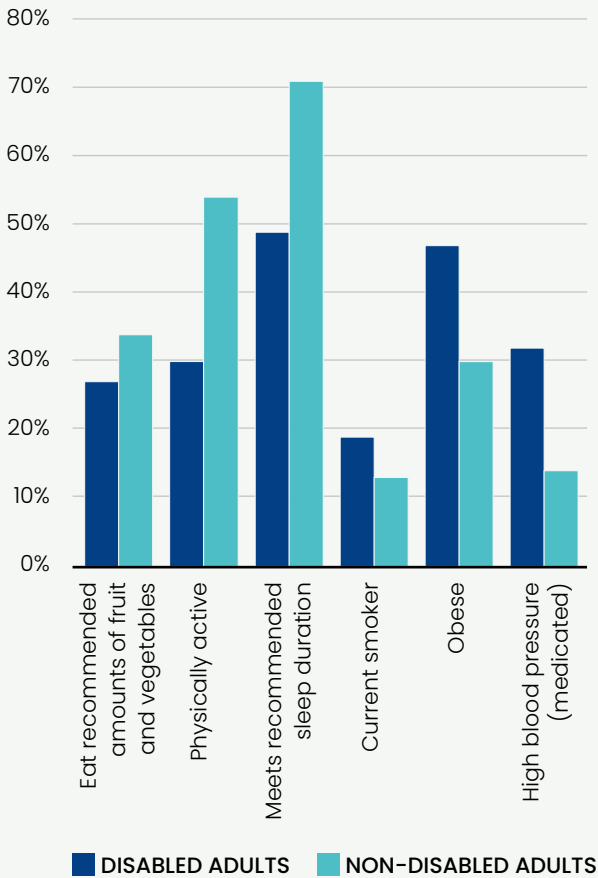
They were more likely to smoke (19% versus 13%); more likely to experience psychological distress as assessed by the Kessler (K10) score) (27% versus 6%); more likely to have asthma (22% versus 11%); and more likely to have chronic pain (54% versus 17%). Disabled adults were more likely to have visited an emergency department (ED) in the past 12 months (33% versus 13%); and more likely to have unmet need for primary healthcare (47% versus 29%).

**Figure 122: Health status for disabled and non-disabled people, 2019/20**



Source: NZHS

**Figure 123: Health risk factors for disabled and non-disabled people, 2019/20**



Source: NZHS



## 6.6.1 Services and funding

The 2013 New Zealand Disability Survey (NZDS) Household module asked disabled people about the support that they received.

The most-common provider of support for disabled adults living in private households was a whānau member they live with. For about one-fifth (22%) of disabled adults, a whānau member living in the same house provided at least one type of support and for 18% a whānau member living in the same house was the main provider of support (the one who provided the most support) (NZDS). 15% of disabled adults received some support from a care organisation and for 8%, an organisation was their main provider of support.

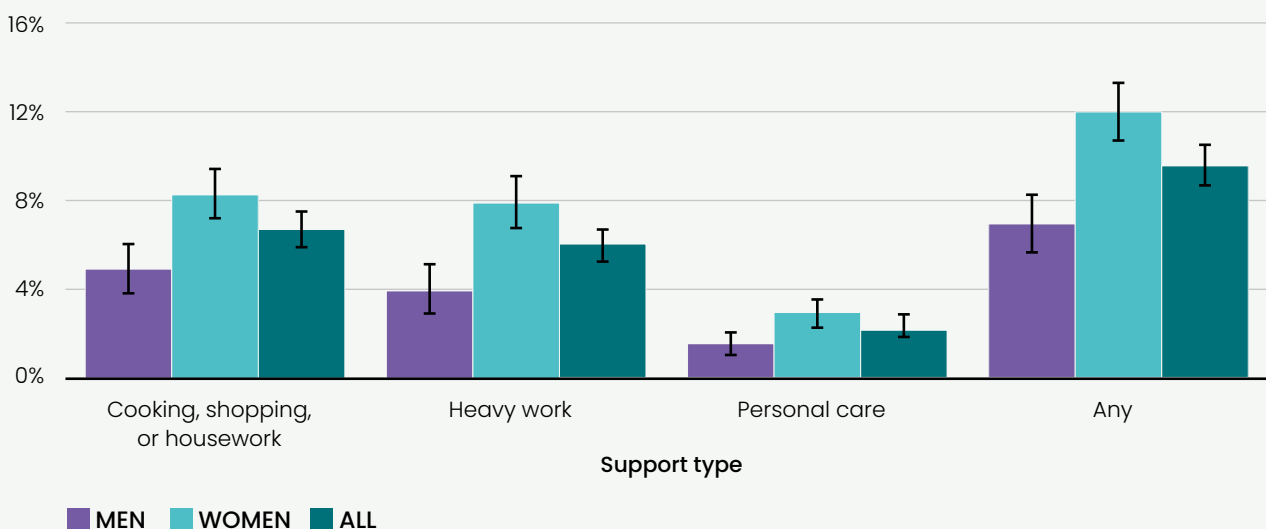
10% of disabled adults reported unmet need for some form of assistance in the past 12 months. An unmet need for help might arise where some assistance was being provided but it was not enough, or where the disabled person was not getting any help at all with an aspect of their life. 2% of disabled people I tangata whaikaha reported unmet need for personal care.

In the 2013 Household Disability Survey, 85% of disabled children had a female caregiver, and 71% had a caregiver aged 25 to 44 years. For 7% of disabled children, caregivers reported having an unmet need for help with the personal care of the disabled child that they cared for.<sup>64</sup>

A small proportion of disabled children had caregivers who reported that they received help with domestic tasks because of the child's condition or health problem. Just 2% reported getting this type of support; however, 10% reported having an unmet need for such support.<sup>135</sup>

A much higher proportion reported unmet need for special equipment: around one in five of disabled people aged under 15 years. In each age group apart from children, Māori men and women reported higher levels of unmet need for special equipment than non-Māori men and women. In the 65 and over age group, one in three Māori women reported unmet need for special equipment compared with one in six non-Māori women.<sup>136</sup>

**Figure 124: Disabled adults with unmet need for support by support type and sex, 2013**



Source: Stats NZ

Disabled people I tangata whaikaha were more likely to have visited a GP or practice nurse in the past year than non-disabled people (85% versus 75% GP; 42% versus 29% practice nurse). Unmet need due to cost or lack of transport was more likely to be reported by disabled people I tāngata whaikaha than non-disabled people. Almost twice as many disabled people I tangata whaikaha as non-disabled people reported that they had been unable to get an appointment with their regular GP within 24 hours, in the past 12 months (NZHS 2019/20). The NZ Disability Survey 2013 found that among disabled adults aged 15-64 years, Māori were more likely than non-Māori to report unmet need for a health professional.

In 2019/20, there were 40,064 people in Aotearoa New Zealand (0.9% of those aged under 65 years) receiving disability support from the Ministry of Health. Of these, 49% had intellectual disability, 27% autism spectrum disorder and 21% physical disability as their main disability. Among this group, 6,700 received community residential support in home-like settings; 80% of these clients had an intellectual disability. A further 854 were living in aged residential care facilities.

**Table 13: Number of people allocated disability support services by domicile region, 2019/20 financial year**

MEASURE	FEMALE	MALE	TOTAL	% OF NZ TOTAL
Northland	798	1,013	1,811	5%
Auckland	4,328	7,468	11,796	29%
Waikato	1,579	2,534	4,113	10%
Bay of Plenty	1,249	1,778	3,027	8%
Taranaki	527	645	1,172	3%
Gisborne	154	227	381	1%
Hawke's Bay	560	782	1,342	3%
Manawatu-Wanganui	1,031	1,280	2,311	6%
Wellington	1,573	2,297	3,870	10%
Nelson-Marlborough-Tasman	634	781	1,415	4%
West Coast	126	183	309	1%
Canterbury	2,300	3,251	5,551	14%
Otago	822	1,157	1,979	5%
Southland	433	554	987	2%
<b>Total</b>	<b>16,114</b>	<b>23,950</b>	<b>40,064</b>	<b>100%</b>

Source: Ministry of Health. 2022. Demographic Report of Disabled People Accessing Manatū Hauora (the Ministry of Health) Disability Support Services<sup>137</sup>

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## 6.7 Chronic pain

One in five men and almost one in four women reported that they suffer from chronic pain (NZHS 2021/22).

Rates of chronic pain broadly increased with age, from 11% of those aged 15 to 24 to 37% of those aged 75 years and over. Almost half (49%) of disabled people I tangata whaikaha reported chronic pain, compared with 20% of non-disabled people. Low back pain and headache disorders rank in the top ten causes for loss of healthy life for both men and women, as measured in disability-adjusted life years (DALYs).

### 6.7.1 Musculoskeletal disorders, arthritis, gout

A wide range of conditions fall into the musculoskeletal category. A few important conditions are noted below.

Back disorders are the third highest specific condition causing health loss for women, and the fifth highest for men, accounting for 10.5% and 6.7% of total health loss measured in DALYs, respectively.

Low back pain is widespread in the community, with disabling effects that can vary from mild to severe. Because it is so widespread, as the population has grown and aged, the condition has become a leading contributor to health loss in Aotearoa New Zealand, with DALYs increasing in numerical terms by 50% since 1990. However, when considered as a proportion of the population, the growth is a lot smaller, with age-standardised rates of low back pain only increasing 3.5% since 1990.<sup>138</sup>

Most people with lower back pain are treated in the community by their general practitioner or a physiotherapist, with relatively few requiring specialist or hospital treatment. For many, episodes of acute back pain resolve within a few weeks.

Arthritis is a common cause of chronic pain and physical disability. The NZ Health Survey 2021/22 found that 18% of adults reported arthritis diagnosed by a doctor. Arthritis is more common in older adults, affecting 40% of those aged 65–74 years and half (52%) of those aged 75+ years. Arthritis in major joints is often treated with joint replacement surgery.

Osteoarthritis is a common form of arthritis – the main cause of osteoarthritis is wear and tear on joints, which increases with ageing, injury and obesity.

Gout is the most common form of inflammatory arthritis, and it can be extremely painful and debilitating. It is caused by the excessive build-up of urate crystals in the joints in the presence of high urate concentrations in the blood. Using routinely collected health system data, it is estimated that gout affects approximately 6% of adult New Zealanders; prevalence is particularly high in Māori (8.5%) and Pacific people (14.8%) and higher in men (9% compared to 2.7% for women).<sup>139</sup>

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Rates are higher in older people and in men aged 65 years and over; gout is estimated to affect 35% of Māori and 50% of Pacific men aged 65 and over. For those aged 20–44 years, there is also a much higher burden of identified gout in Māori and Pacific people, particularly for men. Recent research has found genetics are significantly more likely than unhealthy foods to lead to higher urate levels.<sup>140</sup> Long-term urate-lowering therapy is recommended for patients with recurrent gout flares (two or more per year), chronic gouty arthritis and joint damage. Less than half of people (42%) identified with gout regularly receive urate lowering therapy to prevent gout attacks with inequities for Māori (39%) and Pacific people (36%) compared with 43% for non-Māori/non-Pacific groups, despite higher hospitalisations and other morbidity for Māori and Pacific people. Pacific people are nine times and Māori five times more likely to be admitted to hospital for gout than non-Māori/non-Pacific people.

Rheumatoid arthritis, which is an immune system disorder, also increases with age.

## 6.7.2 Headache

Migraine is the most disabling neurological disorder worldwide.<sup>141</sup> Public hospitals do not have the capacity to manage migraine patients in neurology outpatient clinics but neurologists frequently manage them in private consultations.<sup>142</sup> Physiotherapists also treat patients with persistent headache. No specific data are available from the national collections on prevalence of severe headache – the Royal College of GPs estimates that over 600,000 people in Aotearoa New Zealand suffer from migraine, with 45,000 severely affected with chronic migraine.<sup>143</sup>

## 6.8 Injury

Injuries have a substantial impact on health, both as a leading cause of premature death and through disability following an injury.

The age-standardised mortality rate from injury (excluding suicide) is 23 per 100,000 population for the combined years 2016–2018. The rate for men is higher than for women (32 versus 15 per 100,000) and the rate for Māori men is particularly high at 51 per 100,000 population. For older people, falls are the largest cause of injury-related deaths, while for adults aged 45 to 64 years, suicide is the largest cause. For younger adults, road traffic injuries and suicide dominate.

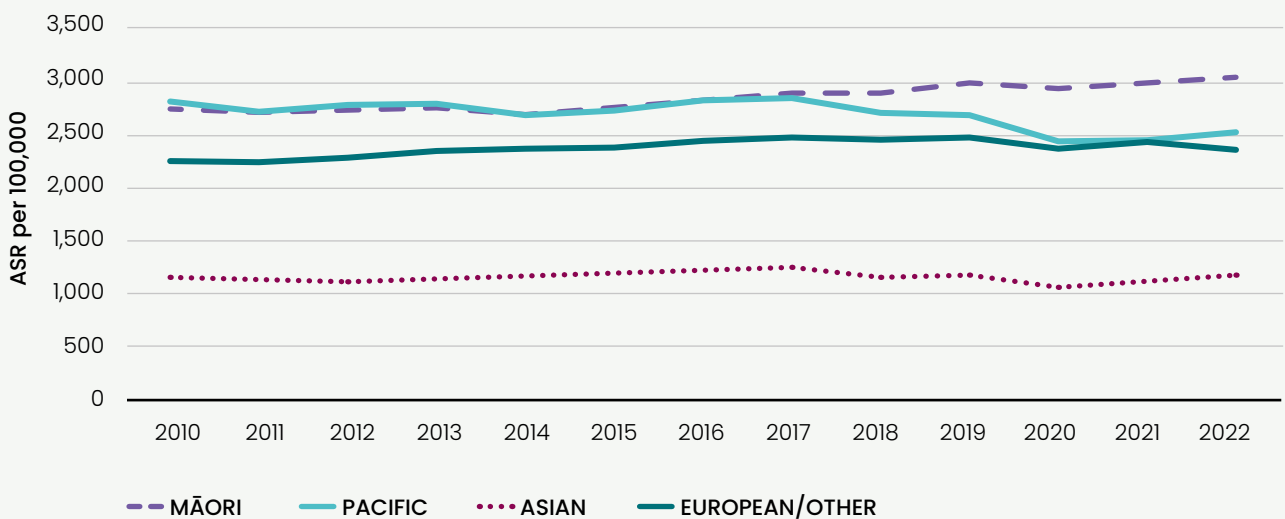
Injury is an important cause of hospitalisation. Age standardised hospital admission rates for unintentional injuries (ie. excluding assault and self-harm) are 2,300 per 100,000 of the population and have been relatively stable over the last decade. Rates are highest for Māori at 3,052 per 100,000 population (age standardised), more than twice the rate for

Asian people – 1,169 per 100,000 population (age standardised). Rates have declined significantly for Pacific people in recent years but continue to climb for Māori.

Rates are lowest for Te Waipounamu and highest for Te Manawa Taki. By ethnicity, rates for Māori are highest in the Northern region and lowest in Te Waipounamu. For Pacific people, rates are highest in the Central region.

In 2022, 1.9 million new claims were accepted by the Accident Compensation Corporation (ACC) for injury, an average of 3.7 claims for every ten people. Counting each claim only once in prioritised categories, 2% related to road accidents, 10% were work-related, 22% happened during sport/recreation, 28% were falls in the home or community, and 38% were other injuries in the home or community.

Figure 125: Injury/poisoning hospitalisations (ASR per 100,000), 2010 to 2022



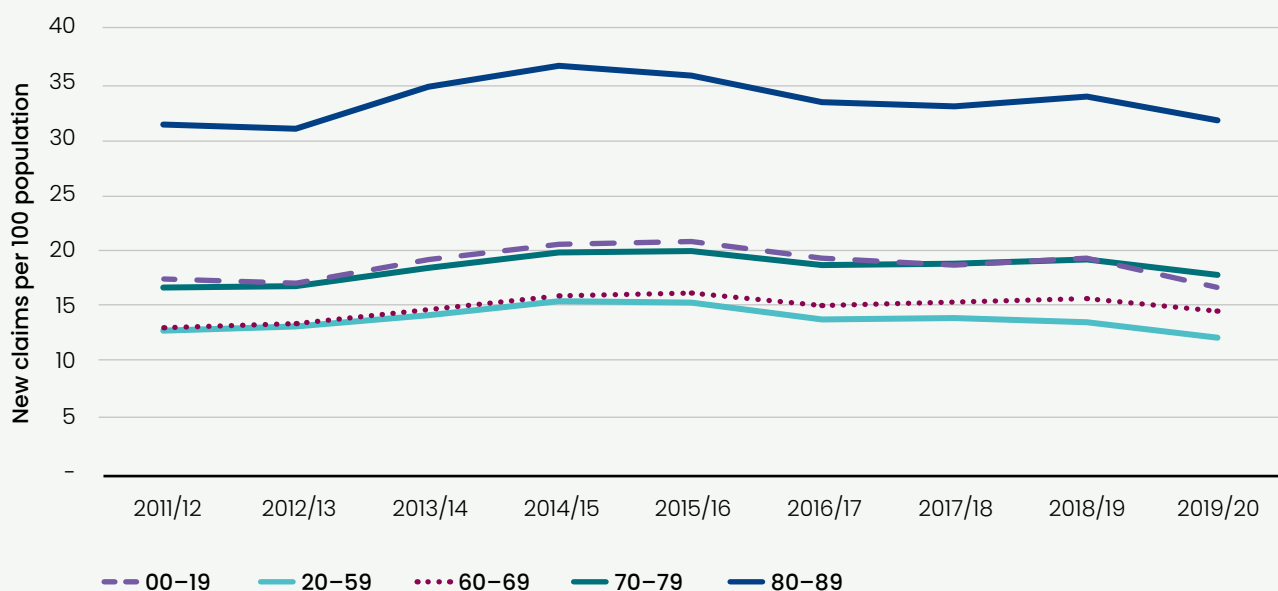
Source: NMDS

The chart below shows the rate of new claims for falls-related injuries by age group. The rate among people aged 80 years and over is particularly high, noting that one person may make several claims and so this does not necessarily indicate that one in three people in this age group has fallen.

A key issue when interpreting injury data is that injury deaths and hospitalisation are the tip of the injury pyramid. Much greater proportions of the population are affected

by injuries that are less life-threatening but can have significant impacts on their quality of life and opportunities for meaningful engagement in society (including employment and education). While ACC data provide some insights in this regard, these data need to be interpreted with the knowledge that there are well-recognised inequities in access to ACC services, particularly for Māori, Pacific people, and some other minority populations.

**Figure 126: ACC new claims for falls per 100 population by age group, 2011/12 to 2019/20**



Source: Accident Compensation Corporation



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## 6.9 Pandemic infectious disease

The arrival of the COVID-19 respiratory virus in 2020, with its rapid spread and severe impacts, had a major effect on global health.

Though highly transmissible, the case fatality rate is now relatively low following widespread vaccination. The World Health Organization warns that we need to get ready for something which may be more severe in the future.

For the consequences of the pandemic on Aotearoa New Zealand, see the Health Quality and Safety Commission (HQSC) document: *A Window on Quality 2022: COVID-19*<sup>128,129</sup> and the impacts on our broader health system. The report notes that “Aotearoa New Zealand’s particular patterns of inequity before the pandemic were both a failure of the Crown’s obligations under Te Tiriti o Waitangi and presented fertile ground both for the virus and for the unintended negative effects of measures to contain it. The impacts of COVID-19 on healthcare must be considered in view of inequitable health service provision that has occurred historically and continues today, but also because pandemics compound and promote pre-existing social and economic inequities, especially in terms of precarity of housing, overcrowding and poverty”.

Projections for 2023 indicate over 1,000 deaths related to COVID-19 were expected for Aotearoa New Zealand (Jackson G, personal communication). This makes it the highest infectious disease cause of death, and is an indicator of the continued harm the virus still causes despite the high vaccination rates.

### 6.9.1 Long COVID

Long COVID is a condition that follows a severe acute respiratory syndrome coronavirus 2 (SAR-CoV-2) infection. Patients experience many symptoms across multiple organ systems that can result in the new onset of conditions such as cardiovascular, thrombotic and cerebrovascular disease, type 2 diabetes, myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) and dysautonomia (including postural orthostatic tachycardia syndrome (POTS)). These conditions can cause years of disability for the patient and require a range of healthcare support.<sup>144</sup> Many long COVID sufferers have been unable to return to prior levels of work<sup>145,146</sup> and are contributing to unemployment.<sup>147</sup>

A report for Ministry of Health on the impacts of COVID-19 in Aotearoa New Zealand noted that 22% in their study met the WHO criteria for long COVID. There was no significant difference in prevalence between Māori and non-Māori, however Pacific people were less likely to report ongoing symptoms. There was a higher risk of long COVID in people with pre-existing heart conditions or high BMI, which disproportionately affect Māori and Pacific people. More than half of Māori and non-Māori participants did not agree that they had received adequate healthcare for COVID-19 symptoms. Long COVID symptoms were reported as having significant effects on usual daily activities and one third of patients had symptoms of anxiety and depression, regardless of participant ethnicity. Recommendations from this report called for establishment of multidisciplinary support clinics, financial support for people with long COVID and that long COVID should be recognised as a disability.<sup>130</sup>

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## 6.10 Sexual health

Sexual health surveillance data are sourced from sentinel aggregate clinic data, laboratory data and clinical notification data that are collated and published by the Institute of Environmental Science and Research (ESR).

National trend data for sexually transmitted infections (STI) chlamydia, syphilis and gonorrhoea showed decreased rates or cases from 2019/20 through to 2022, with all increasing at the end of 2022. This is attributed to the disruption of healthcare during the COVID-19 response, with limited face-to-face healthcare consultations and asymptomatic testing as well as public health interventions such as border closures and limits to gatherings, which reduced overall transmission rates.

Chlamydia is the most commonly reported STI and in 2022 the national chlamydia rate was 489 cases per 100,000 population. Chlamydia is most commonly diagnosed in females aged 20-24. Approximately two-thirds of laboratory-diagnosed cases in 2021 were females, partly reflecting that 77% of tests were for females, suggesting many infections in males remain undiagnosed and untreated. Overall, there were 1.6 cases per 100 people in 15-19 year olds and 2.5 cases per 100 people in 20-24 year olds in Aotearoa New Zealand in 2022. In 2021, 9.8% of youth aged 15 to 19 years and 17% of 20-24 year olds were tested for chlamydia.

The rates of chlamydia among Māori and Pacific people are more than three times the rate of other ethnic groups. Tairāwhiti, Lakes and the Hawke's Bay districts have had consistently higher rates of chlamydia over the last seven years, although these have been decreasing and approaching other regional and district rates.

Syphilis and gonorrhoea are both notifiable diseases which are experiencing ongoing outbreaks in Aotearoa New Zealand.

Syphilis cases decreased through 2020 and 2021 but are now increasing. Case reports are most common in men with a national rate of 13 cases per 100,000 men in 2021. The most common age group of cases is 30-39 years with nearly half of all cases of syphilis in the Auckland region. Most cases are in the Māori and European populations, though rates per 100,000 are comparable for Māori (16), Pacific people (16) and MELAA people (19). Where reporting is available, the majority of cases are in men who have sex with men (MSM), however in the Auckland region, rates of increase in men who have sex with women (MSW) and women who have sex with men (WSM) were comparable to those for MSM at the end of 2022. This has meant that there is an increasing risk of babies born with congenital syphilis, with the increasing rates of syphilis in women of child-bearing age.

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The overall reported gonorrhoea rate for Aotearoa New Zealand in 2022 was 136 cases per 100,000 population. Rates of infection are higher in males than females (161 versus 110 per 100,000 in 2022) with the 20–24 year age group reporting the highest rates of infection. The Auckland region had the greatest number of cases and the highest rate of infection when looking at regional distribution of cases. The greatest number of gonorrhoea cases are found within the Māori population, however the rate of infection for Pacific people for 2022 was 357 per 100,000 population compared to 272 per 100,000 Māori people.

Transmission of STI from mother to newborn baby is preventable through appropriate prenatal screening and management, resulting in reduced maternal and infant morbidity and mortality.<sup>148</sup> There were two cases of congenital syphilis reported in 2021

and 6 in 2022. Paediatric gonorrhoea cases have ranged from 9–12 reported per year between 2017 and 2021, with most cases in 2021 (70%) found in Māori infants. During 2021, there were 44 cases of chlamydia in infants under 1 year of age, which is a decrease compared to 61 in 2020, and the lowest reported number for the last five years. Approximately half of these cases were in Māori infants. The persistent reporting of infant infections highlights the need for improved timely maternity care including STI screening and treatment during pregnancy, particularly with Māori and Pacific expectant mothers.

## 6.11 Older people

### The population is ageing.

There are more than 850,000 people aged 65 years or older in Aotearoa New Zealand and of these, 93,000 are aged 85 years and older (Stats NZ, 2022). The number of people aged 65 years or older doubled between 1994 and 2020 and is projected to again double by 2063. Within this age group, the proportion aged 85 years or older is expected to significantly increase (Stats NZ, 2022).

The older population is predominantly made up of European/Other people, with 12% of those aged 85 years and older being Māori (4.0%), Pacific (1.5%) and Asian people (5.7%).

Looking at each ethnic group within this 65+ age group, 40% of Māori, Pacific and Asian people are aged 65 to 69 years, compared with 28% of European/Other people.

Conversely, 6%–7% of Māori, Pacific and Asian people in this group are aged 85 years and over, compared with 12% of European/Other people. However, the older population is projected to become more ethnically diverse, with the greatest growth in Asian, Māori and Pacific populations ([Population estimates and projections | Stats NZ](#)).

With increasing age comes increasing rates of disability and health need. The NZ Disability Survey 2013 found that 59% of people aged 65 years and over have a disability, with 46% having mobility problems, 28% agility problems, 28% a hearing disability, 11% a sight problem and 10% having difficulty with remembering. Among people aged 75 years and over, 21% have ischaemic heart disease, 11% have diabetes, 52% have arthritis and 15% have a mood or anxiety disorder (NZHS 2021/22). As with younger age groups, there are important inequities, with Māori and Pacific people experiencing higher rates of disability and chronic disease than non-Māori/non-Pacific people.<sup>149</sup>

Dementia is a common neurodegenerative condition, which is a leading cause of health loss, particularly for women, and mainly occurs at older ages. A population-based study estimated the diagnosed dementia prevalence in Aotearoa New Zealand based

on seven linked datasets in the Integrated Data Infrastructure (IDI). The crude diagnosed dementia prevalence was 3.8–4.0% in the population 60 years and older, and 13.7–14.4% in those 80 years or older.

The study calculated higher age-standardised prevalence of dementia for Māori and Pacific people than European and Asian populations (17.5% for Māori, 22.2% Pacific people, 13.6% European and 13.5% for Asian in the over 80-year-old population). This will underestimate the true prevalence of dementia, as it will not capture undiagnosed disease and those whose diagnosis was not captured in one of the datasets.<sup>150</sup> Among people with dementia, there are differences in rates of use of the funded dementia treatment medications donepezil and rivastigmine by ethnicity, with people of Māori and Pacific ethnicities less likely to be dispensed these medications than Europeans, despite the higher prevalence of dementia among Māori and Pacific people.<sup>151</sup>

Globally, it is estimated that 40% of dementia is preventable.

Many of the risk factors are similar to cardiovascular risk factors, including hypertension, obesity, diabetes, physical inactivity and smoking. Exposure to other risk factors including lower education in early life, untreated hearing loss, traumatic brain injury, air pollution and, in later life, social isolation and depression also impact.<sup>152</sup>

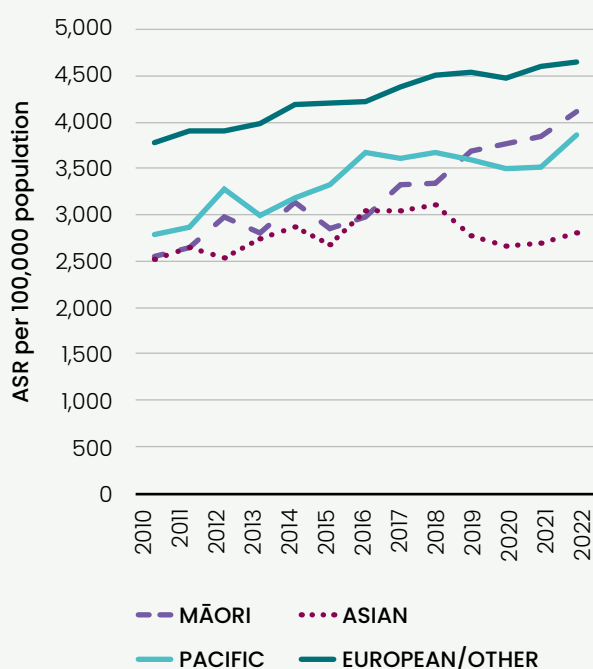
An Aotearoa New Zealand study estimated that closer to 50% of dementia was potentially attributable to exposure to these risk factors (Population Attributable Fraction (PAF) 47.7%), with the highest PAFs among Māori and Pacific people. Untreated hearing loss and obesity contributed the highest PAFs for Māori and Pacific people, with hearing loss and social isolation the highest for European/Other people and hearing loss and physical inactivity for people of Asian ethnicity.<sup>153</sup>

Falls and fall-related injuries are very common in older people.

A third of people aged over 65 years fall each year, and the rate of falls increases with age. A fall in an older adult has potentially substantial consequences, including fractures and other injuries, a loss of confidence and fear of falling, which reduces physical activity levels, decreasing physical capacity and in turn increasing the risk of future falls.<sup>154</sup> In the 2022 calendar year, there were more than 165,000 ACC claims for a fall in people aged 65 years or older, 13% of which involved in a fracture and 19% of which involved a hospital admission (including ED short stays).

The age standardised hospitalisation rate for falls in Aotearoa New Zealand for those aged over 65 years is 4,498 per 100,000 population and steadily increasing over time – for most ethnic groups, but more steeply for older Māori. Rates are highest in the Northern region and lowest in Te Waipounamu. Rates are highest for European/Other people and lowest for Pacific people.

**Figure 127: Age standardised hospitalisation rates for falls 65 years+ by ethnicity**



Source: NMDS

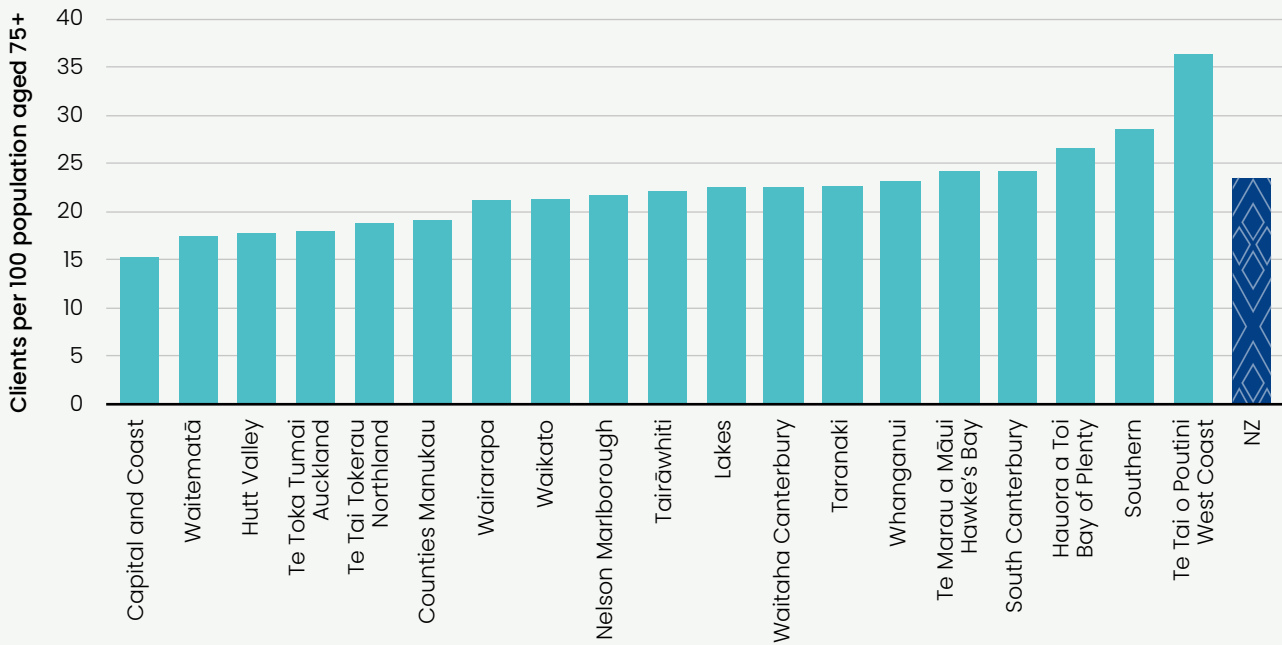
The risk of falls (and associated injury) increases with age – the rate of fracture claims for people aged 65 to 74 years old was 16 per 1,000, compared with 59 per 1,000 for those 85 years and older.<sup>155</sup>

Overall, older people access primary care more frequently than younger age groups, and report fewer barriers to access. People aged 65 years and over are more likely than younger age groups to be enrolled with a PHO (98% versus 95% overall, March 2023). They are also more likely than younger people to have consulted a GP in the previous year (94% versus 78% overall) or practice nurse (38% versus 22%) and have a higher average number of visits (4.3 versus 2.9). They are less likely to report cost as a barrier to accessing primary care (6.5% versus 13.1% overall) (NZHS 2017–20). There are important inequities, however, with Māori and Pacific older people more likely to report cost as a barrier to seeing a GP or nurse than non-Māori/non-Pacific people (HQSC, 2021).

Most people between 65 and 74 years of age live at home without any formal assistance from health services. However, the proportion needing assistance increases with age. Home and community support services (HCSS) provide care and support services in older people's homes to enable them to remain at home and as independent as possible. Older people receiving HCSS are generally aged over 75 years. Around half the population aged 85 years and over live at home with HCSS, while another 28% live in residential care. Other older people will receive support from family or whānau or privately-paid carers.<sup>156</sup>

Home care support services can include personal cares such as help with showering and may include household management such as help with shopping and cleaning. There were around 83,000 people receiving publicly funded HCSS in 2021/22, around 1,700 more than in 2019/20. Access to HCSS ranged from 15 clients per 100 population aged 75 years and over in Capital and Coast district to 36 in Te Tai o Poutini West Coast district, and averaged 24 for Aotearoa New Zealand as a whole.

**Figure 128: Home Care Support Services clients per 100 people aged 75 years and over by district, 2021/22**



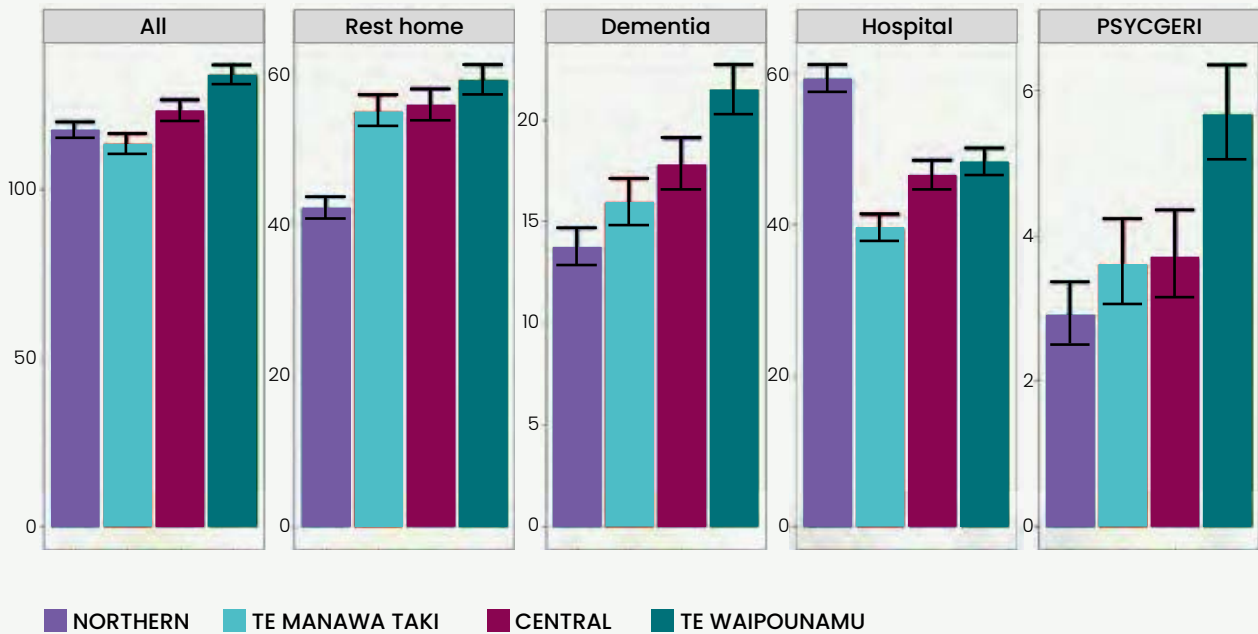
Source: TAS, in-between travel records for caregivers; MidCentral removed as data was affected by change of providers during year

There are around 35,000 people living in aged residential care (ARC) in Aotearoa New Zealand, with around 670 ARC facilities throughout the motu. A needs assessment process informs the allocation of a resident into one of the four levels of care. Most ARC residents (83.9%) receive rest home or hospital level of care, while 13% are in dementia care and 2.4% in psychogeriatric care. Most ARC residents pay a contribution towards their care, with the balance of the care costs publicly funded. Around a third of those in ARC pay the maximum contribution, which is means tested.



**Figure 129: Age-standardised rates of funded occupied ARC beds per 10,000 50+ population by type of bed, 2017/18**

Note that the scales on the charts below are different for each type of bed.



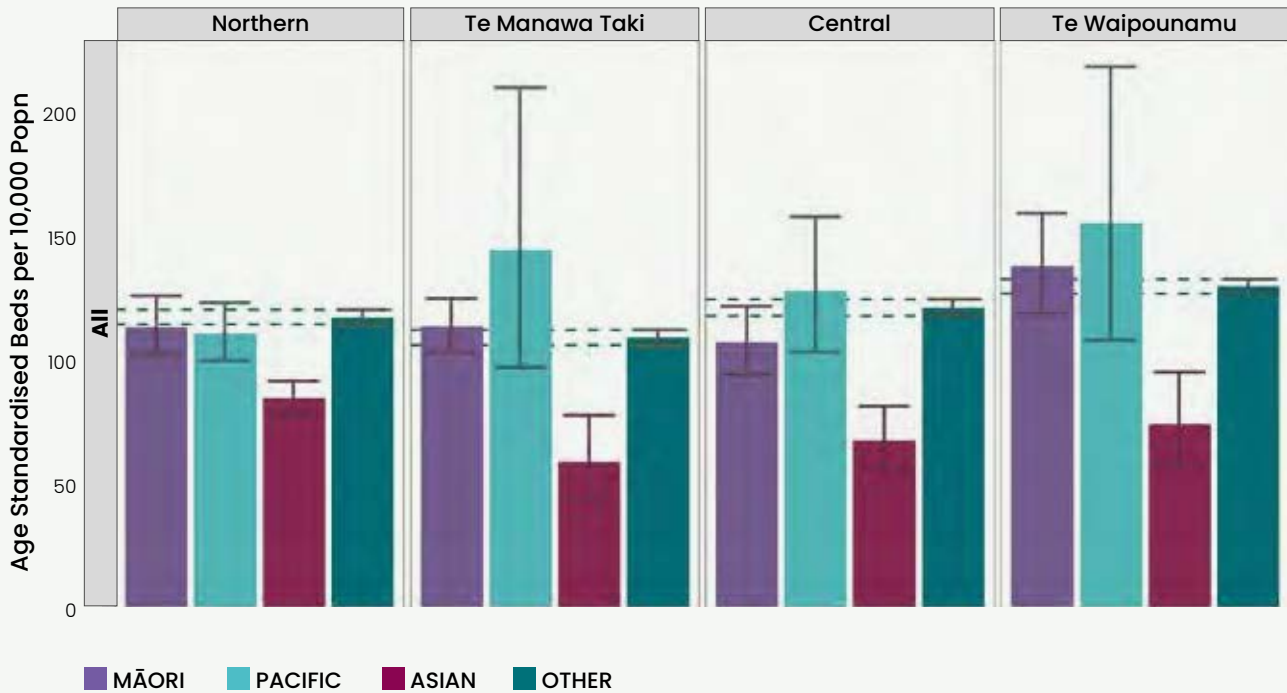
Psychgeri = psychogeriatrics

Source: AgedRelatedResidentialCare\_20230525.pptx prepared by Grant Hanham and Ling Liu Strategy, Planning & Performance, Office of the Chief Executive, Health New Zealand | Te Whatu Ora<sup>157</sup>

Over time, the average age of entry to ARC has increased, as has the degree of frailty. The degree of dependency and medical complexity of residents has increased over recent decades. An increasing proportion of residents receive a higher level of care, with the number of dedicated rest home beds declining as a proportion of the total.

Rates of ARC utilisation vary across regions. Compared with other regions, Northern region has lower rates of use for rest home and dementia care but higher utilisation of hospital-level care. By contrast, Te Manawa Taki has lower utilisation of hospital-level care. Te Waipounamu has the highest utilisation rates overall and for dementia and psychogeriatric beds. This is influenced by the supply of beds at each level of care in the regions. Overall, Te Waipounamu has 18% more ARC beds per head of population aged 85+ years than does the North Island.

**Figure 130: Age-standardised rates of funded occupied ARC beds per 10,000 age 50+ population by ethnicity and region, 2017/18**



Dotted lines refer to the confidence interval range of the average ARC bed rate for each region.  
 Source: AgedRelatedResidentialCare\_20230525.pptx prepared by Grant Hanham and Ling Liu Strategy, Planning & Performance, Office of the Chief Executive, Health New Zealand | Te Whatu Ora<sup>157</sup>

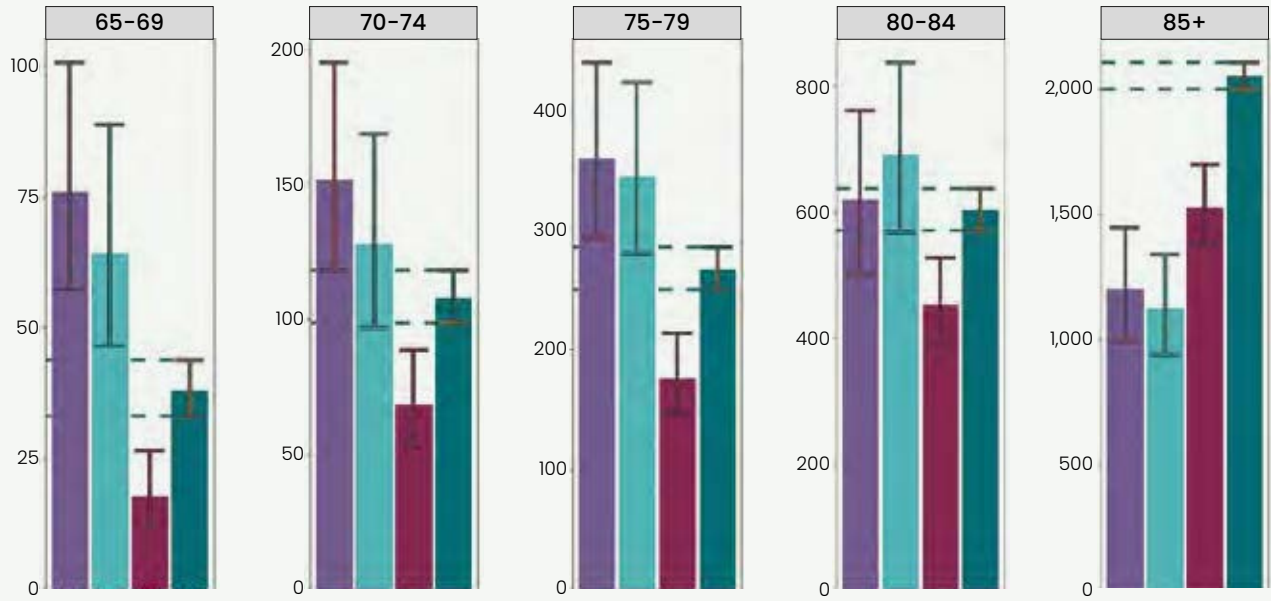
Overall, the age-standardised rate of utilisation of ARC beds is significantly lower for Asian people than for Māori, Pacific people and European/Other people, in all regions. It should be noted that the utilisation rates presented in these figures represent funded ARC beds. These will therefore not include those rest home residents who pay the maximum contribution, as there is no additional publicly funded top-up for this group. This group accounts for approximately 37% of rest home residents, and approximately 16% of the total ARC population.

Most people receiving aged residential care are 85 years old or older. By age cohort, Māori under the age of 85 years tend to have higher utilisation rates than Asian and European/Other people. After the age of 85 years, Māori and Asian people have lower rates of access than European/Other people. In the Northern region, the pattern for Pacific people is similar to that for Māori. The other regions have very small numbers of Pacific people in this age group and so the utilisation rates have very wide margins of error. This difference in utilisation rates may reflect the fact that Māori and Pacific people experience higher health need at younger ages than non-Māori, non-Pacific, a reflection of inequities in the prevalence of chronic conditions and disability. These rates may still reflect unmet need for ARC access for Māori, in particular in the 85 years and older group.<sup>158</sup>

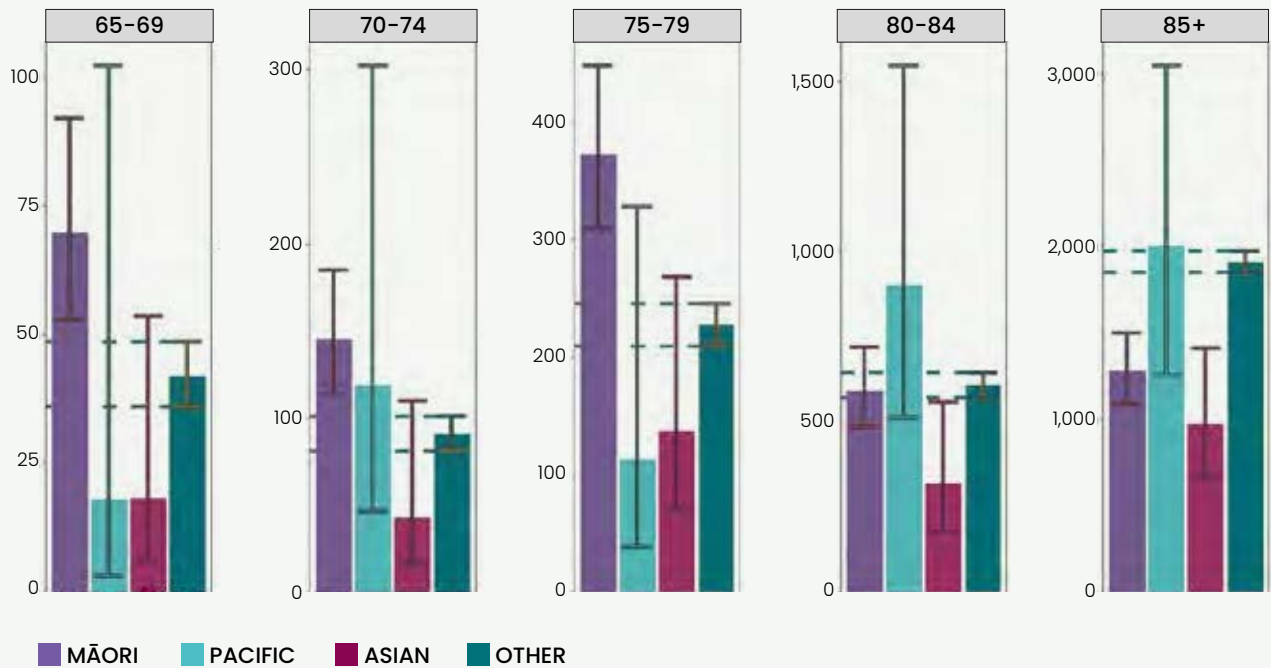
**Figure 131: Age-standardised rates of funded occupied ARC beds per 10,000 age 65+ population by age group, 2017/18**

Note that the scales on the charts below are different for each age group.

**Northern**



**Te Manawa Taki**



■ MĀORI ■ PACIFIC ■ ASIAN ■ OTHER

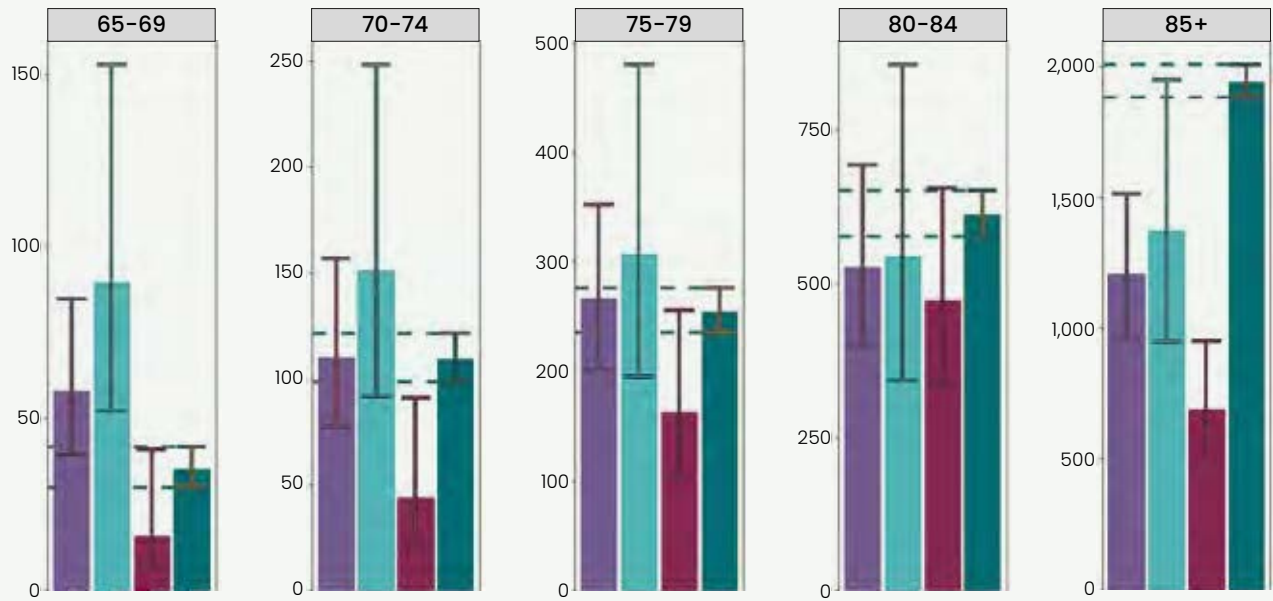
Dotted lines refer to the confidence interval range of the average ARC bed rate for each region.

Source: AgedRelatedResidentialCare\_20230525.pptx prepared by Grant Hanham and Ling Liu Strategy, Planning & Performance, Office of the Chief Executive, Health New Zealand | Te Whatu Ora<sup>157</sup>

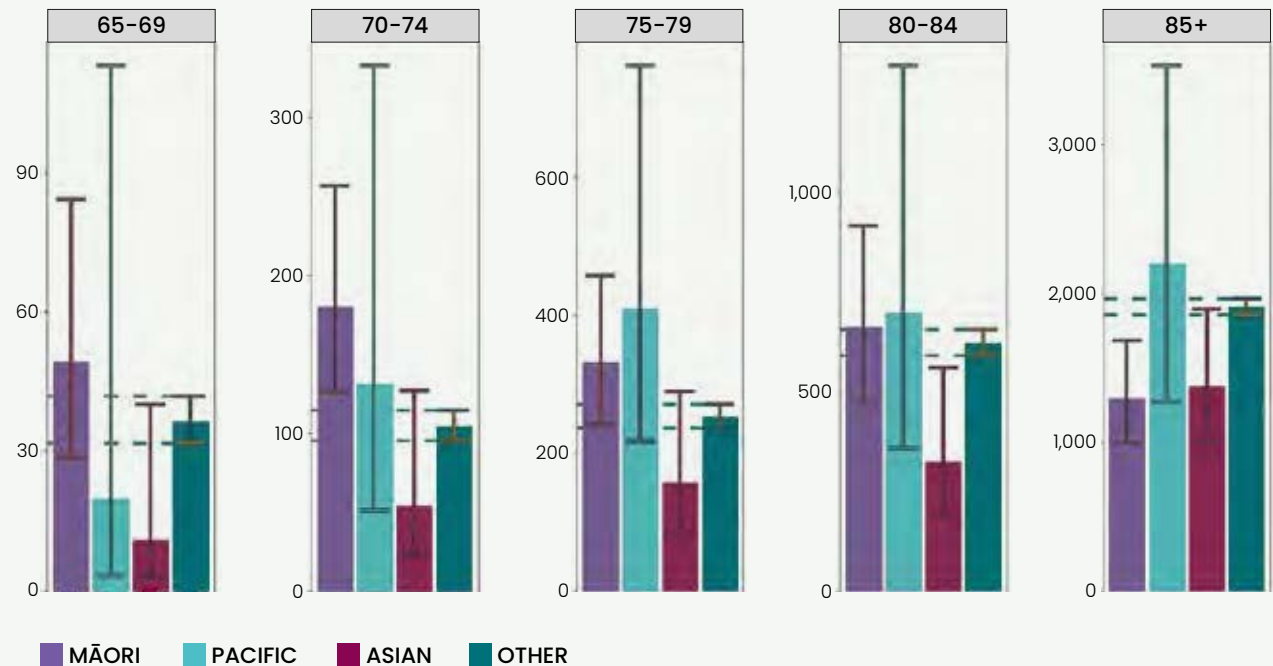
**Figure 132: Age-standardised rates of funded occupied ARC beds per 10,000 age 65+ population by age group, 2017/18**

Note that the scales on the charts below are different for each age group.

**Central**



**Te Waipounamu**



■ MĀORI   ■ PACIFIC   ■ ASIAN   ■ OTHER

Dotted lines refer to the confidence interval range of the average ARC bed rate for each region.

Source: AgedRelatedResidentialCare\_20230525.pptx prepared by Grant Hanham and Ling Liu Strategy, Planning & Performance, Office of the Chief Executive, Health New Zealand | Te Whatu Ora<sup>157</sup>

## Section 7

# Health services

Health services have an important role to play in maintaining and improving the health of the population.

While this report concentrates on health status measures at the population level, there are a number of indicators based on the use of health services that can provide useful information. Coverage of the population by health services – primary care, oral health – is important in and of itself, and can also be used as a proxy health measure. Descriptions of health service provision, capacity and workforce are outside the scope of this report.





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## 7.1 Community healthcare

Community based healthcare is delivered by a variety of practitioners and providers (both publicly and privately funded) across the country.

These include general practitioners, allied health professionals such as physiotherapists and dietitians, dentists, pharmacists, district nursing services, opticians, outreach immunisation services, Māori- and Pacific-specific providers and a range of others.

Primary healthcare services are often the first point of contact with health services. GPs undertake several recommended preventive health interventions, including smoking cessation advice and support, CVD risk screening, cervical screening and vaccinations.

There are currently 38 primary health organisations (PHOs) operating in Aotearoa New Zealand. The national GP full-time equivalent (FTE) rate estimates that there are 62 GPs per 100,000 population, which is nearly half that of the Australian national estimate of 116 GP FTE per 100,000. There is also significant ethnic inequity in the GP workforce with only 4% identifying as Māori and 1.7% as Pacific ethnicity.<sup>159</sup> This inequity is reflected in the wider medical workforce with Māori making up 3.8% of doctors (16.5% of the population) and Pacific people 1.8% of doctors (8.1% of the population) in 2019. Māori are increasingly represented in recent intakes to medical schools (15.3% of 2015–19 intakes) and recent graduates (16% for Otago and 14% for Auckland in 2018), but there remains a significant way to go to achieve equity from a medical workforce perspective. Pacific people make up 7.2% of the medical student intake (New Zealand Medical Association workforce survey 2019<sup>160</sup>).

Nationally, 95% of residents are enrolled with a PHO (more than 4.8 million people). Te Toka Tumai Auckland, Waitematā, Te Tai o Poutini West Coast and South Canterbury districts have the highest enrolment rates at 98% or 97%. Te Marau a Māui Hawke's Bay, Hauora a Toi Bay of Plenty, Lakes and Te Pae Hauora o Ruahine o Tararua MidCentral districts have

the lowest rates at 92% enrolment. There are known misclassification issues with ethnicity within PHO enrolment data, but Māori and Asian people have lower enrolment rates than average in many districts. Enrolment rates also vary by age, with 10% (around 63,000) of 15 to 24 year olds and 7% (around 105,000) of 25 to 44 year olds not enrolled with a PHO (source: Ministry of Health enrolment data March 2023).

Three out of four (76%) adults had seen or talked to a GP in 2021/22, along with 63% of children (NZHS 2021/22). These figures had dropped slightly compared with pre-COVID rates. Practice nurse visits had increased though, with 36% of adults and 33% of children having seen a practice nurse without seeing a GP. Overall, 11% of adults reported that the cost had prevented them, on at least one occasion in the past year, from visiting a GP. But the proportion who found cost a barrier ranged from 6.6% of those living in areas with the least socio-economically deprived NZDep scores to 14% for those living in areas with the most socio-economically deprived NZDep scores.

The cost of filling a prescription was too high for 3.3% of adults overall, but 8.4% of Māori reported being unable to fill a prescription due to the cost (NZHS 2021/22). In Budget 23, the \$5 co-payment for each funded prescription item was removed.

Primary care patients are surveyed by the Health Quality and Safety Commission on a range of topics including their experience of access to care, consultations, medication and testing. Inequity of access to care, particularly for Māori patients, is evident. In the February 2023 survey results one in four European/Other patients (25%) reported that there had been a time in the last 12 months when they could not get care when they wanted it from a GP or nurse, whereas approximately one in three Māori patients

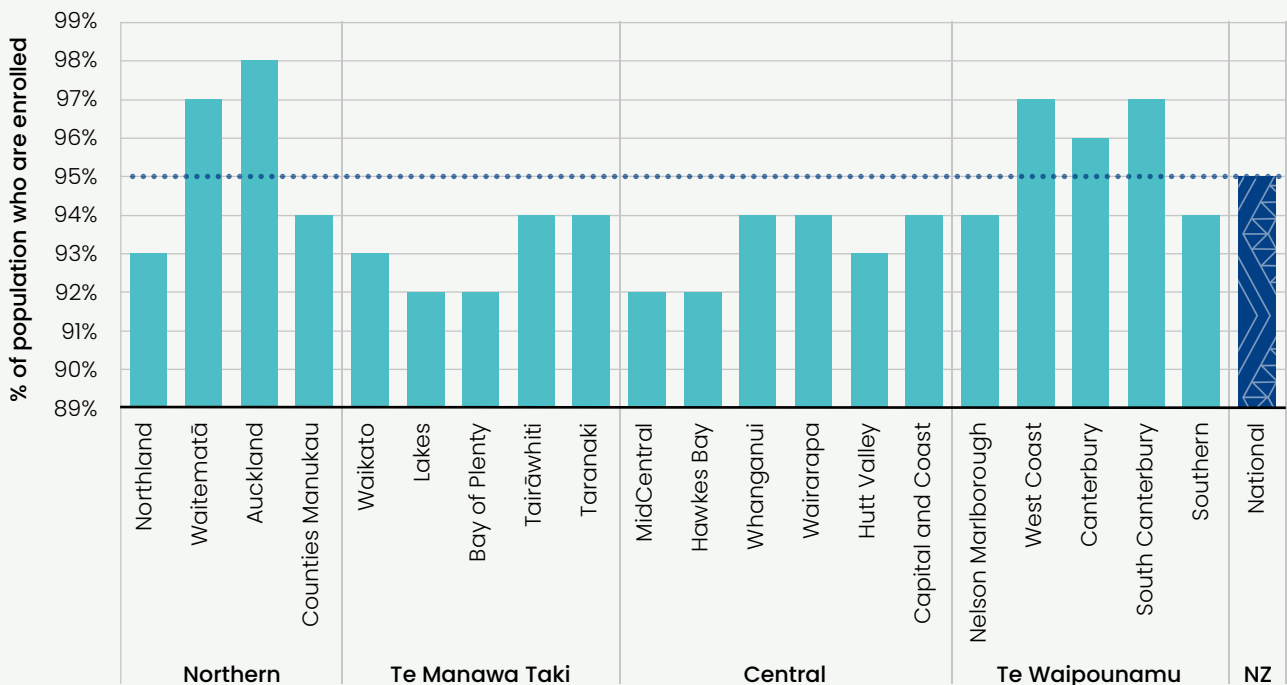


reported they could not get care. Of the reasons given, 4.1% of Māori versus 2.5% of European/Other patients expressed difficulty getting time off work, 22% of Māori versus 19% of European/Other patients reported long waiting times and 3.2% of Māori versus 2.2% of European/Other patients reported expense as a reason.

Only 70% of Māori respondents had a usual healthcare professional, and 81% saw them at their last visit, whereas of European/Other respondents, 76% had one usual healthcare professional and 83% managed to see them at their last visit. Of those patients that responded to the survey, 7.5% of European/Other respondents reported that they had not picked up a prescription in the last year due to cost, compared with 18% of Māori patients. For the following experience topics, no major differences were seen by ethnicity. Of those surveyed approximately 84–86%

had trust and confidence in the healthcare professional and were involved as much as they wanted to be in making decisions about their care. Approximately nine out of ten patients felt that the healthcare professional listened to them (91–93%) and that their individual needs were met during their consultation (85–87%). However, differences were seen in some other patient experience areas. Cultural and spiritual needs were met more frequently for European/Other patients than Māori patients (95% versus 87% and 89% versus 81% respectively). Fewer Māori patients experienced their name pronounced correctly (91%) compared to European/Other patients (96%) and fewer Māori patients reported not being treated unfairly (92% versus 86%). Further topics and details on ethnicity and district level results are available through the Adult Primary Care Patient Experience Explorer.<sup>161</sup>

**Figure 133: PHO Enrolment March 2023**



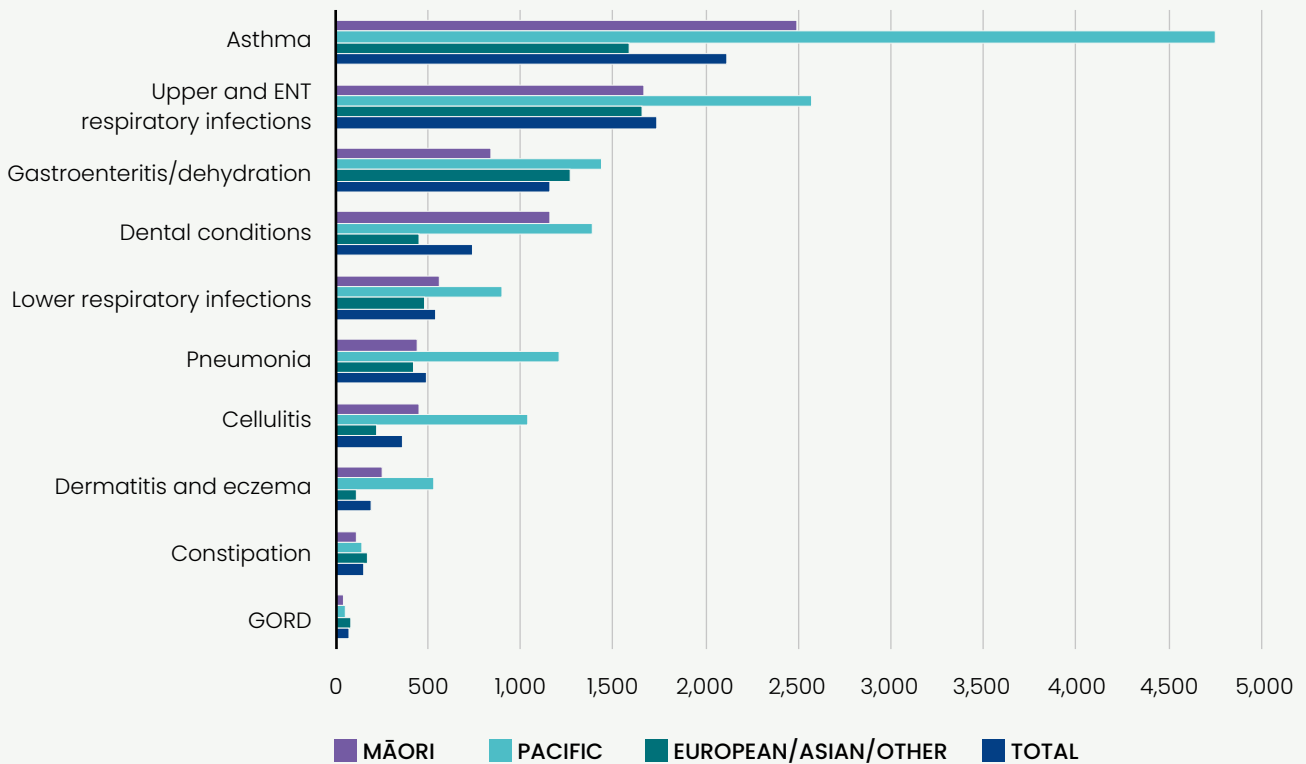
Source: Ministry of Health enrolment data (based on comparisons with estimated resident population)

## 7.1.1 Ambulatory sensitive hospitalisations (ASH)

Ambulatory sensitive hospitalisations (ASH) are used as a proxy measure of avoidable hospital admissions. ASH conditions are a subset of all health conditions that are believed to be relatively amenable to out-of-hospital management. ASH rates

are undoubtedly impacted by the quality of primary healthcare services, but also by socio-economic conditions, quality of population healthcare, and the interfaces between population health, primary/community care and secondary/hospital care.<sup>162</sup> Causes will vary between regions.

**Figure 134: Top 10 ASH conditions, 0–4 age group, rate per 100,000 population, 12 months to end March 2023**



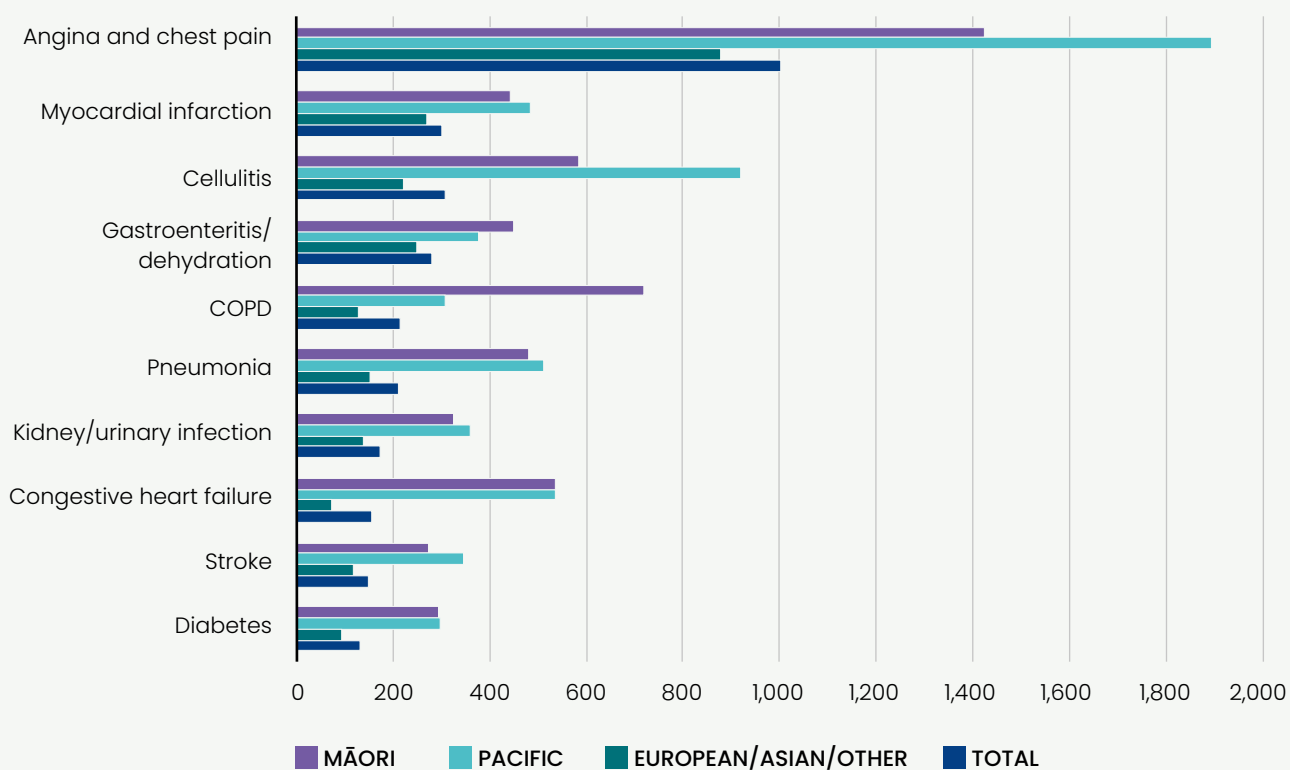
ENT = ear, nose and throat; GORD = gastro-oesophageal reflux disease

Source: National Minimum Dataset (NMDS), Statistics New Zealand population projections

During the 12 months to March 2023, the most common ambulatory sensitive hospitalisations for 0 to 4 year olds were for asthma,\* respiratory infections, gastroenteritis/dehydration and dental conditions. The most common ambulatory sensitive hospitalisations in the adult

population (45 to 64 years) were for angina and chest pain, myocardial infarction, cellulitis, and gastroenteritis/dehydration. Rates are highest among Māori and Pacific people in both age groups.

**Figure 135: Top 10 ASH conditions, 45 to 64 age group, standardised rate per 100,000 population, 12 months to end March 2023**



COPD = chronic obstructive pulmonary disease (like bronchitis and emphysema).  
 Source: National Minimum Dataset (NMDs), Statistics New Zealand Population Projections

\*Asthma is not generally diagnosed in those under 5 years old, primarily diagnosed as 'wheeze' in this age group and usually viral. Treatment for pre-school wheeze differs from asthma treatment.

## 7.2 Oral health

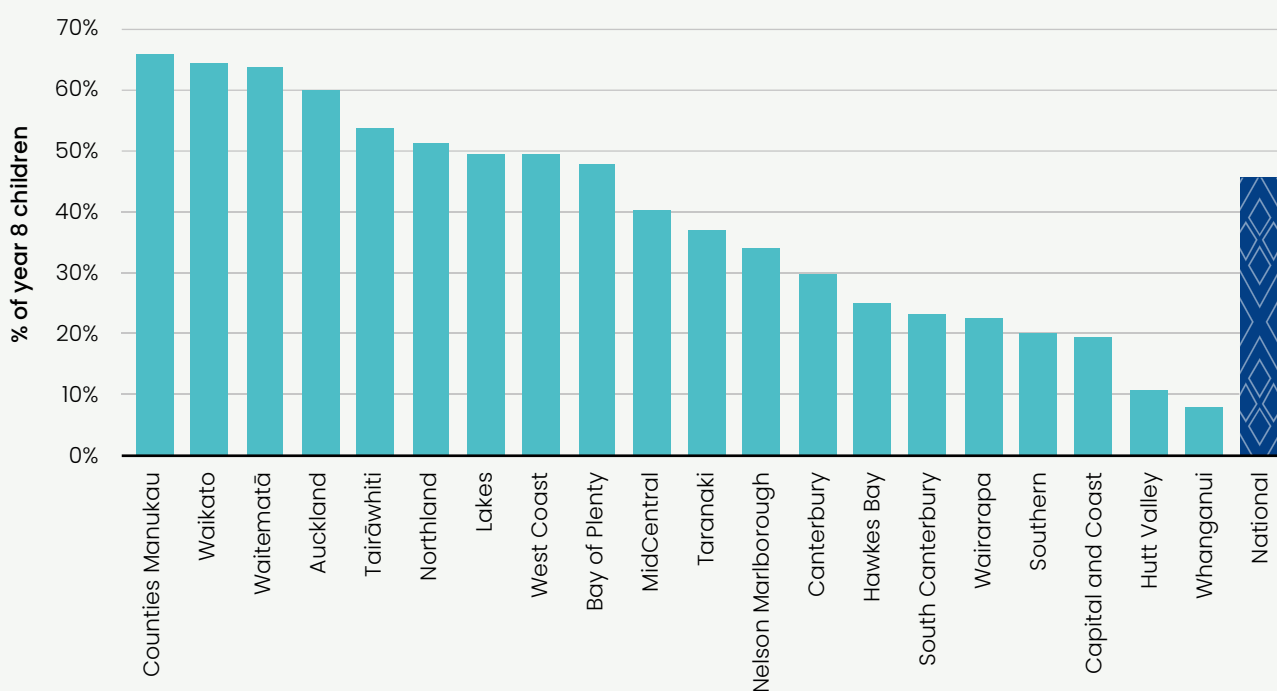
Poor oral health and chronic pain from oral health conditions can negatively affect children’s growth and development and reduce people’s quality of life.

Good nutrition and oral health during pregnancy and the establishment of sound oral health behaviours for the infant in the first year of life may prevent childhood dental caries and improve overall oral health.<sup>163</sup>

At a population level Māori and Pacific children have poorer oral health than those of other ethnicities. A large portion of pre-school children (93%) are enrolled with oral health services. Ethnicity rates are difficult to interpret due to misclassification, but 81% of Māori children are likely to have lower rates (MoH CW03a, 2021). Disruptions to care during the outbreak of COVID-19 has contributed to 46% of school children (up to year 8) being overdue for a scheduled examination (47% of Māori and 58% of Pacific children) in June 2022.

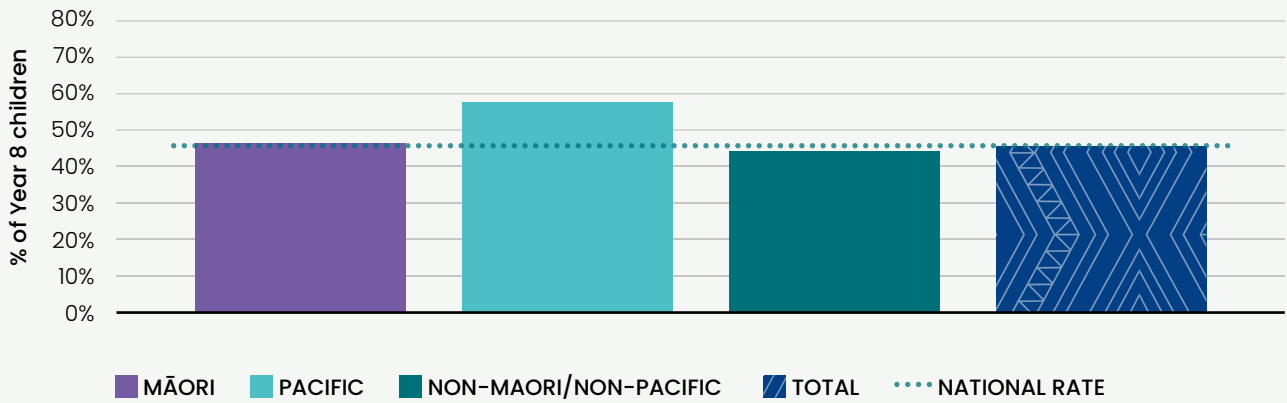
For non-Māori/non-Pacific five year olds, two out of three (68%) were caries-free, compared with 41% of Māori and 33% of Pacific children. Five year olds have an average of 1.9 decayed, missing or filled teeth (DMFT). Māori children have an average of 2.9 DMFT and Pacific children have an average of 3.6 DMFT, while non-Māori/non-Pacific children have an average of 1.3 DMFT. District variability in oral health status highlights Capital and Coast/Wairarapa and Southern with the least amount of caries or decay and Te Tai Tokerau Northland and Counties Manukau with the most at age five (MoH Community Oral Health service (COHS) data 2021).

Figure 136: Oral health visits overdue up to year 8 by district, June 2022

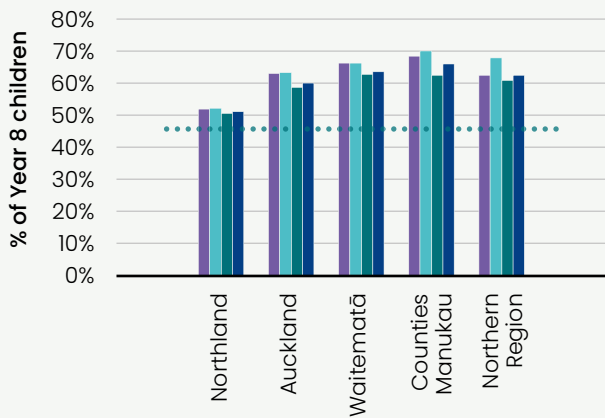


Source: MoH COHS data 2022

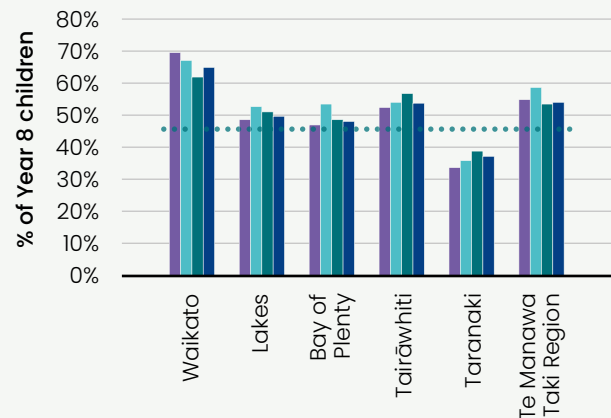
Figure 137: Oral health visits overdue up to year 8 by ethnicity and district, June 2022



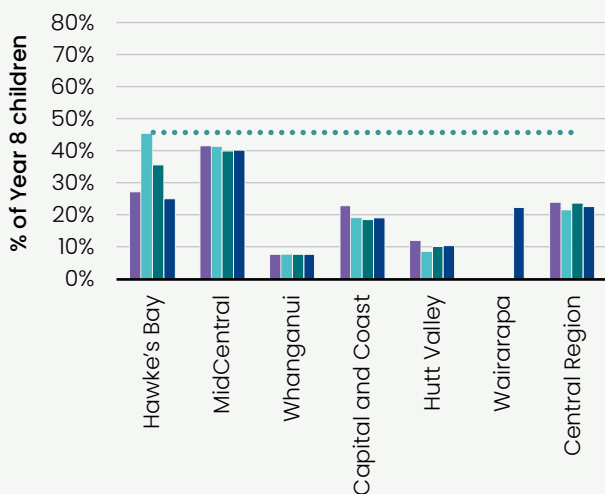
Northern



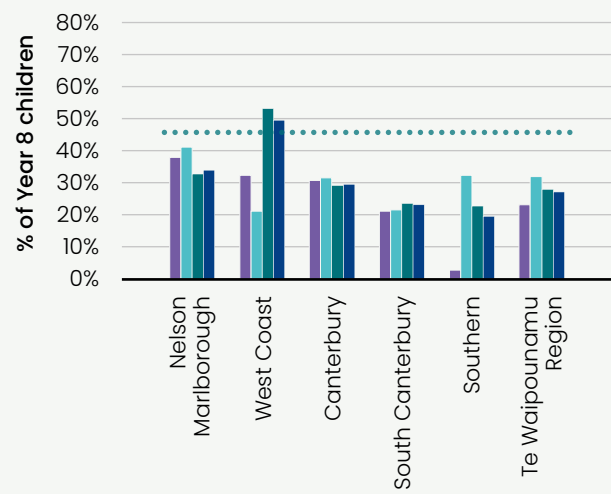
Te Manawa Taki



Central

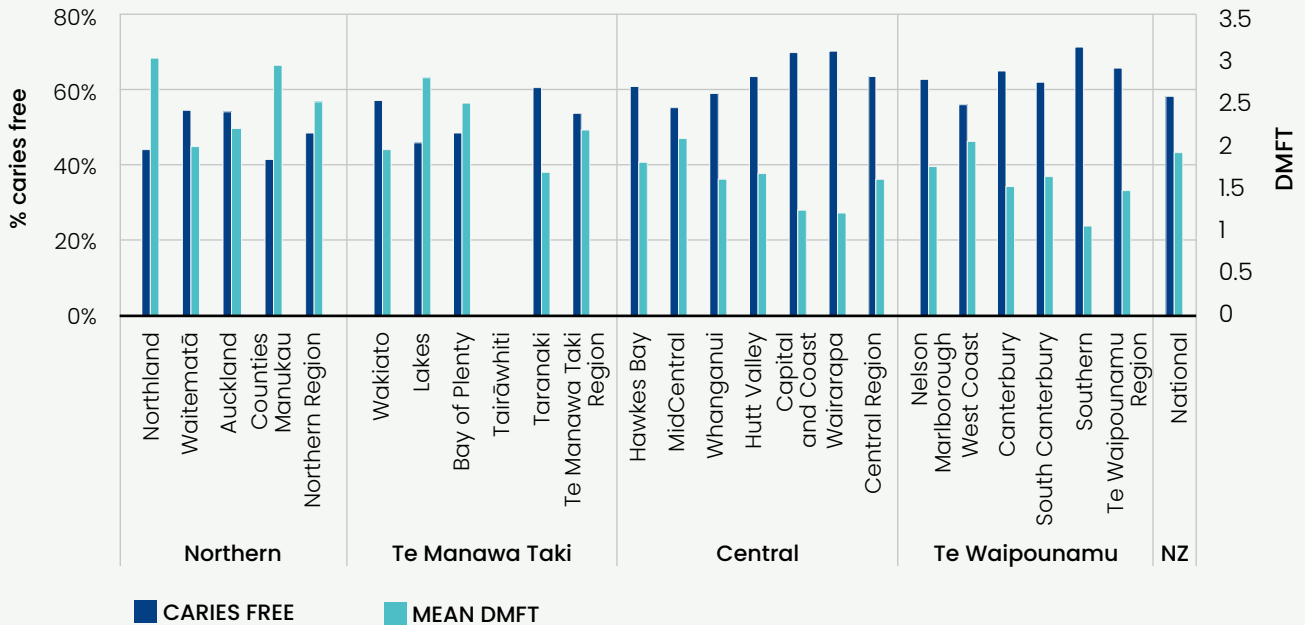


Te Waipounamu



Source: MoH COHS data 2022

**Figure 138: Oral health status 5 year olds by district, 2021**



Note: no Tairāwhiti data due to collection issues  
 Source: MoH COHS data 2021

Nationally, approximately 64% of children aged 0 to 14 years brush their teeth twice daily with fluoride toothpaste.

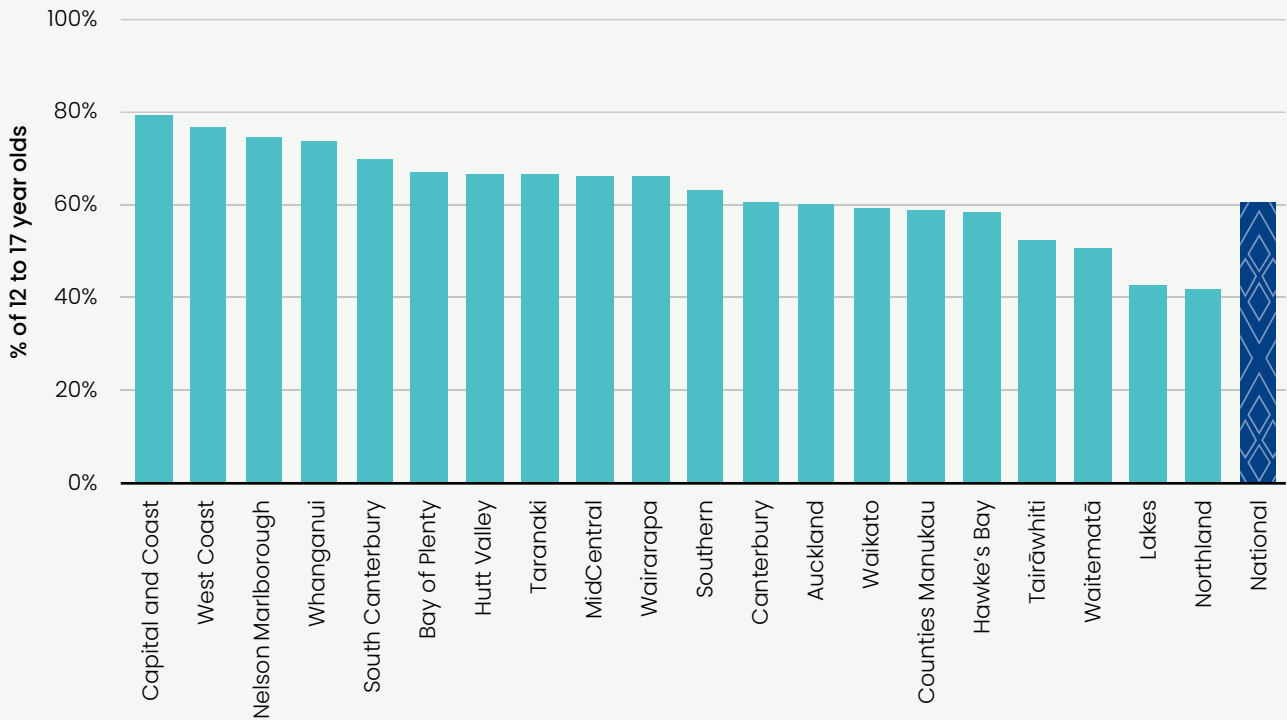
This is lower for Māori (57%) and Pacific (46%) children or for those living in NZDep2013 quintile 5 areas (56%) (NZHS 2021/22). Utilisation of community oral health services by adolescents aged 12 to 17 years is approximately 61% overall, 44% for Māori and 58% for Pacific people (Ministry of Health CW04, 2021), all well below the target of 85%. Utilisation varies across districts, ranging from 79% in Capital and Coast to 42% in Te Tai Tokerau Northland.

National data show that approximately 13% of adolescents aged 12-17 years have dental decay. Dental decay is more prevalent in Māori and Pacific adolescents and those living in quintile 5 areas. The proportion of Year 8 school children (aged 12 to 13 years) in Aotearoa New Zealand who are caries free is 71%. For non-Māori/non-Pacific year 8's, 75% were caries free, compared with 62% of Māori and 64% of Pacific children.

Year 8 children have an average of 0.7 DMFT. Māori and Pacific children have an average of 1.0 and 0.8 DMFT, respectively, while non-Māori/non-Pacific children have an average of 0.6 DMFT. District variability in the oral health status of Year 8's highlights Waikato and Te Toka Tumai Auckland/Waitematā with the least amount of caries or decay and Lakes and Te Pae Hauora o Ruahine o Tararua MidCentral with the most (Ministry of Health COHS data 2021).

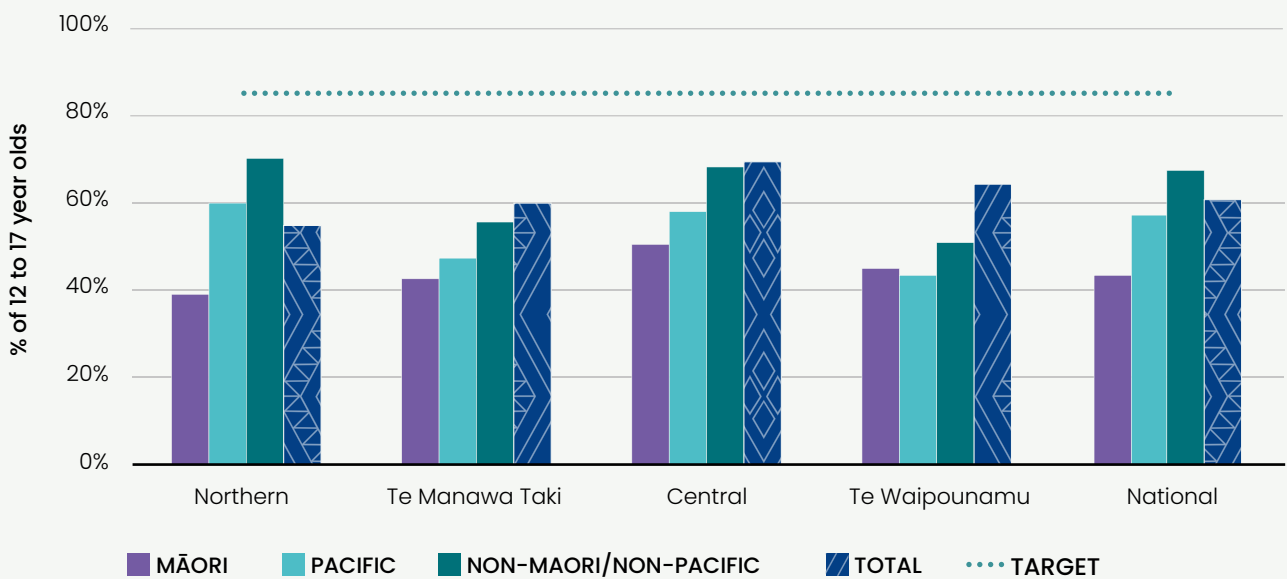


**Figure 139: Adolescent oral health care utilisation by district, 2021**



Source: MoH COHS data 2021

**Figure 140: Adolescent oral health care utilisation by district and ethnicity, 2021**

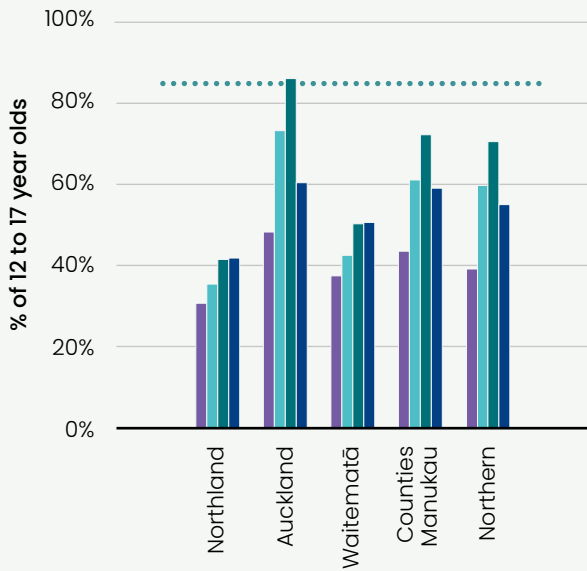


Source: MoH COHS data 2021

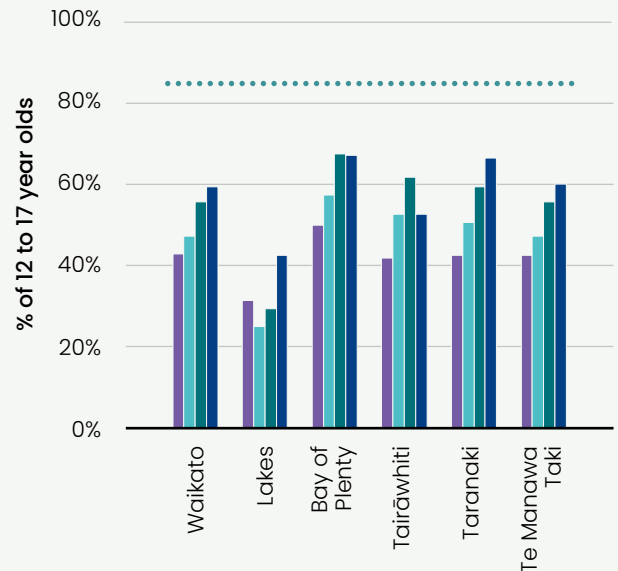
**Figure 141: Adolescent oral health care utilisation by district and ethnicity, 2021**

■ MĀORI   
 ■ PACIFIC   
 ■ NON-MAORI/NON-PACIFIC   
 ■ TOTAL   
 ⋯ TARGET

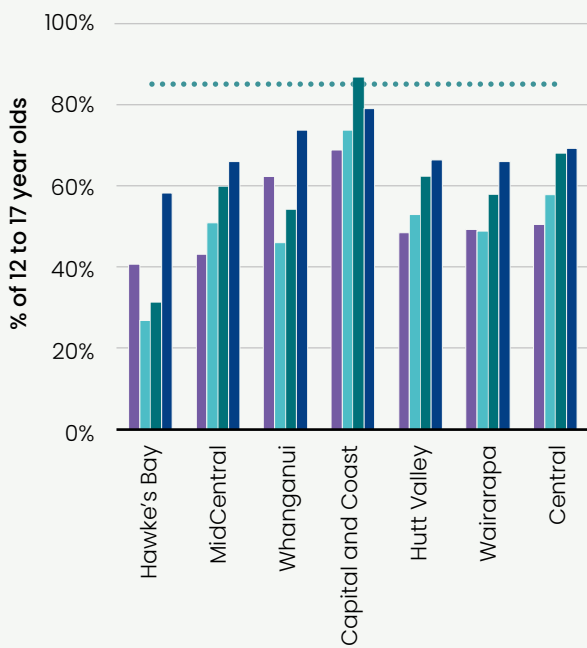
**Northern**



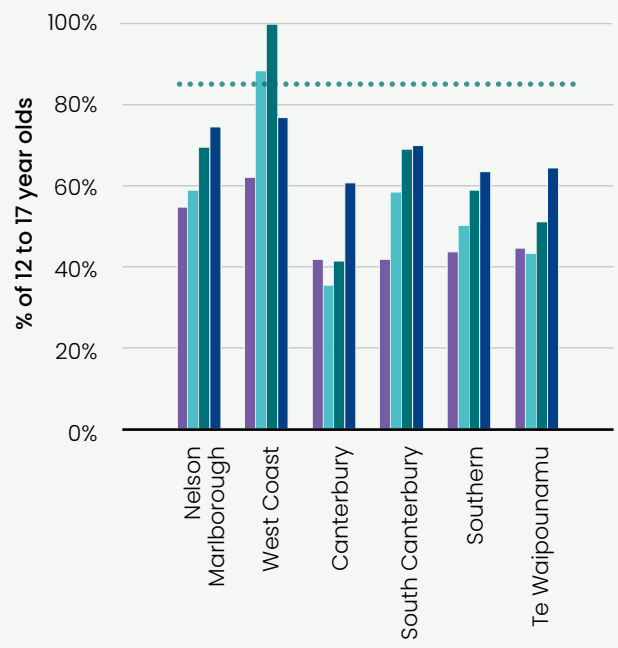
**Te Manawa Taki**



**Central**

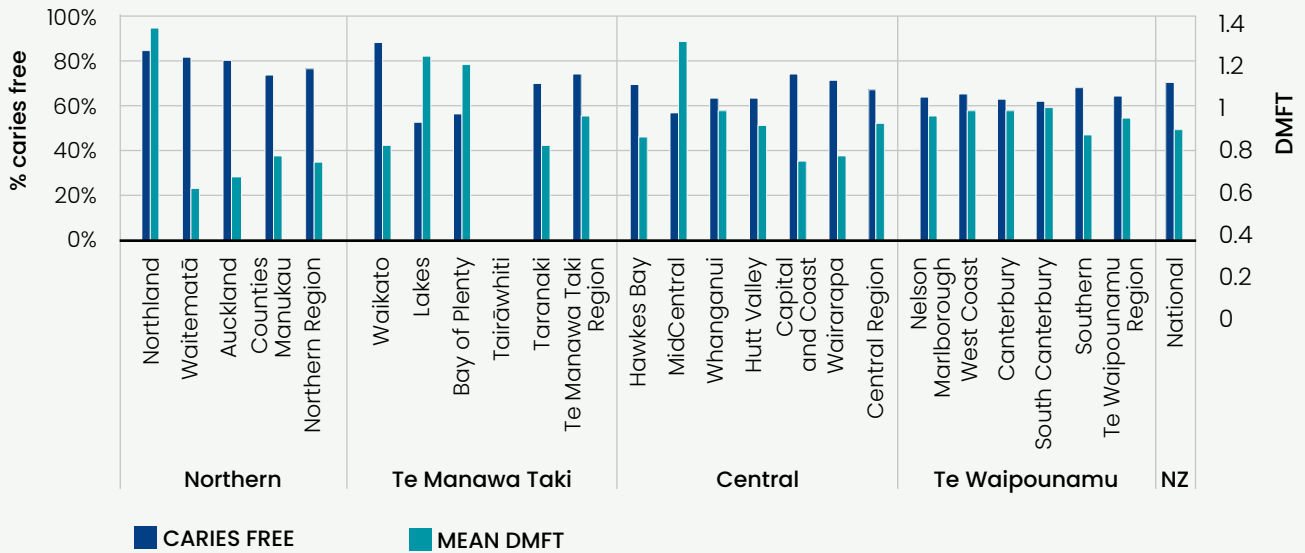


**Te Waipounamu**



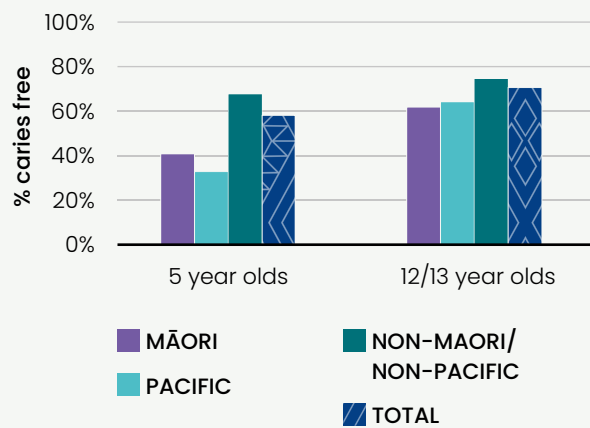
Source: MoH COHS data 2021

**Figure 142: Oral health status, year 8 by district, 2021**



Note: no Tairāwhiti data due to collection issues  
Source: MoH COHS data 2021

**Figure 143: Proportion of children examined who were caries-free, 2021**



Source: MoH COHS data 2021

Data to the end of this section are sourced from the NZ Health Survey 2021/22. *Our Oral Health: Key findings of the 2009 New Zealand Oral Health Survey* by the Ministry of Health (Wellington 2010) found that approximately 59% of adolescents brush their teeth twice daily. This is lower for Māori, and those

living in quintile 3-5 areas. It also found that approximately one in four adolescents experience trauma to the upper front six teeth.

Dental services for adults are not publicly funded apart from urgent relief of pain clinics delivered at some hospitals. One in three adults (37%) report that cost is a barrier to accessing dental healthcare. This rises to one in two Māori adults and 46% of Pacific adults. For Asian and European/Other adults, the proportions are 35% and 36% respectively. About 6% of all adults have had one or more teeth removed in the past 12 months (due to decay, an abscess, infection or gum disease). Just over half (54%) of European/Other adults, 40% of Māori, 40% of Pacific people and 35% of Asian adults have seen an oral health worker in the last year. About half of New Zealanders only visit a dental healthcare worker for toothaches/dental problems or never. This varies across ethnic groups, with a smaller proportion of European/Other adults (42%) than of Asian (65%), Māori (67%) and Pacific (70%) adults likely to only visit a dental healthcare worker for toothaches/dental problems or never. Approximately 69% of all adults brush their teeth twice daily.

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## 7.3 Public health

The National Public Health Service is one of the divisions of Health NZ and brings together activities such as Communicable Disease Control, Environmental Health, Border Health, compliance related to harmful commodities and public health coordination and response.

This includes responsibility for communicable disease control through the disease notification system. Most notably, public health services took the lead in the response to the COVID-19 pandemic. Other important diseases followed up include tuberculosis, enteric disease outbreaks, and hepatitis B and C. Diseases that have required recent management have included measles – with 12 confirmed cases since July 2022 with nearly 2,000 contacts, and monkeypox with 44 confirmed cases nationally over the same time period. The service also has some responsibilities around immunisation.

Public health services also have many responsibilities around monitoring and protecting our environment as it impacts health. Important areas of focus are wastewater, drinking water, shellfish quality, food safety, and early childhood centres.

Noncommunicable disease prevention is another important area of activity. This includes both health promotion and regulatory activity in the areas of:

**Alcohol** – priority areas of focus include programmes focused on reducing consumption, restricting promotion of alcohol (including in social media, branding of sports and cultural events, educational initiatives and charitable works), reducing trading hours and strengthening community input into alcohol licensing.

**Tobacco control** – focus is on smoking cessation services and programmes to achieve Smokefree 2025.

**Nutrition** – priority actions include developing a National Obesity Plan, adopting the healthy food and drink policy of Health New Zealand I Te Whatu Ora, supporting community initiatives, working with the education sector to increase healthy foods in schools and early learning services and promoting policies which focus on reducing sodium and sugar content in processed food and reducing exposure to unhealthy food marketing.

The Tobacco and Vaping Regulatory Authorities perform a range of functions in relation to the regulation of these products including assessing applications to become approved to sell them. They also carry out compliance checks to ensure that retailers are complying with the regulations relating to the sale of vaping and tobacco products in each region and can issue infringement notices (which carry a fine). The total number of infringement notices issued during the six-month period 1 March 2023 to 31 August 2023 was 65: 51 vaping, 14 tobacco.

Public health services also work on healthy housing programmes, and refugee and asylum seeker health, biosecurity, border response, and emergency management. Some services are also provided by some NGOs. For example, regional iwi providers deliver Well Child, stop smoking, nutrition and physical activity, alcohol and drug, and mental health prevention programmes and services. Some special interest NGO services focus on one issue, for example, the National Heart Foundation and the Mental Health Foundation.

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## 7.4 Prison health services

In the year to December 2022 there were 14,000 people sent to New Zealand prisons on remand and 7,200 following sentencing (the two figures overlap).

The prison population is a vulnerable group, often with complex health needs, particularly mental health and addiction issues, and history of traumatic brain injury.<sup>164</sup>

Each prison has a health centre with registered nurses employed by Corrections. Doctors and dentists are contracted to provide primary medical and dental care, while more specialised care is provided through Health New Zealand I Te Whatu Ora services. A comprehensive health check is carried out on each person entering the prison system – they are at increased likelihood of having unmet health needs. Offenders who are experiencing physical and mental health issues need effective management of their conditions. If successful this can reduce the risks of re-offending.

Of particular concern are mental health and alcohol and other addiction needs. These are often serious health issues that have contributed to the reason for prison, and act as a barrier to people accessing rehabilitation and reintegration services. A growing number of inmates have complex mental health and intellectual disability needs.



“During 2022/23, 3,881 referrals were received by the Improved Mental Health (IMH) Services (2021/22: 3,197). A total of 12,729 hours of face-to-face clinical contact were delivered by IMH clinicians for people with mild-to-moderate mental health needs [2021/22: 13,480].... In 2022/23, there were five unnatural deaths in prisons [2021/22: 12] believed to be a result of suicide. During this same period, there were 62 incidents of self-harm in prisons that were so serious that they posed a threat to a person’s life [2021/22: 5815].”

[Corrections Annual Report 2022/23](#)

While some prisons manage to provide good care for inmates, there is variability in the quality and completeness of health checks on admission to prison, care while in prison, and continuity of care for prisoners after they return to the community. Health NZ is participating in cross-agency work is underway, including with Health NZ, to try to address this.

There are high rates of hepatitis C within prison populations. All known carriers have been offered eradication treatment.

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## 7.5 Hospital-based care

Hospitals across the country currently provide a variety of publicly funded health and disability services such as medical, surgical, maternity, diagnostic and emergency services.

The range of services offered by an individual hospital is affected both by the size of the local population and the services offered by other hospitals in the region. Some services are only offered regionally by one hospital in the area. Some specialist services may only be provided by one hospital for the whole of Aotearoa New Zealand. An example of this is Auckland Hospital which provides organ transplants (heart, lung and liver), specialist paediatric services, epilepsy surgery and high-risk obstetrics not available elsewhere in the country. Hospital services are provided through emergency departments or on an inpatient or outpatient basis, depending on the type of care that a patient needs:

- emergency department (ED) attendances include those discharged from ED as well as those admitted to hospital
- inpatients are admitted to hospital and either are treated that day in hospital (with more than 3 hours' treatment), or stay overnight
- outpatients attend clinics where they receive specialist services without being admitted to hospital (fewer than 3 hours' treatment).

Sometimes public hospitals provide services to private patients, for example maternity. Specific protocols agreed by Cabinet must be met for this to occur.

### 7.5.1 Emergency departments (EDs)

About 15% of Aotearoa New Zealand's adult population and 16% of the child population visited a hospital ED in 2022. The age-standardised rate of ED attendance per 100,000 population was 32,100 for Māori, 30,400 for Pacific people and 21,200 for non-Māori/non-Pacific people. Lack of disaggregation of Asian data from the non-Māori/non-Pacific group is a limitation of this section.

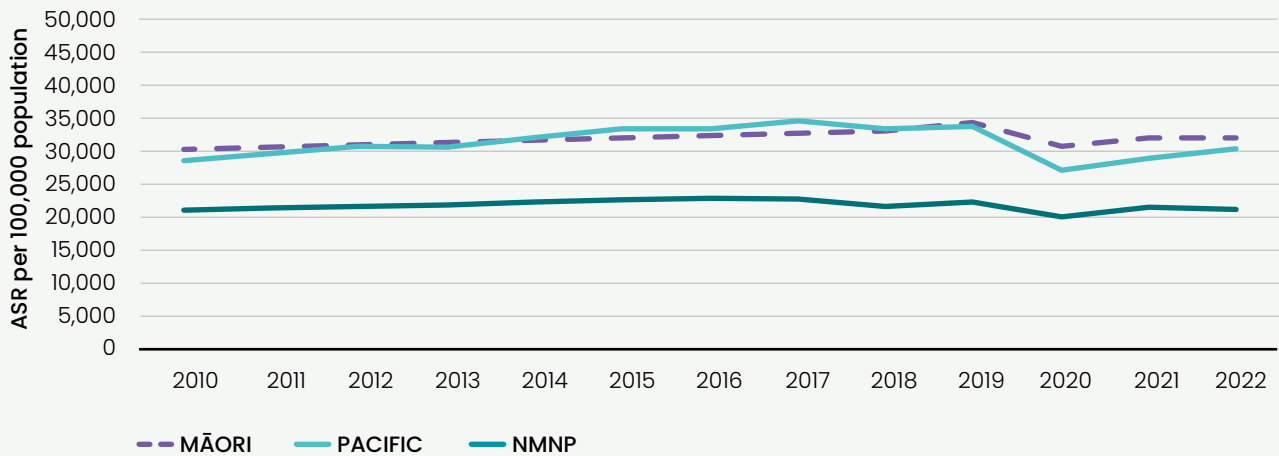
Up until 2019, ED presentation rates (age-standardised per 100,000 population) steadily increased. Demand fell dramatically over 2020 with the COVID-19 related lockdowns. While rates of ED presentations have not returned to pre-COVID levels (i.e. 2019), they have increased again for Māori and Pacific people across New Zealand (6-7% growth across Aotearoa New Zealand between 2010 and 2022). In contrast, rates for non-Māori/non-Pacific populations have remained relatively static.

By region, rates are highest for the three ethnic groups considered in Te Manawa Taki and lowest for the three ethnic groups in the Northern region. As of March 2022, only 79% of patients across the country were either discharged or moved to a ward within six hours of presenting to the ED, which was much lower than the target of 95%. Regional variation was noted with the highest proportion in Te Waipounamu (83%) and lowest in the Central region (73%).

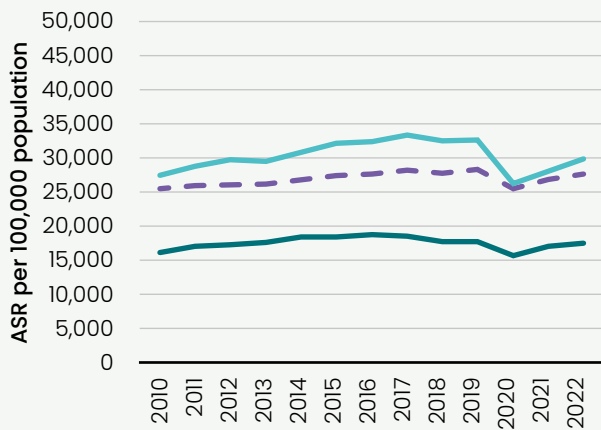
The actual number of ED attendances is driven by the increases in rates of attendance shown here, together with population growth.



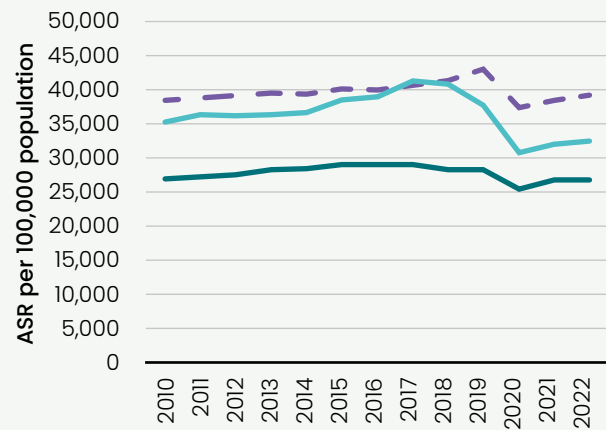
**Figure 144: National emergency department attendances**  
by ethnicity, age-standardised rate per 100,000 population, 2010–2022



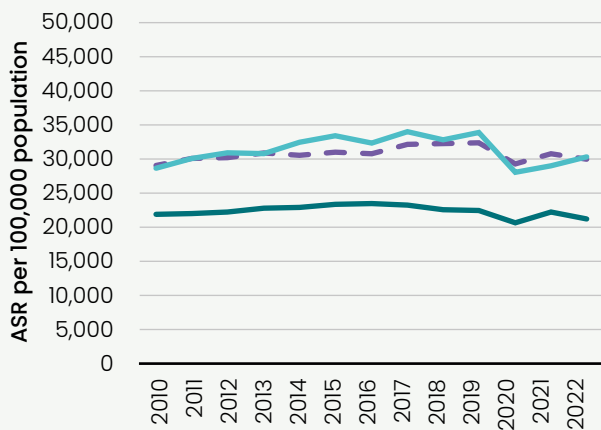
**Northern**



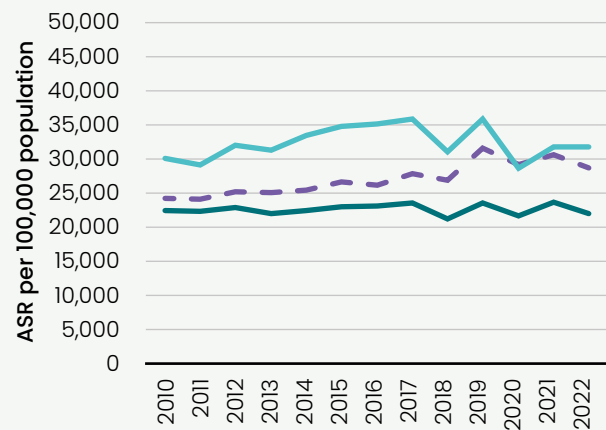
**Te Manawa Taki**



**Central**



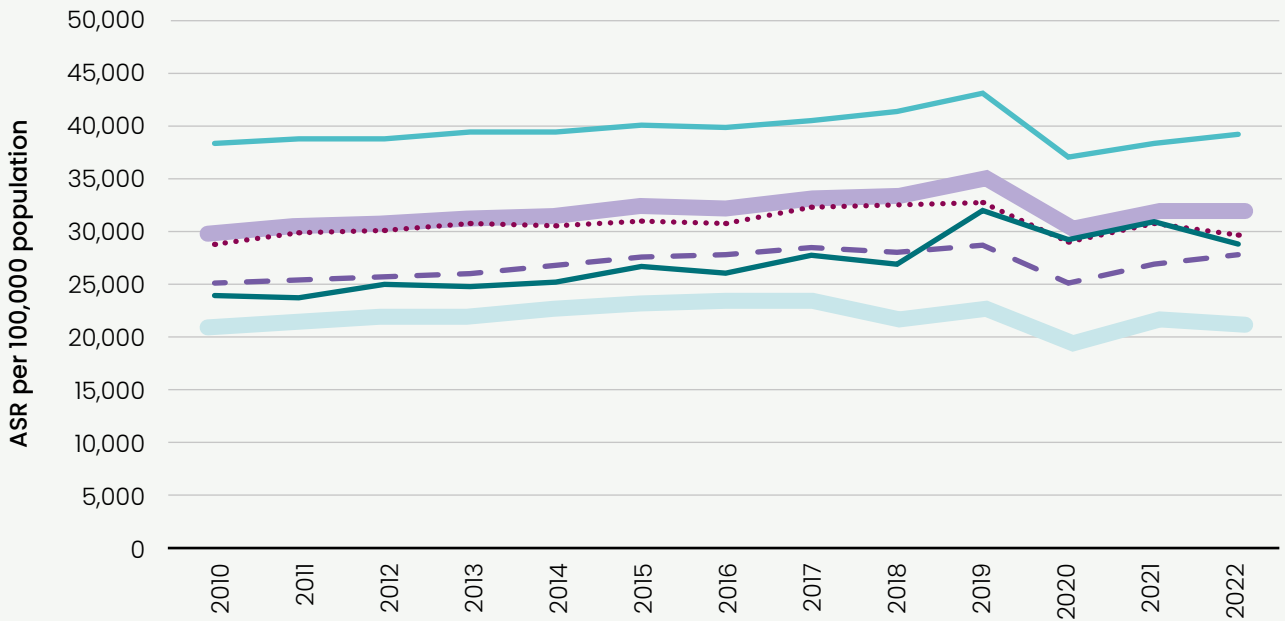
**Te Waipounamu**



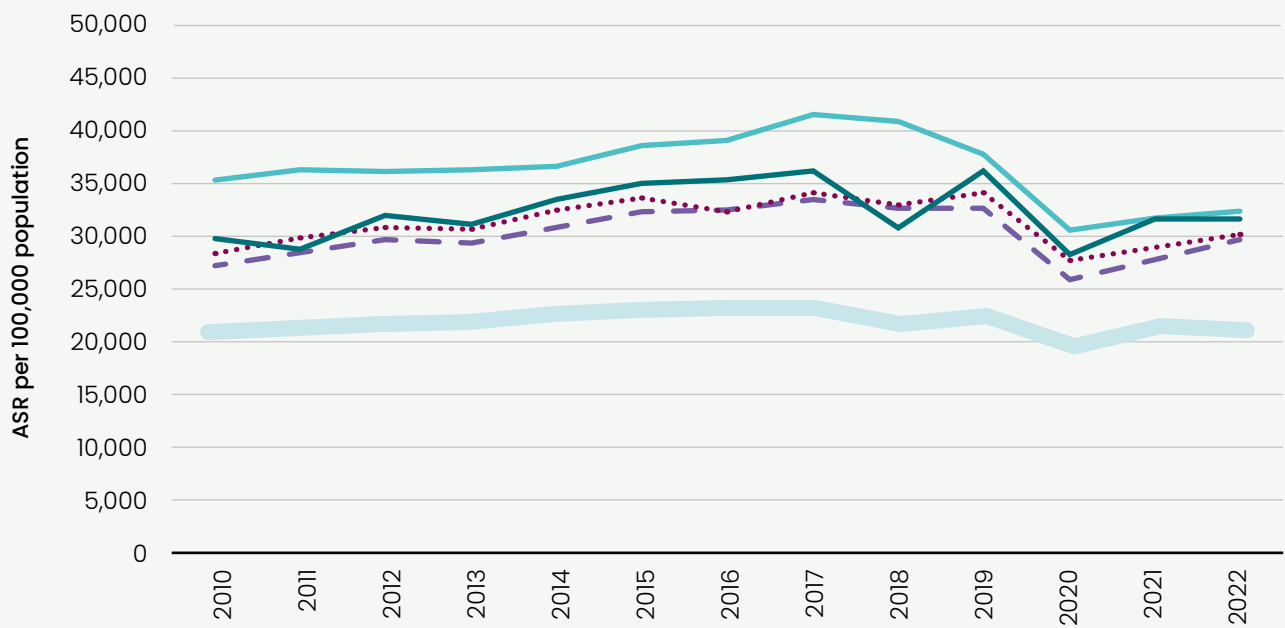
NMNP = non-Māori/non-Pacific  
Source: Ministry of Health national collection (NNPAC)

**Figure 145: Regional emergency department attendances, age-standardised rate per 100,000 population, 2010-2022**

**Māori population**



**Pacific population**



--- NORTHERN    — TE MANAWA TAKI    ... CENTRAL    — TE WAIPOUNAMU    — NZ    — NZ NMNP

NMNP = non-Māori/non-Pacific  
 Source: Ministry of Health national collection (NNPAC)

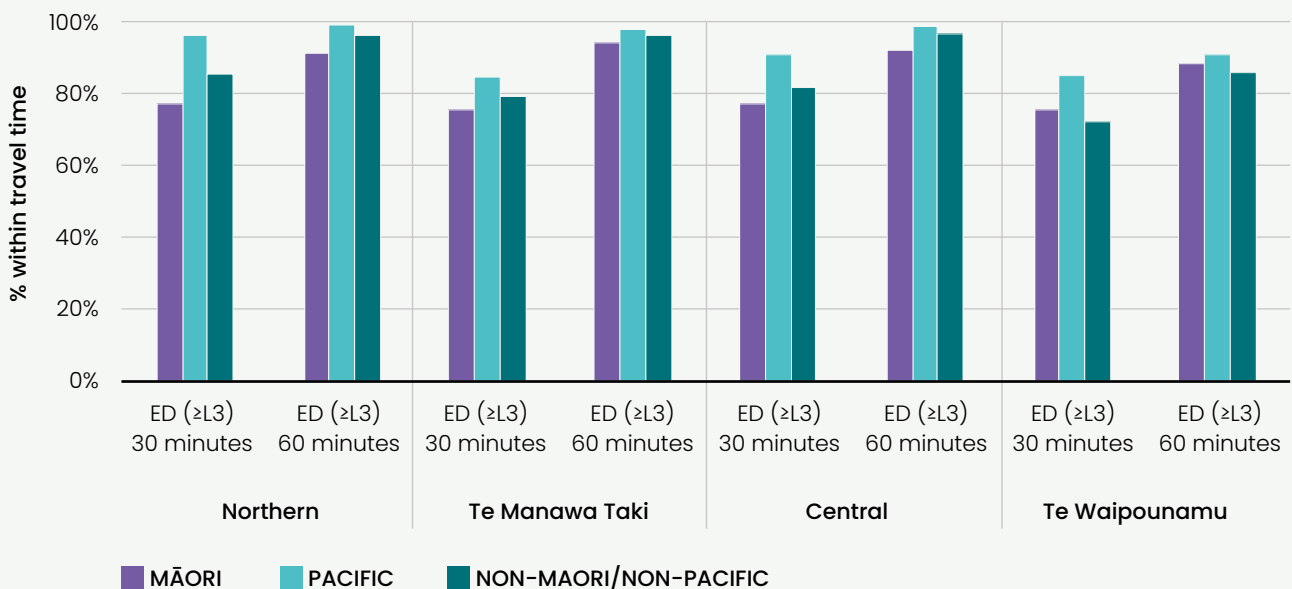
### Travel times to ED

In Aotearoa New Zealand, 80% of the population live within 30 minutes of an ED of level 3 or higher, and 94% live within 60 minutes of one. People in the Northern region are more likely than others to live within 30 minutes of an ED of level 3 or higher (86%) while the corresponding proportion in Te Waipounamu is only 73%. Of the three ethnic groups considered, Māori are more likely to live further from an ED with 76% and 92% within 30 minutes and 60 minutes respectively.

### 7.5.2 Outpatient services

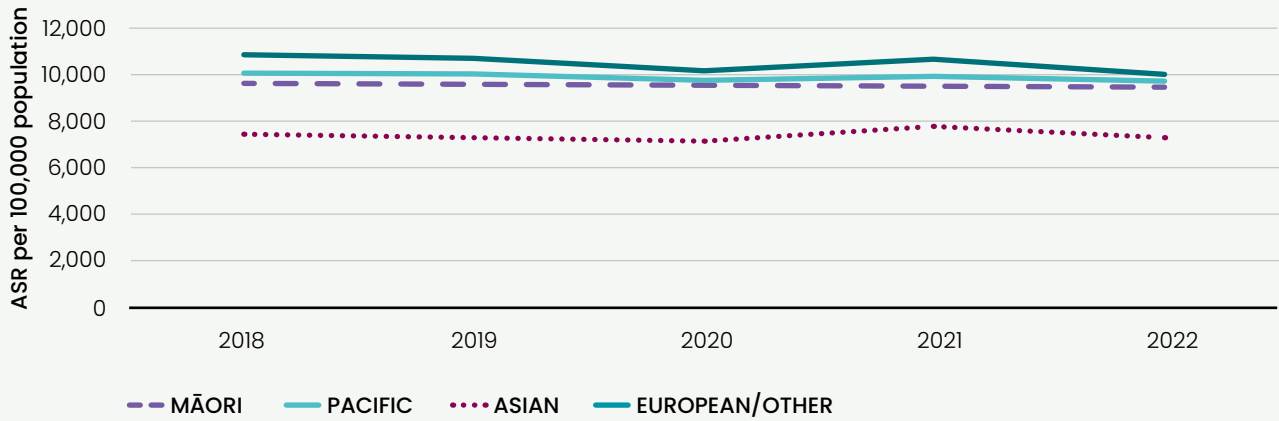
About one in ten people had a first specialist assessment (FSA) in 2022. The age-standardised rate of FSA attendances per 100,000 population was 9,400 for Māori, 9,700 for Pacific people, 7,300 for Asian people and 10,000 for European/Other people. There was a small decrease in FSA rates in 2020 due to COVID-19 lockdowns. By region, for all ethnic groups combined, rates are highest in Te Manawa Taki at 9,525 per 100,000 population and lowest in the Northern region at 9,105 per 100,000 population. When ethnic groups are considered separately, the lowest FSA rates were recorded in Asian people across Aotearoa New Zealand and in each of the four regions. Conversely, European/Other people had the highest rates across Aotearoa New Zealand and in every region except the Northern region where Pacific people had similar rates in 2022.

**Figure 146: Proportion of the population living within 30/60 minutes of an ED of level 3 or higher by ethnicity for each region, 2022/23**

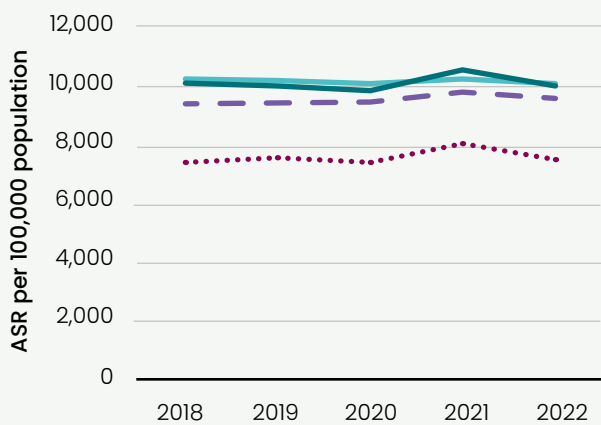


Source: Travel time coverage to public hospitals, prepared by Grant Hanham, Strategy, Planning & Performance, Office of the Chief Executive, Health New Zealand | Te Whatu Ora

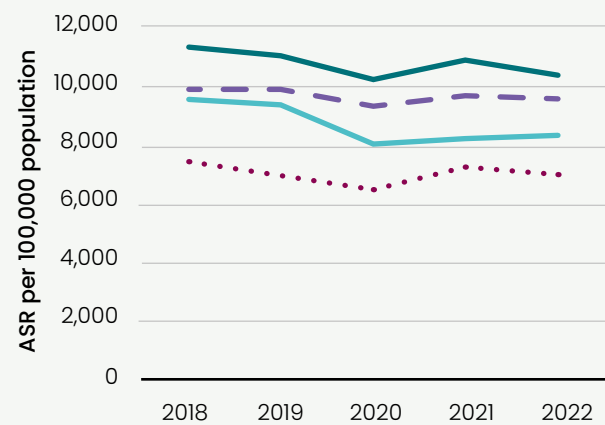
**Figure 147: Patient FSAs by ethnicity, medical and surgical, age-standardised rate per 100,000 population, 2018-2022**



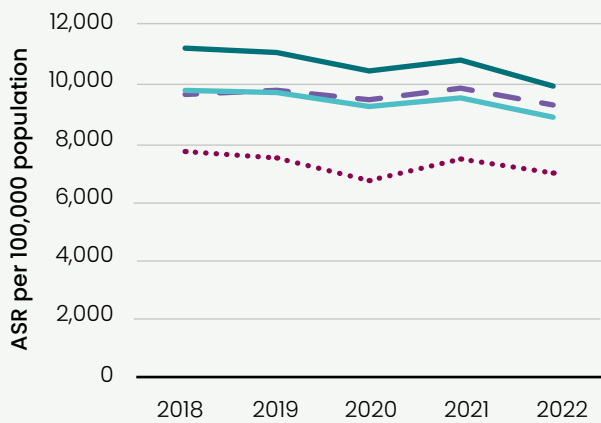
**Northern**



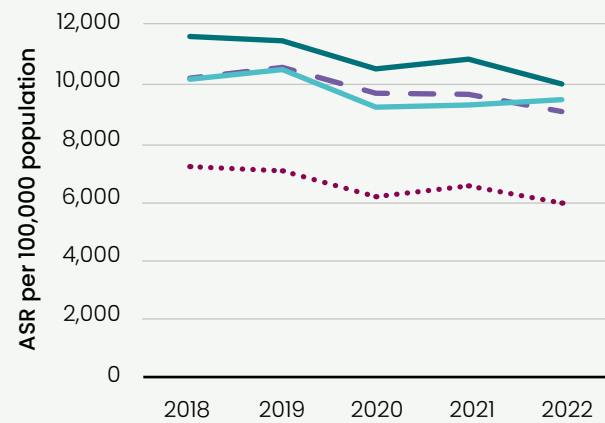
**Te Manawa Taki**



**Central**



**Te Waipounamu**



Note: Canterbury data excluded as FSA recording method was not consistent over this period  
 Source: NNPAC via QLIK, Stats NZ population estimates 2022

### 7.5.3 Admitted patients

In 2022, Aotearoa New Zealand hospitals provided around 2.3 million bed days of service for medical, surgical, maternity and paediatric patients, with an average of 6,300 patients in beds each day. Allowing for time to prepare beds between patients, this required 7,150 staffed beds. There were 400,000 bed days provided during 2022 for mental healthcare (1,100 average daily occupied beds, requiring 1,225 staffed beds) and 419,000 for rehabilitation (1,150 average daily occupied beds, requiring 1,275 staffed beds).

#### Acute admissions

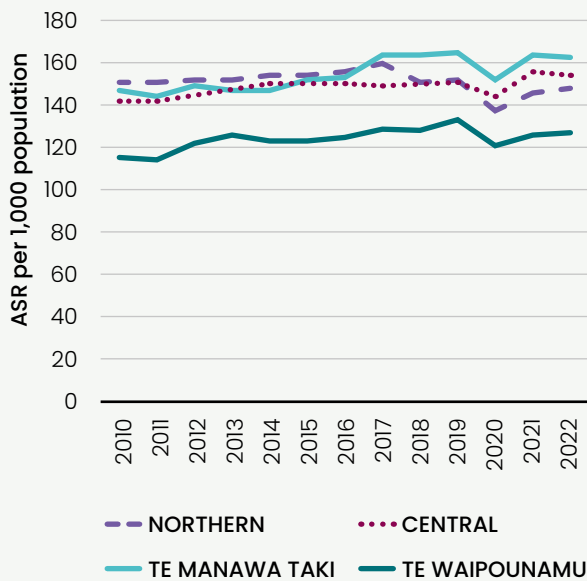
Over the past 12 years, age standardised acute admission (including day case) rates to hospital (per 1,000 population) reached their highest in 2017 and 2019 at 149 per 1,000, with a marked decline in 2020 noted in all regions and then an increase in the years since (145 per 1,000 population in 2022).

Age-standardised rates are higher for females – 167 per 1,000 population versus 130 per 1,000 population for males in 2022.

There was variation by region with Te Manawa Taki recording the highest (163 per 1,000 population) and Te Waipounamu the lowest at 127 per 1,000 population. In 2022 people aged 65 years and over made up nearly 17% of Aotearoa New Zealand’s population but accounted for 36% of acute hospital admissions and 48% of occupied bed days. Conversely, those aged 15 to 24 years accounted for only 9% of all acute admissions. The number of people aged 65 years and over is projected to increase by more than 50% over the next twenty years and this will cause a large increase in demand for hospital beds.

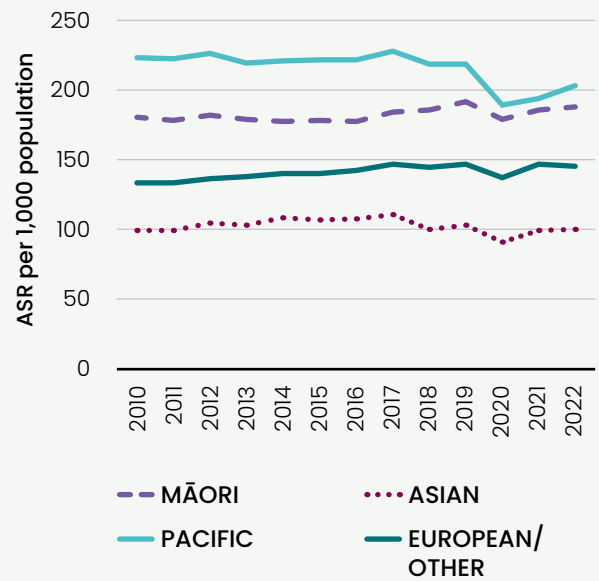
By ethnicity, rates across Aotearoa New Zealand are highest for Pacific people at 203 per 1,000 population (age standardised) and lowest for Asian people at 100 per 1,000 population (age standardised).

**Figure 148: Acute admission rate, all ages, age-standardised per 1,000 population by region, all specialties, 2010-2022**



Source: Ministry of Health national collection (NMDS)

**Figure 149: National acute admission rate, all ages, age-standardised per 1,000 population by ethnicity, all specialties, 2010-2022**



Source: Ministry of Health national collection (NMDS)

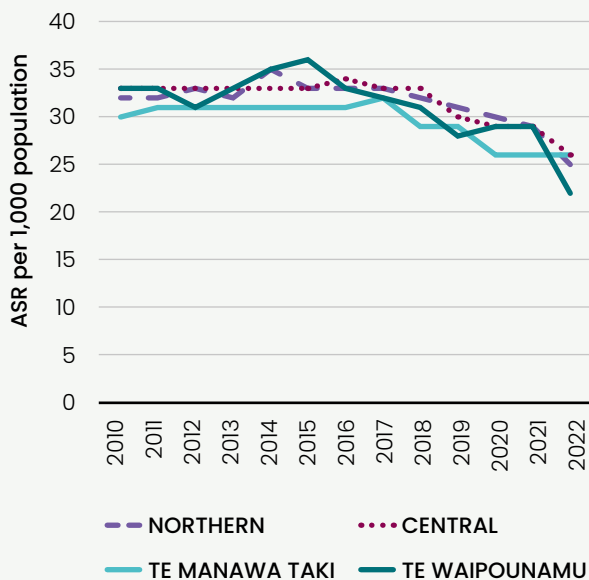
## Elective admissions

The figures for elective admissions exclude patients who funded their own treatment (through insurance or direct payment). Although the population has increased significantly over the period shown, age standardised elective admission (including day case) rates across Aotearoa New Zealand have fallen (32 per 1,000 population in 2010 to 24 per 1,000 population in 2022). Across all ethnic groups in 2022, elective admission rates were highest in Central and lowest in Te Waipounamu. When considered by ethnicity across Aotearoa New Zealand, the largest decline in elective admission rates between 2010

and 2022 has occurred among Māori. Rates are highest for Pacific people at 29 per 1,000 population (age standardised), followed by Māori and rates are lowest for Asian people at 17 per 1,000 (age standardised). Non-acute adult surgery discharge numbers (as well as rates) have declined over time (except for some uplift in 2021). In 2021/22 these were at their lowest in at least the last seven years at around 156,000 across the country.

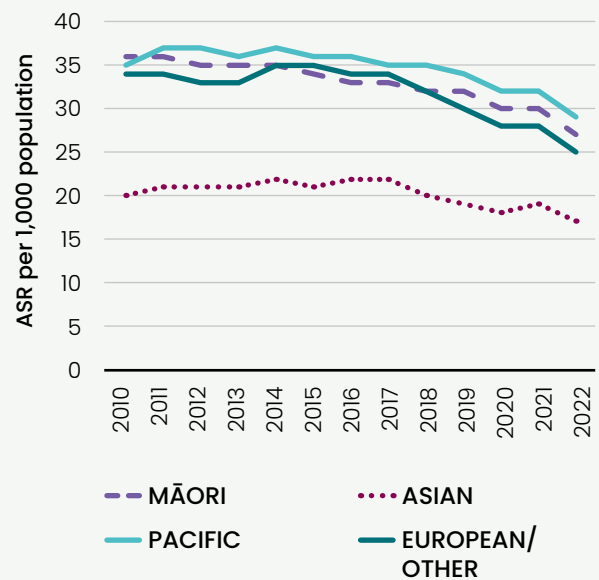
Hospitalisations for medical services are very much dominated by older people, whereas surgical hospitalisation is distributed among different age groups fairly evenly.

**Figure 150: Elective admission rate, all ages, age-standardised per 1,000 population by region, all specialties, 2010-2022**



Source: Ministry of Health national data collection (NMDS) Publicly funded [volumes outsourced to private will be included]

**Figure 151: National elective admission rate, all ages, age-standardised per 1,000 population by ethnicity, all specialties, 2010-2022**



Source: Ministry of Health national data collection (NMDS) Publicly funded [volumes outsourced to private will be included]

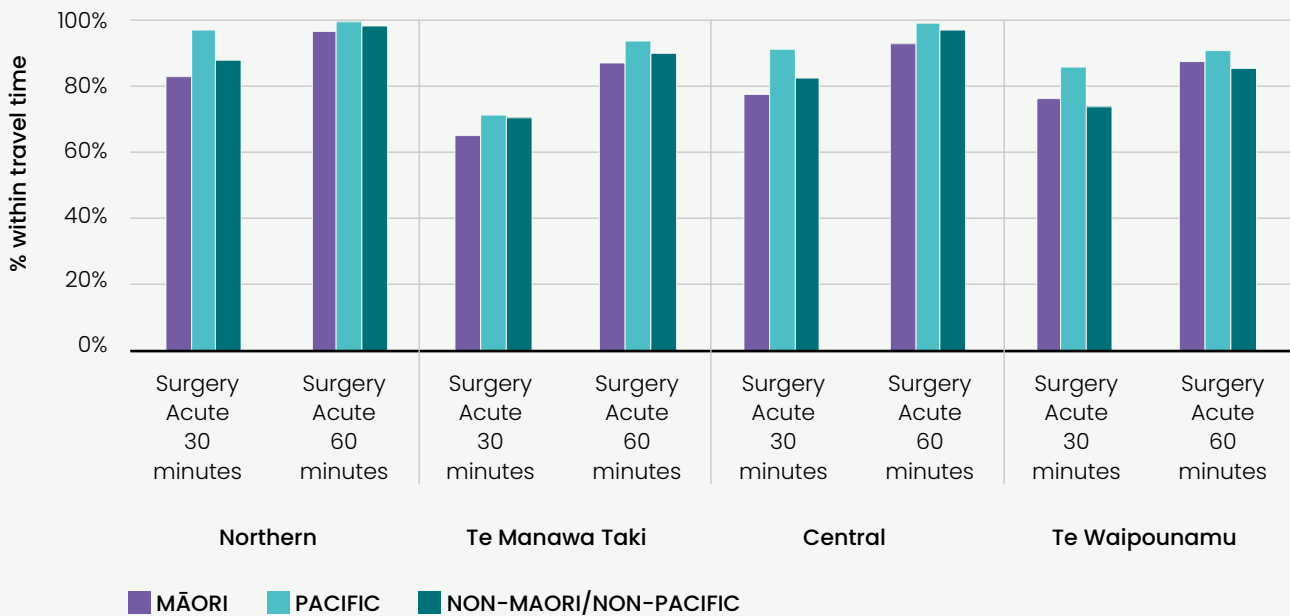


### Travel time to acute surgical services

One limitation of this section is that non-Māori/non-Pacific data have not been further disaggregated to enable presentation of separate data for the Asian group. Across the country, 80% of people live within 30 minutes' travel and 93% live within 60 minutes' travel of a facility offering acute surgical services. This varies across the regions, with only 69% of those living in Te Manawa Taki

and 74% of those living in Te Waipounamu within 30 minutes of these services. Among the ethnic groups considered, the proportion is lowest overall for Māori (75%) with regional variation noted; 83% of Māori in Northern region live within 30 minutes of acute surgical services, but the corresponding proportion is only 65% for Māori in Te Manawa Taki.

**Figure 152: Proportion of the population living within 30/60 minutes of acute surgical services by ethnicity for each region, 2022/23**



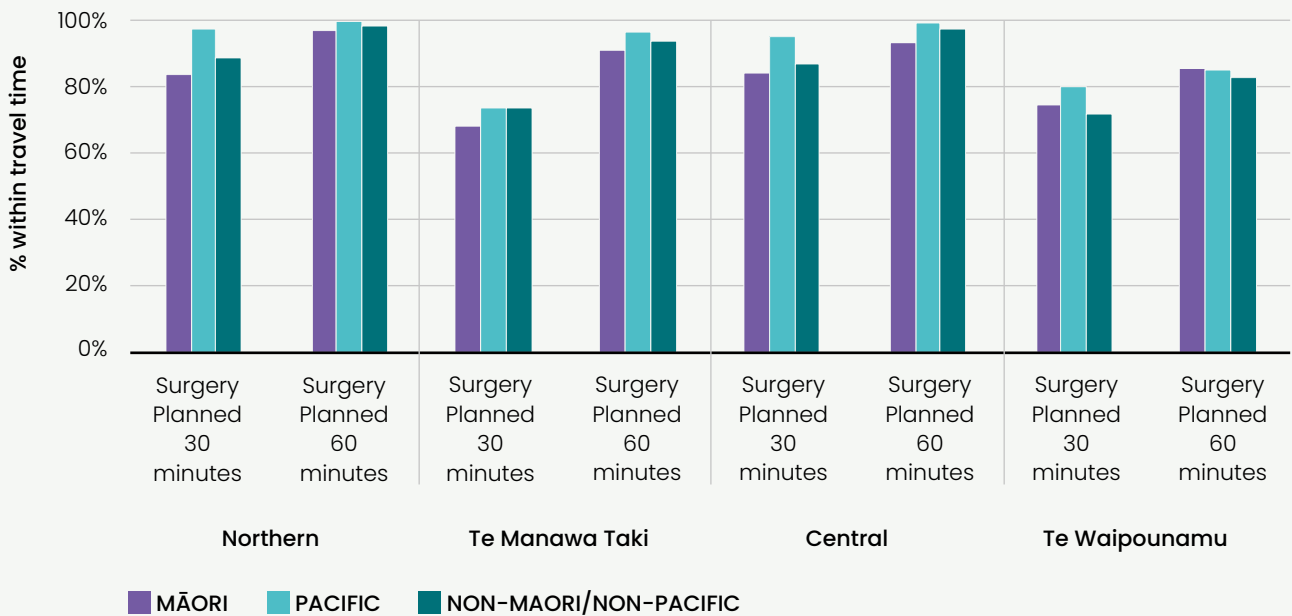
Source: Travel time coverage to public hospitals, prepared by Grant Hanham, Strategy, Planning & Performance, Office of the Chief Executive, Health New Zealand | Te Whatu Ora

### Travel time to planned surgical services

One limitation of this section is that non-Māori/non-Pacific data have not been further disaggregated to enable presentation of separate data for the Asian group. The proportion of the population in 2022/23 living within 30 and 60 minutes of planned surgical services is 81% and 93% respectively and varies across the four regions.

The proportion of people living within 30 minutes of services was highest in the Northern region (89%) and lowest in Te Manawa Taki and Te Waipounamu (72% in each of these regions). For the three ethnic groups considered, the lowest proportion living within 30 minutes of services was recorded among Māori (77% overall with regional variation from 68% in Te Manawa Taki to 84% in Central).

**Figure 153: Proportion of the population living within 30/60 minutes of planned surgical services by ethnicity for each region, 2022/23**



Source: Travel time coverage to public hospitals, prepared by Grant Hanham, Strategy, Planning & Performance, Office of the Chief Executive, Health New Zealand | Te Whatu Ora

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## 7.5.4 Telehealth

Numbers of virtual consults by telephone or internet/video calling increased rapidly during the COVID-19 lockdowns, from 210,000 in 2019 to 613,000 in 2020, and 673,000 in 2022 (Source: NNPAAC). Most people (94%) have access to a mobile phone across Aotearoa New Zealand, including across Māori, Pacific, Asian and European/Other ethnic groups (91-93%). Mobile phone access ranged from 90-95% in all districts throughout the motu apart from the West Coast district; the corresponding proportion in West Coast district was 89% (Census 2018). Less clear is the proportion who have available data/minutes on their phones.

Internet access is available to 90% of people but 13% of the population does not have access to high-speed fibre broadband. Many GPs now also offer phone consultations.

There are several publicly funded 24/7 telehealth services, many operated by Whakarongorau Aotearoa. These include Healthline, Quitline (smoking cessation support), Gambling Helpline and Alcohol Drug Helpline, among others. Whakarongorau Aotearoa responded to 2.55 million contacts nationally (around 950,000 individuals) in the twelve months ending 30 June 2021, an increase of 92% on the previous year.

## 7.5.5 Hospital quality and safety

HQSC works with clinicians, healthcare providers and consumers to improve health and disability services through a range of work, including monitoring and reporting. They provide reports and dashboards on a range of process and outcome measures aimed at driving improvement in the safety and quality of care.

Hand hygiene is a key infection prevention control mechanism and hospital audits reported to HQSC in February 2023 showed that the World Health Organization's '5 Moments for Hand Hygiene' multimodal improvement strategy was adhered to 85% of the time for publicly funded hospital care across the country.<sup>165</sup>

Despite consistent hand hygiene compliance there were still 0.14 cases of healthcare associated Staphylococcus aureus bacteraemia infection per 1,000 bed days.

Reducing harm from falls during hospital admissions is another important area of patient safety. Overall, approximately 1.5% of admissions to hospital for those over 75 years of age are the result of falls and the national rate of in-hospital falls resulting in a fractured neck of femur was 11.1 per 100,000 admissions, which equates to 95 falls, in the year to December 2022. Pressure injuries are a preventable cause of harm and hospitals aim to reduce the occurrence. The national rate was 3.2 hospital-acquired pressure injuries per 100 audited cases.

Surgical site infections are monitored as an outcome measure for appropriate antibiotic surgical preparation. For the year ending March 2022 the rate for Māori of 1.3 per 100 hip and knee procedures was slightly higher than the Non-Māori/Non-Pacific rate of 1 per 100,<sup>166</sup> though actual infection volumes are low by ethnicity. HQSC also has a role in monitoring serious or adverse events that occur in hospitals – any event which has caused harm to consumers or whānau.

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HQSC operates a series of healthcare variation atlases – interactive presentations that include maps, graphs, tables and commentaries that highlight variations by geographic area in the provision and use of specific health services and health outcomes.

One of these atlases focuses on community use of antibiotics. This notes that antimicrobial resistance is emerging as a problem worldwide. Overuse of antibiotics is one of the causes of antimicrobial resistance. In Aotearoa New Zealand, up to 95% of antibiotics are dispensed in the community, suggesting that a focus on promoting appropriate community use is an important way to address antimicrobial resistance. Recent analysis indicates there is likely to be a mix of underuse and overuse of antibacterials relative to health need, particularly in Māori and Pacific people.<sup>167</sup>

Evidence suggests that patient experience is a good indicator of the quality of health services and, therefore, patients that stay overnight in Aotearoa New Zealand hospitals are surveyed about several areas of their in-hospital care, including communication, partnership, coordination and physical and emotional needs. In general Māori patients rated their experience lower than European/Other patients with respect to feeling informed about care, trust in and treatment from staff, though involvement in decision making and communication of treatments were rated similarly. February 2023 surveying reported that individual needs were met for 76% of Māori patients compared with 79% of European/Other patients. Cultural and spiritual needs were met more frequently for European/Other patients than Māori patients (92% versus 80% and 82% versus 79% respectively). Fewer Māori patients

experienced their name pronounced correctly (81%) compared to European/Other patients (91%) and fewer Māori patients reported not being treated unfairly (83% versus 91%). These are similar rates to that seen for primary care (see page 166). Further topics and details on ethnicity and district level results are available through the Adult Hospital Inpatient Experience Explorer.<sup>168</sup>

As outlined in the community services section, patients are also surveyed about their experience of primary care services. One in 4 patients (25%) reported that there had been a time in the last 12 months when they could not get care when they wanted it from a GP or nurse and 83% did manage to see their usual health professional. Approximately four out of five patients were involved as much as they wanted to be in making decisions about their care and their individual needs were met during their consultation. Patients of different ethnicities experience care differently with respect to cultural and spiritual needs, with Māori patients having their needs met less frequently and their name incorrectly pronounced more frequently. Further topics and details on ethnicity and district level results are available through the Adult Primary Care Patient Experience Explorer.<sup>161</sup>

## Section 8

# Data and information sources

This section describes the key data sources used in this report. A number of surveys and studies that are specific to certain sections of the report are described in the relevant section.





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## 8.1 Major data sources

### 8.1.1 Ministry of Health | Manatū Hauora

The Ministry of Health | Manatū Hauora (MoH) manages a number of databases, including the Mortality Data Collection, National Minimum Data Set (NMDS), National Non-Admitted Patient Data Collection (NNPAC), Cancer Registration data collection and Programme for the Integration of Mental Health Data (PRIMHD). All diagnoses are classified according to the International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-AM).

### 8.1.2 Hospital discharge data

The Ministry of Health collects data on every discharge from a public hospital, in a collection called the NMDS. Day cases are included in these data with a general lower bound of three hours' treatment. Otherwise the attendance is considered an outpatient or emergency department (ED) attendance, as below. Hospital data include patients who die in hospital after formal admission. A general issue with using hospitalisation rates for outcome measures is that reductions in such rates can reflect either a real decrease in incidence, improved primary healthcare (thus reducing the need for hospital care), or a decrease in access to, or provision of, hospital services. The relative importance of these factors is often not known. This collection is updated continuously.

### 8.1.3 Outpatient data

The NNPAC provides nationally consistent data on non-admitted patient activity such as ED and outpatients.

### 8.1.4 Mortality data

The mortality statistics maintained by MoH are based on death certificates completed by medical practitioners, post-mortem reports, coroners' certificates, and death registration forms completed by funeral directors. Supplementary data are obtained from a variety of other sources (such as public hospitals and the National Cancer Registry). While the total numbers of deaths are available to 2022, detailed information about causes of death is only complete up to 2018. At time of analysis 2019 and 2020 cause of death data were 99.3% coded, and thus remain provisional. These data were used for some analyses where discernible changes are not expected at the level of aggregation used. Mortality data for three years or five years were used at times to provide sufficient numbers for analysis.

### 8.1.5 Cancer registration data

The National Cancer Registry (NCR) was established in 1948 and is now maintained by MoH. It is a register of people who develop all types of cancer, except basal and squamous cell skin cancers. The Cancer Registry Act 1993 requires all pathology laboratories to supply the National Cancer Registry with a copy of any pathology report with a diagnosis of cancer and related conditions. These data are somewhat older than other NMDS data, but those used are the most recent available.

### 8.1.6 Programme for the Integration of Mental Health Data (PRIMHD)

The information collected by PRIMHD relates to the provision of secondary mental health and alcohol and other drug services, which are funded by the government. Providers include DHBs and, to a limited degree, non-government organisations (NGOs). The collection does not include information on primary mental health services.



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## 8.1.7 The New Zealand Health Survey (NZHS)

This national face-to-face survey was completed each year in 2013/14 to 2021/22. The results for 2017–2020 were combined to give larger samples and more robust information, allowing figures to be provided for individual districts for some measures.

The survey provides information on:

- selected health risk behaviours (e.g. smoking, diet, physical activity, alcohol and drug use)
- the health status of New Zealanders, including their self-reported physical and mental health status and the prevalence of selected conditions, including diabetes
- the utilisation of health services
- several demographic characteristics, such as age, gender, ethnicity and income.

All results by ethnicity in the NZHS are total response, ie if a person states that they identify with more than one ethnicity, they are counted against each of those ethnicities.

The 2021/22 NZHS data collection began at the usual time of year but was disrupted severely due to COVID-19 Delta and Omicron outbreaks throughout the survey year. One result of COVID-19 disruptions for the 2021/22 survey year is a smaller sample size. The adult sample for 2021/22 is about 33% of the size of the usual sample, and the child sample is about 30% of the size of the usual sample (compared with pre-COVID-19 years from 2011/12 to 2018/19). As a result of the smaller sample sizes, the confidence intervals around point estimates are wider than usual. Objective health measurements (height, weight, waist and blood pressure) were not collected in the 2021/22 NZHS.

## 8.1.8 The Quality of Life Survey

This survey was undertaken in 2022 with a sample size of 7,518 adults (aged 18 years and older) across 9 Council areas (Auckland, Hamilton, Tauranga, Hutt, Porirua, Wellington, Christchurch, Dunedin and Greater Wellington regions). The overall response rate was 21%. The information is available by ward, age or ethnicity. Overall results are adjusted at the data analysis stage to reflect the actual population distribution across the eight cities. The survey covers a wide range of questions on topics that are important to wellbeing.

[The Quality of Life Project – Rangahau te Korou o te Ora](#)

## 8.1.9 Virtual diabetes register 2021

The Ministry of Health | Manatū Hauora used data from the community laboratory testing claims system, community pharmaceutical dispensing claims system and from NMDS and NNPAAC to construct an anonymised register of individuals diagnosed with diabetes. This can be used to estimate prevalence of diabetes and methods of management.

## 8.1.10 Census and demographic data

Aotearoa New Zealand conducts a Census of Population and Dwellings every five years. Everyone in the country on Census night, including visitors to the country, must fill out an individual Census form. The 2018 Census had a much lower than expected (88%) and highly uneven response rate across population subgroups. Māori and Pacific people were the worst affected by the low response to the Census. Some missing data were completed through linkage with governmental administrative data sets held by Stats NZ.

After detailed review, each variable was rated for quality, ranging from poor to very high. In this report we have noted where data quality was rated as less than high. The latest census from which data are available was carried out in March 2018, from which the estimated resident population is derived (ERP).

The Aotearoa New Zealand Census collects limited health information but contains much social and economic information that was useful in describing the factors that determine health. In addition, the Census forms the basis for determining Aotearoa New Zealand populations when calculating rates. Note however there is a mismatch between the ethnicity collected on the NHI and used in health data sets and that estimated through the ERP. Care is needed when establishing which denominators to use.

The 2022 set of population projections used here is based on the 2018 census. Projections are made based on assumptions about a number of factors, including migration, fertility and mortality. This set was specifically produced for the Manatū Hauora | Ministry of Health and uses assumptions agreed to by the Ministry of Health | Manatū Hauora and is a 'medium' projection. The assumptions include updated projections of migration post-COVID-19. Projections should be viewed as guidelines rather than exact forecasts.

### 8.1.11 Birth registrations

This includes all live and still birth registrations from Births, Deaths, and Marriages.

## 8.1.12 Health Quality and Safety Commission

Produces a range of information, reports and dashboards focusing on healthcare quality and safety.

### **Atlas of Healthcare Variation:**

The Atlas concentrates on individual conditions and clinical groups, highlighting variation in order to stimulate discussion about differences in practice and the improvement actions required to reduce variation where it is unwarranted.

### **Quality and Safety Markers:**

These markers are a mix of process and outcome measures focused on driving improvement for four key safety priorities: falls, healthcare associated infections, surgical harm and medication safety. The markers do this through setting expected levels of improvement, public reporting of progress against these thresholds and supporting links to accountability mechanisms.

### **Health Quality and Safety Indicators:**

This relatively small set of summary indicators is organised to cover an internationally recognised range of aspects of quality – safety, patient experience, effectiveness, access/timeliness, efficiency and equity. The data are presented for the country as a whole and show changes over time.

### **Prevention quality indicators:**

The prevention quality indicators are a set of measures which, when combined with hospital in-patient discharge data, reveal meaningful information about the quality of care for ambulatory sensitive conditions.

[Health Quality & Safety Indicators | Health Quality & Safety Commission \(hqsc.govt.nz\)](https://www.hqsc.govt.nz/health-quality-and-safety-indicators/)

[Inpatient explorer](#)

[Primary Care explorer](#)

[Survey results | Health Quality & Safety Commission \(hqsc.govt.nz\)](https://www.hqsc.govt.nz/survey-results/)<sup>169</sup>

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## Section 9

# Technical Appendices

### Appendix

1. Ethnicity	202
2. Life expectancy	204
3. Canadian housing standard definition	204
4. Cancer five-year survival	204
5. Rurality	205
6. Self-rated health (OECD)	205
7. Disability	206
8. Disability funding	207
9. Global Burden of Disease measures	208
10. Potentially avoidable mortality and life expectancy gap decomposition	208
11. Infant mortality SIDS/SUDI definition	211
12. Age standardisation	211
13. Virtual Diabetes Register (VDR)	212
14. IPCC and Paris Agreement	212
Abbreviations	213
Glossary	214





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## Appendix I: Ethnicity

Ethnicity is not the same as race.

Ethnicity is a measure of cultural affiliation. It is not a measure of race, ancestry, nationality, or citizenship. Ethnicity is self-perceived and people can belong to more than one ethnic group.

An ethnic group is made up of people who have some or all of the following characteristics:

- a common proper name
- one or more elements of common culture, for example religion, customs, or language
- unique community of interests, feelings, and actions
- a shared sense of common origins or ancestry, and
- a common geographic origin.

(Stats NZ <https://www.stats.govt.nz/topics/ethnicity> accessed 11/10/23)

By contrast, race is a biological, not cultural, categorisation and describes physical traits.

In the 18th and 19th centuries European thinkers assumed the world's known diverse populations could be classified as 'races'. Marked by perceived physical differences, races were believed to have unalterable social and psychological characteristics. These ideas supported hierarchical notions of European (white Caucasian) superiority over other races.<sup>170</sup>

Twentieth-century advances in scientific knowledge, particularly about genetics, challenged racial explanations for human diversity. Most social and physical scientists now argue that 'races' are socially rather than biologically constructed. Ideas about race emerge in particular times and places. They reflect subjective beliefs about perceived differences rather than inherent distinctions.

Ethnicity is self-identified, and people can choose more than one ethnicity. The distribution shown for population counts is based on prioritised ethnicity, where we count each person against

only one ethnic group. Prioritisation is based on the Health and Disability Ethnicity Data Standards.<sup>171</sup> Apart from population totals based on the Census and provided by Stats NZ, most ethnicity data used in this document are sourced from the national NHI database. NHI ethnicity has known misclassification,<sup>172</sup> but is still considered the best source of ethnicity data of available health related datasets.

The ethnicity data standards set out standard questions for collecting the ethnicity of a person, and protocols for classifying the data. The classification system is a hierarchical structure with four levels. Level one has six categories and a residual category. Level two has 21 categories and six residual categories. Level three has 36 categories and six residual categories. Level four has 180 categories and six residual categories. Level one categories are: 1 European; 2 Māori; 3 Pacific People; 4 Asian; 5 Middle Eastern/Latin American/African; 6 Other Ethnicity; 9 Residual Categories. A person's response to a question about their ethnicity will initially be coded to a level 4 category, and aggregated to higher levels depending on the requirement.

In the 2018 Census, 11% of people identified with more than one ethnicity. Among those with prioritised ethnicity of Māori, 54% identified with another ethnicity as well; for 80% of these people, the other ethnicity mentioned was European.

For those mentioning Pacific ethnicity, 65% identified as Pacific only, while 18% identified as Māori also (including those who mentioned other ethnicities as well) and hence their prioritised ethnicity is counted as Māori. A further 13% identified as Pacific and European.

For much of this report we use prioritised ethnicity, in other words we count each person only once, and percentages total to 100%. Exceptions are information from the NZ Health Survey (where all data are only reported by Total Response ethnicity, i.e. respondents are counted against each ethnicity that they mention) and some information from the Census.

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In most cases we have reported against four ethnic groups: Māori, Pacific, Asian and European/Other people. This last category includes every group EXCEPT for those identifying as Māori, Pacific or Asian. It includes Middle Eastern, Latin American and African (MELAA), NZ European, Other European, Residual categories, Unknown, Unspecified, Not Stated.

Ethnicity data recording for Māori: the way ethnicity data are collected can have important impacts on the number of people identified as Māori and the number of people reported to have multiple ethnicities. Ethnicity data protocols have been in place for the health sector for nearly 20 years, and it is the responsibility of the entire health system to collect, record and report ethnicity data in the ways set out in those protocols. However, despite that, Māori continue to be systematically undercounted. A recent study showed that one in five Māori (21%) were not identified as Māori on the National Health Index (NHI) when compared to self-identified ethnicity recorded on the Census. The quality of ethnicity data is worse for Māori males than Māori females, and is particularly poor for those aged 20-24 years, where the NHI misses 30%, or almost one in three Māori.<sup>7</sup>

In 2020 Stats NZ identified that Māori had been undercounted by 7% (50,000) in the 2013 Census and issued revised population figures back to 2006.<sup>173</sup>

### **Appendix 1.1: Pacific people and Asian ethnic sub-groups**

Research has found that people of Indian ethnicity have a greater tendency to diabetes, CVD and poorer maternity outcomes. For the virtual diabetes register and the maternity indicators, data are now presented separating Indian from other Asian subgroups. But in most sections of this document, ethnic-specific data are reported for the Asian group as a whole rather than for Asian sub-populations. The denominator population for some of the ethnic-specific results in these sections is the Stats NZ Estimated Resident Population (ERP) and population projections, and Stats NZ does not routinely provide ERP or population projection estimates using prioritised ethnicity for Asian sub-groups. At minimum, it would be desirable if ERP or population projections were available for Level 2 prioritised ethnicity groups as this would enable results for Indians (who represent around 90% of South Asians in New Zealand) and Pacific sub-population groups to be reported; availability of routinely collected health data and ERP or population projections for Level 4 prioritised ethnic groups would allow results for South Asian and Pacific sub-groups to be presented.

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## Appendix 2: Life expectancy

The Chiang II method of constructing life tables is widely used internationally and has been validated for use with smaller population groups. These methods use abridged life tables, which aggregate deaths and population level data into age groups (in contrast with complete, national-level life tables which analyse mortality by year of age). Age-specific mortality rates are calculated for each age interval and are then used to calculate the probability of dying in each age interval. The calculated probabilities are subsequently applied to the hypothetical birth cohort.

## Appendix 3: Canadian housing standard definition

The Canadian National Occupancy Standard (CNOS)<sup>174</sup> assesses the bedroom requirements of a household based on the following criteria:

- There should be no more than 2 persons per bedroom;
- Children less than 5 years of age of different sexes may reasonably share a bedroom;
- Children 5 years of age or older of opposite sex should have separate bedrooms;
- Children less than 18 years of age and of the same sex may reasonably share a bedroom; and
- Single household members 18 years or older should have a separate bedroom, as should parents or couples.

### Context:

Using this measure, households that require at least one additional bedroom are considered to experience some degree of overcrowding.

## Appendix 4: Cancer five-year survival

Calculated using the cohort method, ethnic specific life tables and the Pohar Perme Estimator method.

## Appendix 5: Rurality

In the rurality section, we have used the Geographic Classification for Health to measure rurality. This differs from the classifications of rurality used by Stats NZ. For a full definition and discussion see Whitehead, J. et al (2021). The Geographic Classification for Health, Methodology and classification report.<sup>22</sup>

The GCH is based on thresholds related to population size, and drive time to urban centres.

The GCH is a useful tool for identifying rural populations and estimating rural-urban differences in health outcomes that can inform the development of rural health policies. It has not been designed to uncritically guide health policy and funding decisions. It is not a formula for distributing health resources or funding, nor is it an index of healthcare accessibility or workforce shortage. Additional data and local knowledge are crucial when making policy or funding decisions. This could include: the distribution of population sub-groups; the locations of health services and workforce shortages; and the distribution of the social determinants of health.

## Appendix 6: Self-rated health (OECD)

How individuals assess their own health provides a holistic overview of both physical and mental health. Adding such a perspective on quality of life complements life expectancy and mortality indicators that only measure survival. Further, despite its subjective nature, self-rated health has proved to be a good predictor of future healthcare needs and mortality.<sup>175</sup>

**Table 14. The Geographic Classification for Health**

SSGA18 URBAN CATEGORY	GEOGRAPHIC CLASSIFICATION FOR HEALTH				
	URBAN		RURAL		
	URBAN 1 (U1)	URBAN 2 (U2)	RURAL 1 (R1)	RURAL 2 (R2)	RURAL 3 (R3)
Major urban (Population ≥100,000)	≤25 min		>25–≤60 min	>60–≤90 min	>90 min
Large urban (30,000–99,999)		≤20 min	>20–≤50 min	>50–≤80 min	>80 min
Medium urban (10,000–29,999)			≤25 min	>25–≤60 min	>60 min
Small urban (1,000–9,999)				≤25 min	>25 min

Source: New Zealand Medical Journal 2022 Aug 5; 135 (1559)

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## Appendix 7: Disability

The disability section reports data from the New Zealand Disability Survey (NZDS), the Census and the NZ Health Survey. The New Zealand Disability Survey uses a detailed set of questions, while the Census and NZHS use the Washington Group Short Set (WGSS) on Functions. Below is a discussion of the differences.

“Finding the best way to identify disabled people in data is complex. There is no single group in a population that might be called the true ‘disabled’ population, as membership of this group depends on what definition is used and how it is applied. How we choose to set a threshold between disabled and non-disabled people depends on many factors, but a key factor is the reason for which the data is being collected.”

The WGSS was developed by the Washington Group on Disability Statistics (<http://www.washingtongroup-disability.com/about>) (WG) for use in a national census or in household surveys that are not specifically about disability, and where only a small number of additional questions can be used. The WGSS was not designed to produce comprehensive counts of disabled people.

*The WG focused on measuring difficulty functioning in six basic, universal actions (capabilities) that, in an unaccommodating environment would place an individual at risk of restricted social participation. ...the task then is in data analysis to determine whether persons identified with difficulties or limitations in these basic actions have participation rates equal to those without limitations. (WGSS, 2020)*

When using the WGSS, disabled people are identified as those who have a lot of difficulty, or cannot do at all, at least one of six specified activities. These activities are seeing (even with their glasses), hearing (even with their hearing aid), walking or climbing stairs, remembering or concentrating, self-care, and communicating.

The official disability prevalence rate for New Zealand requires a more comprehensive count of disabled people than is provided by the WGSS. We use a disability-specific survey for this called the New Zealand Disability Survey (NZDS). The group of people identified as ‘disabled’ by the WGSS will always be smaller than the official estimate of the disabled population. The last NZDS in 2013 (Stats NZ, 2014) gave a disability prevalence rate for adults in private households that was 4 to 5 times the prevalence rates derived from the WGSS in the surveys used in this report. This is because:

- the NZDS included more functional domains with which people may have difficulty
- the NZDS counted as disabled all people who reported difficulty in at least one functional domain no matter how slight that difficulty may have been (as noted above, using the WGSS, people must report having more than ‘some difficulty’ in at least one domain to be counted as disabled).<sup>176</sup>

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## Appendix 8: Disability funding

The health sector funds support services, which are not directly clinical services, for people with disabilities. While this is not directly relevant to a health needs assessment, it is relevant to health service delivery and it is helpful to understand the challenges presented to disabled people by multiple sources of support funding.

The funding of support services, as opposed to medical services, for people with disability is complex as there are four main funding streams.

1. ACC funds support services for people who are disabled due to injury including medical care, personal cares, household help and equipment. ACC also funds economic support, for example for loss of income. However, ACC does not directly record whether a client is disabled or not and so the number supported is not clear.
2. The Ministry of Health funds a range of Disability Support Services (DSS). These are available to people who have a physical, intellectual or sensory disability (or a combination of these) which:
  - is likely to continue for at least 6 months
  - limits their ability to function independently, to the extent that ongoing support is required.

These are mainly younger people under the age of 65 years.

3. The Ministry will also fund disability support services (DSS) for people with:
  - some neurological conditions that result in permanent disabilities
  - some developmental disabilities in children and young people, such as autism spectrum disorder
  - physical, intellectual or sensory disability that co-exists with a health condition and/or injury.
4. The Ministry does not generally fund disability support services for people with:
  - personal health conditions such as diabetes or asthma
  - mental health and addiction conditions such as schizophrenia, severe depression or long-term addiction to alcohol and drugs
  - conditions more commonly associated with ageing such as Alzheimer's disease.

<https://www.whaikaha.govt.nz/assessments-and-funding/how-to-access-support>

Health New Zealand | Te Whatu Ora funds support for people aged over 65 years as well as services for people aged under 65 years needing long-term support or with chronic health conditions not funded by the Ministry of Health Disability Support Services.



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## Appendix 9: Global Burden of Disease measures

The Global Burden of Disease Study<sup>50</sup> uses the idea of health loss to measure the impact of illness, disability and early death. Health loss is measured in disability-adjusted life years (DALYs), which is the sum of non-fatal health loss (years lived with disability, adjusted for severity) and fatal health loss (years of life lost due to early death). One DALY represents the loss of one year of life lived in good health.

## Appendix 10: Potentially avoidable mortality and life expectancy gap decomposition

In order to assess the impact of potentially avoidable causes of death on the life expectancy gap, the Arriaga method – a life table decomposition technique accounting for both age and cause of death – is employed. The analyses and calculations are based on official death data from the Health New Zealand I Te Whatu Ora mortality collection, while population data are derived from official Statistics New Zealand population estimates.

The analysis hinges on the principal underlying cause of death classification, which simplifies the reality that multiple factors can contribute to a single death. This may result in an underestimation of the effects of prevalent conditions associated with numerous causes of death.

Causes of death are divided into 50 potentially avoidable conditions. Avoidable deaths encompass those deemed amenable to high-quality healthcare, preventable through public health interventions, or both. A comprehensive list of these conditions, along with their corresponding ICD codes, is provided at the end of this document.

**Table 15. Disease groupings and their ICD10 codes**

CATEGORY	CAUSE <sup>1</sup>	ICD10 CODES <sup>2</sup>	AMENABLE <sup>3</sup>	PREVENTABLE
<b>Avoidable Cancers</b>	Colon and Rectum	C18 – C21	●	●
	Female Breast	C50	●	●
	Liver	C22		●
	Melanoma	C43	●	●
	Oesophagus	C15		●
	Bone and Cartilage	C40 – C41	●	
	Cervical	C53	●	●
	Uterine	C54 – C55	●	
	Testis	C62	●	
	Thyroid	C73	●	
	Hodgkin Lymphoma	C81	●	
	Acute Lymphoblastic Leukaemia (ages 0–44)	C91.0	●	
	Lip, Oral Cavity and Pharynx	C00–C14		●
	Mesothelioma	C45		●
	Prostate	C61	●	●
	Stomach	C16	●	●
Trachea, Bronchus, Lung	C33 – C34		●	
<b>Avoidable Chronic and Cardiovascular diseases</b>	Cerebrovascular Disease	I60 – I69	●	
	Coronary Disease	I20 – I25	●	●
	Diabetes	E10 – E14	●	●
	Hypertensive Diseases	I10 – I13	●	
	Pulmonary Embolism	I26	●	●
	Atrial Fibrillation and Flutter	I48	●	
	Heart Failure	I50	●	
	Aortic Aneurysm	I71		●
	Peptic ulcer	K25 – K27	●	
	Cholelithiasis	K80	●	
	Renal Failure	N17 – N19	●	
Valvular Heart Disease	I01, I05 – I09, I33 – I37	●		
<b>Avoidable Infant and Maternal</b>	Complications of Perinatal Period	P01 – P03, P05 – P94	●	
	Cardiac Septal Defect	Q21	●	
	Complications of Pregnancy	O00 – O96, O98 – O99	●	

CATEGORY	CAUSE <sup>1</sup>	ICD10 CODES <sup>2</sup>	AMENABLE <sup>3</sup>	PREVENTABLE	
<b>Avoidable Infections</b>	TB	A15, A16, A17, A18, A19, B90	●	●	
	Meningococcal	A39	●		
	Pneumococcal	A40.3, G00.1, J13	●		
	Hepatitis C	B171, B182	●	●	
	HIV/AIDS	B20 – B24	●	●	
<b>Avoidable Injuries</b>	Land Transport	V00, V01-V04, V06-V14, V16-V24, V26-V34, V36-V44, V46-V54, V56-V64, V66-V74, V76-V79, V80.0-V80.5, V80.7-V80.9, V82-V86, V87.0-V87.5, V87.7-V87.9, V88.0-V88.5, V88.7-V88.9, V89, V98-V99 (all ages)	●	●	
		Other Injuries	Other Accidental – W00 – X59 (excluding W00 – W08, W18) (all ages)		●
		Accidental Falls on Same Level – W00 – W08, W18 (all ages)	●	●	
		Fire: X00-X09 (all ages)	●	●	
		Treatment injury: Y60 – Y82 (all ages)	●	●	
		Homicide and Assault: X85 – Y09 (all ages)	●	●	
		Suicide	X60 – X84 (all ages)	●	●
	<b>Avoidable Respiratory</b>	COPD	J40 – J44	●	●
		Pneumonia	J12 – J18	●	
		Asthma	J45 – J46	●	
Influenza		J09 – J11	●	●	
<b>Avoidable substance Use</b>	Alcohol	F10, G312, G621, I426, K292, K70, K73, K741, K742, K746, K747, K748, K749, K860		●	
<b>Non-Avoidable</b>	Non-Avoidable	All other deaths not listed in the above in all age groups			

1. Groups used in cause-specific decomposition.
2. Includes all deaths in those aged 0-74 unless stated otherwise
3. Amenable deaths have been aligned with definition published by the Ministry of Health in July 2016

## Appendix 11: Infant mortality SIDS/SUDI definition

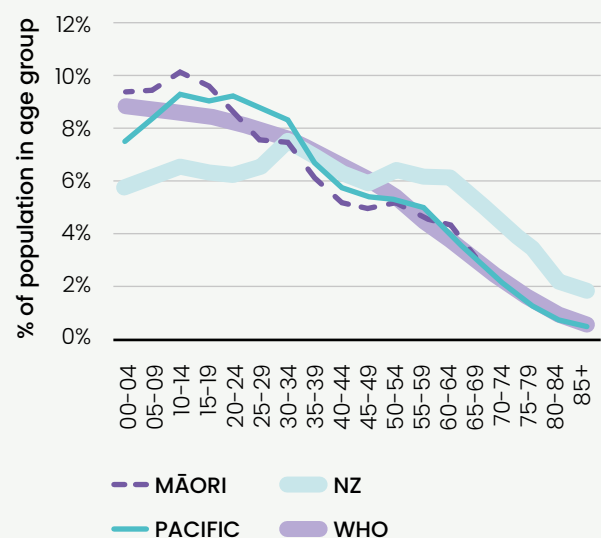
Sudden infant death syndrome (SIDS): Includes all deaths with ICD-10 code R95 (sudden infant death syndrome) recorded either as the underlying cause of death or as a contributing cause. See SIDS rate for more information. SIDS data presented in these tables are limited to deaths in those aged <1 year.

Sudden unexpected death in infancy (SUDI): Includes deaths with the following ICD-10 codes recorded as the underlying cause of death: R95 (sudden infant death syndrome), R96 (other sudden death, cause unknown), R98 (unattended death), R99 (other ill-defined and unspecified causes of mortality), W75 (accidental suffocation and strangulation in bed), W78 (inhalation of gastric contents), and W79 (inhalation and ingestion of food causing obstruction of respiratory tract). SUDI data presented in these tables are limited to deaths in those aged <1 year.

## Appendix 12: Age standardisation

We age-standardise to the WHO standard population in five-year age bands from 0 to 84 and 85+. We use the direct standardisation method. The WHO standard population is closer to the Māori and Pacific population age distributions than it is to the overall NZ age distribution.

**Figure 154: Comparison of age structures, Māori, Pacific people, NZ with WHO standard population, 2022/23**



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## Appendix 13: Virtual Diabetes Register (VDR)

The VDR uses an algorithm to identify people suspected of having diabetes, based on use of diabetes-related health services i.e. diabetes-related inpatient and outpatient hospital services or a diagnostic code of diabetes on any inpatient event, laboratory tests ordered by GPs, and dispensing of medications from community pharmacies.

For prevalence estimates, the numerator is people suspected of having diabetes who were alive and enrolled in a PHO and the denominator is people who were alive and enrolled in a PHO.

## Appendix 14: IPCC and Paris Agreement

The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change. It prepares comprehensive Assessment Reports about the state of scientific, technical and socio-economic knowledge on climate change, its impacts and future risks, and options for reducing the rate at which climate change is taking place.

The Paris Agreement is an international treaty on climate change. Adopted in 2015, the agreement covers climate change mitigation, adaptation, and finance. The Paris Agreement was negotiated by 196 parties at the 2015 United Nations Climate Change Conference near Paris, France. As of February 2023, 195 members of the United Nations Framework Convention on Climate Change (UNFCCC) are parties to the agreement. Of the three UNFCCC member states which have not ratified agreement, the only major emitter is Iran. The United States withdrew from the agreement in 2020, but rejoined in 2021.

The Paris Agreement's long-term temperature goal is to keep the rise in mean global temperature to well below 2°C above pre-industrial levels, and preferably limit the increase to 1.5°C, recognising that this would substantially reduce the effects of climate change. Emissions should be reduced as soon as possible and reach net zero by the middle of the 21st century. To stay below 1.5°C of global warming, emissions need to be cut by roughly 50% by 2030. This is an aggregate of each country's nationally determined contributions.

# Abbreviations

<b>ACC</b>	Accident Compensation Corporation	<b>ICD</b>	International Classification of Diseases
<b>AIDS</b>	Acquired immunodeficiency syndrome	<b>IDI</b>	Integrated Data Infrastructure
<b>ARC</b>	Aged residential care	<b>IPMHA</b>	Integrated Primary Mental Health and Addiction
<b>ARF</b>	Acute rheumatic fever	<b>LE</b>	Life expectancy
<b>ASH</b>	Ambulatory sensitive hospitalisations	<b>LMC</b>	Lead maternity carer
<b>ASR</b>	Age standardised rates	<b>MELAA</b>	Middle Eastern, Latin American and African
<b>B4SC</b>	Before School Check	<b>MOH</b>	Ministry of Health
<b>BMI</b>	Body mass index	<b>NGO</b>	Non-government organisations
<b>CALD</b>	Culturally and linguistically diverse	<b>NHI</b>	National Health Index
<b>CI</b>	Confidence interval	<b>NMDS</b>	National Minimum Dataset
<b>CNOS</b>	Canadian National Occupancy Standard	<b>NNPAC</b>	National Non-Admitted Patient Data Collection
<b>COHS</b>	Community Oral Health service	<b>NSU</b>	National Screening Unit
<b>COPD</b>	Chronic obstructive pulmonary disease	<b>NZ</b>	New Zealand
<b>COVID</b>	Coronavirus disease	<b>NZDEP</b>	New Zealand Deprivation Index
<b>COVID-19</b>	Coronavirus disease 2019	<b>NZDS</b>	New Zealand Disability Survey
<b>CVD</b>	Cardiovascular disease	<b>NZHS</b>	New Zealand Health Survey
<b>DALY</b>	Disability-adjusted life years	<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>DHB</b>	District Health Board	<b>PAH</b>	Potentially avoidable hospitalisations
<b>DMFT</b>	Decayed, missing or filled teeth	<b>PHO</b>	Primary health organisation
<b>DSM-5</b>	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition	<b>POTS</b>	Postural orthostatic tachycardia syndrome
<b>DSR</b>	Directly standardised mortality rate	<b>PRIMHD</b>	Programme for the Integration of Mental Health Data
<b>ED</b>	Emergency department	<b>RHD</b>	Rheumatic heart disease
<b>ERP</b>	Estimated Resident Population	<b>RSE</b>	Recognised Seasonal Employer
<b>FSA</b>	First specialist assessment	<b>SIDS</b>	Sudden infant death syndrome
<b>FTE</b>	Full-time equivalent	<b>STI</b>	Sexually transmitted infections
<b>GBD</b>	Global Burden of Disease	<b>SUDI</b>	Sudden unexpected death in infancy
<b>GCH</b>	Geographic Classification to Health	<b>TA</b>	Territorial authority
<b>GP</b>	General practitioner	<b>TB</b>	Tuberculosis
<b>HAPINZ</b>	Health and Air Pollution in NZ	<b>TIA</b>	Transient ischaemic attack
<b>HCSS</b>	Home and community support services	<b>VDR</b>	Virtual Diabetes Register
<b>HIV</b>	Human immunodeficiency virus	<b>WCTO</b>	Well Child/Tamariki Ora
<b>HNA</b>	Health Needs Assessment	<b>WHO</b>	World Health Organization
<b>HPV</b>	Human papillomavirus		
<b>HQSC</b>	Health Quality and Safety Commission		



# Glossary

<b>Aotearoa</b>	traditional name now commonly used as a Māori name for New Zealand
<b>hapū māmā</b>	pregnant mother
<b>hauora</b>	health
<b>Hauora a Toi Bay of Plenty</b>	Bay of Plenty
<b>hinengaro</b>	psychological
<b>iwi</b>	tribe
<b>karakia</b>	blessing or prayer
<b>kaupapa</b>	plan, principle, philosophy
<b>Kianga</b>	speaking, phrase
<b>mana Māori</b>	integrity
<b>mana motuhake</b>	Māori self-determination
<b>mana tangata</b>	Health sector
<b>marae</b>	courtyard in front of a traditional meeting house
<b>marae tipuna</b>	ancestral marae
<b>mātauranga</b>	Māori knowledge system
<b>motu</b>	island, country, land, nation
<b>pēpi</b>	baby
<b>rangatahi</b>	youth
<b>ritenga</b>	customary rituals
<b>tamariki</b>	children
<b>Tangata whaikaha</b>	disabled people
<b>Te Aka Whai Ora</b>	Māori Health Authority
<b>Te Ao Māori</b>	the Māori world
<b>Te Marau a Māui</b>	Hawke's Bay

<b>Te Pae Hauora o Ruahine o Tararua</b>	MidCentral
<b>Te Pae Tata</b>	Aotearoa NZ Health Plan
<b>Te Reo Māori</b>	the Māori language
<b>Te Tai o Poutini West Coast</b>	West Coast
<b>Te Tai Tokerau</b>	Northland
<b>te taiao</b>	environments
<b>Te Tiriti o Waitangi</b>	New Zealand's foundation document
<b>Te Toka Tumai</b>	Former Auckland DHB
<b>Te Whatu Ora</b>	Health New Zealand
<b>tikanga</b>	correct procedure
<b>tinana</b>	physical
<b>tino rangatiratanga</b>	Māori authority, sovereignty, self-determination, autonomy, absolute control
<b>wairua</b>	spirit
<b>wairuatanga</b>	spirituality
<b>whakahaere</b>	governance
<b>whānau</b>	family
<b>whanaungatanga</b>	relationship, kinship, sense of family connection

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